

TAC ATTACK

JULY 1980



Garra



READINESS IS OUR PROFESSION



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Angle of Attack

WHEN YOU'VE DONE ALL YOU CAN... GET OUT !

There is a disturbing similarity among many of our recent mishaps—the aircrew didn't make it out. Either the aircrew attempted ejection out of the envelope, or there wasn't any attempt at all. Aircraft accidents are a continuing reminder of the extreme hazards of operating tactical aircraft. We don't like to lose aircraft—but the loss of an aircrew who had the capability of saving their lives is tragic and unjustifiable.

Many years and countless hours of human effort have been expended designing and developing parachutes, ejection systems, and other life support equipment with one purpose—saving the aircrew. We now have some of the best ejection equipment in the world—but it isn't magic. It can't save your life if it is used too late or not used at all.

Why do people fail to make a timely decision to eject? No one knows. Pride, disorientation, channeled attention, misperceptions, and fear are some factors which may explain a person's failure to eject. The desire to "save" a multi-million dollar air machine is real, but it must not

interfere with the decision to save your life. There is no stigma to saving one's own life!

If you're an aircrew member, refamiliarize yourself with your ejection procedures, system capabilities, and minimum altitudes. If your aircraft is multi-place, make certain all crewmembers understand completely the ejection/bailout procedures. Flying supervisors should make this subject a continuing item of discussion—it cannot be overemphasized.

Your aircraft can be your best friend—and your worst enemy. If it turns on you and you've done all you can—get out!

Richard K. Ely

RICHARD K. ELY, Colonel, USAF
Chief of Safety

A BOOT FULL OF RUDDER

By Lt Jimmy Carter
356 TFS

"Nice shot lead." Stopped him in his tracks...I'll get the next mover...slight bump. Push over aim a little high, got a left crosswind too...track-shoot-track. Saw sparks-off with the ZSU break...back into the weeds. Whoops, got a Master Caution Light. The Hog's pulling to the left. Level off and climb with a boot full of right rudder. "Wart 41 knock it off...got my left engine windmilling, let's head for the divert base...."

"Well another single engine in the Warthog—seems to happen a lot—got to be careful so this thing doesn't depart on me."

Our friend sure has his hands full, working a high threat mission and now he's got an IFE—a single engine Warthog. There has been much discussion recently about the single engine flight in the A-10. Two accidents, several incidents and the bevy of safety sups, Dash One changes, and FCIFs that followed are prime examples. The following discussion is one person's attempt to consolidate some of the available information and offer one opinion on the departure modes of the A-10.

First of all, the track record of the TF-34 engine and the A-10 has been good. But there have been many occasions when a pilot has



found himself single engine. Let's look at some statistics. Of the first eighty reported single engine incidents:

- Fifty resulted in single engine landings.
- Of the fourteen that flamed-out because the aircraft was flown out of the envelope, ten were successfully restarted. Most of these occurred during early test flight when the envelope was purposely explored.
- Six were listed as possible gun gas ingestion including the double engine flame-out while testing a different bullet.
- Of the mechanical or maintenance related incidents:
 - Ten were due to fuel control.
 - Fifteen were due to structural failure and subsequent FOD.
 - None were attributed to bird strikes.
 - Over twenty were due to some sort of oil pressure problem, including six incidents of improperly or nonsecured oil caps.
- Only two incidents involved use of the fire T handle and only one of those was due to fire. The engine has burned on occasion, but shutting off the throttle is usually enough to put out the fire.
- None flamed-out from ice ingestion, although blade damage has occurred.
- Five happened in the traffic pattern or

while configured for landing.

- Only two required stores to be jettisoned (9 MK-82 inerts/2 fuel tanks).

From this data some trends can be seen. The TF-34 is resistant to fire, ice, birds, and gas. It needs oil, proper maintenance on the ground, and pilot attention in the air when operating at the outer edge of the envelope. In addition, if you lose an engine you have close to a fifty-fifty chance of restarting it, depending on the malfunction. More successful restarts could have occurred if the engine had been cooled properly and the caution related to the automatic start systems observed. That is, keeping the throttle out of idle position (e.g., off) so as not to provide fuel and ignition inadvertently to an engine that is overheated. This is nice to know information if you're sitting around the coffee bar and happen to be discussing the pro's and con's of TF-34 reliability with your flight commander. But Wart 42 will need some information about how to get home with a single engine, not why he got one.

Well, he still has over fifty miles to go until he lands. He's got the right throttle at max, and he's climbed to a safe altitude. He paddles off the SAS, goes to crossfeed, and pulls the emergency brake handle. While he starts the APU, lead has declared the emergency for him and is getting out the checklist to discuss the options. Wart 42 has things under control; and if he flies the bird correctly, he won't be concerned about the possibility of a departure.

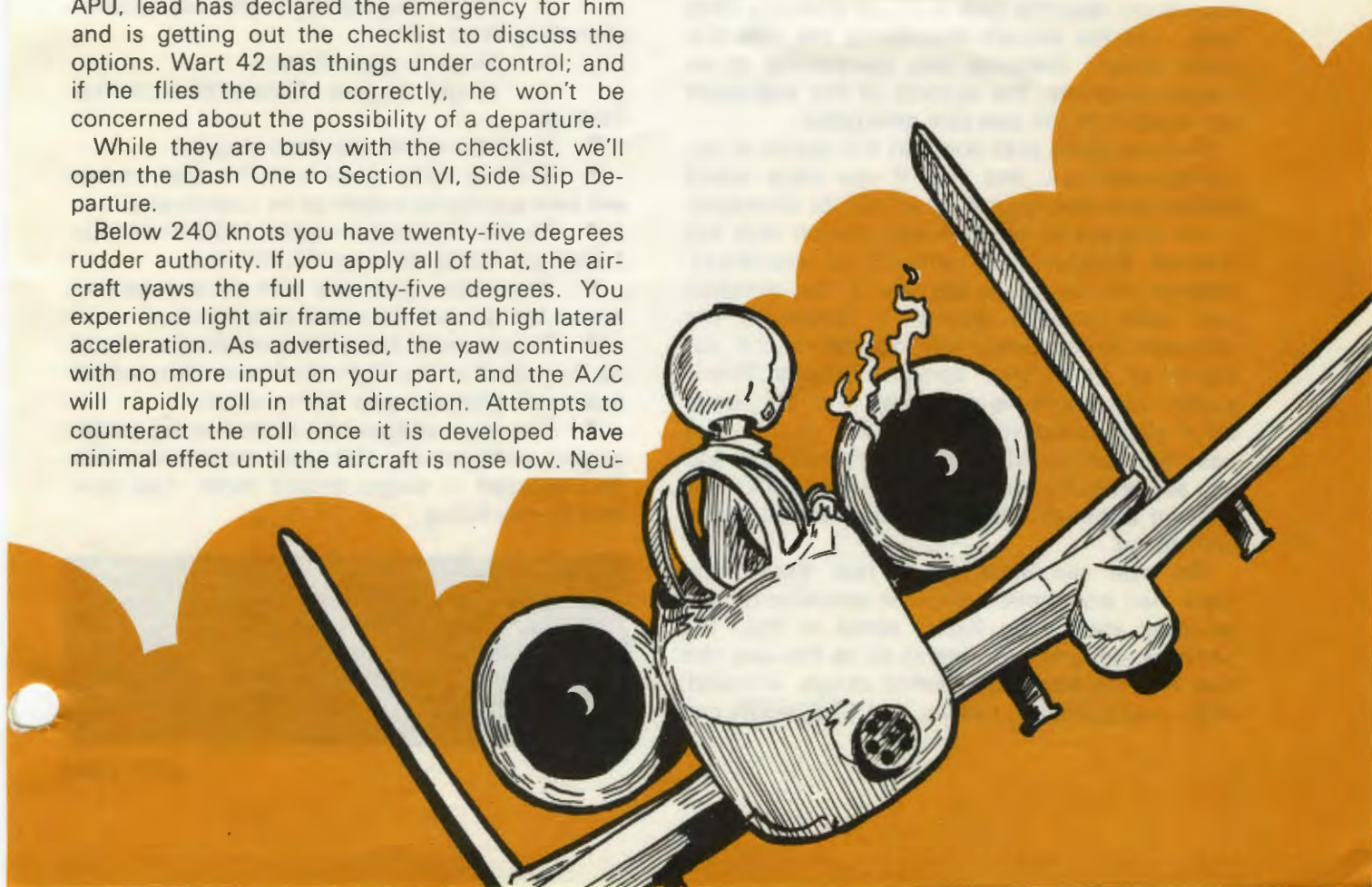
While they are busy with the checklist, we'll open the Dash One to Section VI, Side Slip Departure.

Below 240 knots you have twenty-five degrees rudder authority. If you apply all of that, the aircraft yaws the full twenty-five degrees. You experience light air frame buffet and high lateral acceleration. As advertised, the yaw continues with no more input on your part, and the A/C will rapidly roll in that direction. Attempts to counteract the roll once it is developed have minimal effect until the aircraft is nose low. Neu-

tralize the control and the A-10 is flying again, but you will probably have to recover from a nose low attitude. All this occurs below stall AOA. Above that, the aircraft might spin but more than likely it just stalls and reacts as depicted in Section VI of the Dash One.

This is not a mysterious aerodynamic phenomenon, nor is it a case of stalling the in-board wing. The secondary effect of rudder or yaw is roll. This is much more pronounced in swept wing aircraft than in a straight wing aircraft like the A-10. Our roll is produced by the slight positive dihedral of the wing when yaw is produced. It becomes a departure because the amount of yaw necessary to cause the rapid roll-off may not be commanded by the pilot.

So what's this got to do with single engine flight? The two single engine Class A mishaps which occurred in the A-10 are very similar to each other and are basically side slip departures. Both aircraft generated an uncorrected yaw rate (mainly from improperly coordinated thrust) which enabled the aircraft to overshoot into the region of uncommanded yaw. This yaw overshoot, transient or divergence (however you label it), is much like the side slip departure



A BOOT FULL OF RUDDER

described earlier. That is, for whatever aerodynamic reason, the yaw continues, insufficient rudder authority is available to counteract it, and in fact, opposite aileron actually increases the side slip because of adverse yaw. The important thing for Wart 42 and all of us to remember is that the yaw that was generated in both accidents was the result of pilot inputs.

This is how it could happen. Because of asymmetric thrust and the corresponding drag of a dead engine, the aircraft will seek a certain side slip angle if not corrected for by rudder into the good engine. Asymmetric stores may add or subtract some amount to the side slip angle the aircraft will seek, as will the offset nose gear when the gear is down. An increase in angle of attack decreases airspeed and also increases the side slip angle sought. Obviously, if you release some of all of the correcting rudder while slightly increasing the AOA, you will generate a yaw rate in the direction of the dead engine.

Your SAS kicks off at this time and adds a yaw transient as mentioned in the Dash One SAS discussion. Now the SAS is off, as it should have been, and the aircraft overshoots the side slip angle sought (because yaw dampening is no longer available). The severity of this overshoot will depend on the yaw rate generated.

This overshoot puts you into the region of uncommanded yaw and roll. If you have speed brakes extended, your roll rate will be increased. If you attempt to roll out with aileron only (no Aileron Rudder Interconnect is available), adverse yaw increases the yaw in the direction you were already going. In addition, the decrease in airspeed has decreased the authority of all of your control surfaces. Briefly stated, you may have generated enough yaw to do a slow speed rudder roll. But you do not have enough control authority to roll out, and you are probably aggravating the yaw with these roll out attempts. All of this occurs well above stall speed.

The side slip departure is real. Early flight tests, two accidents, computer simulations, and accident verification flights attest to this. The common denominator seems to be the yaw rate that is generated. Asymmetric thrust, airspeed, AOA, configuration, rudder, and SAS inputs can

all contribute to an undesirable side slip that would allow the A-10 to roll. Further research is necessary to isolate the specific aerodynamic characteristic of this departure.

But for the present time Wart 42 and the rest of us Hog drivers need to refamiliarize ourselves with the basics of single engine flight in an aircraft that does not have center line thrust. As the pilot, you have control over the elements essential to safe single engine flight: airspeed, AOA, configuration, and especially rudder. The description of the departure in this article would be academic if proper rudder were used.

The Dash One states that at least half rudder down to stall speed is necessary for coordinated flight with gear down and no flaps. It may take up to 180 pounds of pedal force to achieve that much rudder depending on airspeed and how much side slip angle the aircraft is attempting to seek. This may mean engaging the good yaw channel to give you ten degrees of rudder trim. So regardless of airspeed configuration of AOA, center the ball!

Here are some other things you can do:

- Read the Dash One (A safety supplement to the Dash One contains the best discussion available on single engine flight characteristics).
- Know the checklist procedures cold.
 - Single Engine Flight (Already accomplished by Wart 42.)
 - Single Engine Restart.
 - Single Engine Failure/Fire During Take-off.
- Avoid turns into the dead engine.
- Shallow turns, away from the dead engine will take additional rudder to be coordinated.
- Fly the checklist airspeed. (150 knots plus 1 knot per 1,000 lbs have 30,000 lbs)
- Remember, your day isn't done once you are on the ground. Be aware of hot brakes.
- Temperature and pressure altitude should be discussed in the flight brief when they would make safe single engine flight critical.
- Use your imagination in discussing single engine emergencies. Use your head when you find yourself in single engine flight. Use your foot to stay flying.

Our lead art for this article is courtesy of Mr. Hank Caruso, an engineer with the Westinghouse Electric Corporation, Defense and Electronic Systems Center. The pilot, Horatio Hogbreath, and the aircraft caricature are his creations. Incidentally, the translation of the Latin loosely speaking is— "There's a little Warthog in all of us."

AIRCREW OF DISTINCTION



555 TFTS/405 TTW
Luke AFB, AZ

On 8 April 1980, Capt James E. Reed, flight lead, and Lt Col Kristian M. Mineau, number three, departed Luke Air Force Base on an ACM-2 mission. Shortly after takeoff, during the initial turn for join up, a violent explosion shook Lt Col Mineau's F-15. Capt Reed noticed a gray-white stream of smoke trailing from Lt Col Mineau's aircraft and initiated a rejoin. Number two in the flight was directed to proceed to the working area.

Immediately after the explosion, the engine instruments in Lt Col Mineau's aircraft indicated normal operation. Throttles were reduced on both engines with no response from the left engine. The left throttle was placed at idle; however, engine RPM continued to indicate 94 percent and FTIT stayed at 900 degrees as the oil pressure dropped to zero. Lt Col Mineau shutdown his left engine, and Capt Reed confirmed the gray-white smoke was coming from the left engine. As engine RPM decreased to zero, sparks started shooting out from the underside of the damaged engine.

Lt Col Mineau had no cockpit indication of the fire and relied on Capt Reed for information about the intensity of the fire. Discharging the fire extinguishing agent had no effect on what now was an engine fire trailing ten feet of flame behind the aircraft.

Reducing gross weight for an emergency landing was the next course of action. Both aircraft were now on outside downwind over the emergency jettison range. Capt Reed vectored Lt Col Mineau to a position over the range that allowed the centerline tank to be jettisoned. The flight then turned to setup on base for a ten mile final.

Time was now critical, and Lt Col Mineau flew a 300 knot base to an eight-mile final to retain sufficient airspeed to zoom the aircraft for ejection and to keep the flames from moving forward. It was agreed to use an approach and arrestment to quickly stop the aircraft for the fire equipment. Turning final, the flames stopped and only a trail of gray-white smoke remained. The aircraft was

slowed and configured on short final and landed for a perfect arrestment.

Lt Col Mineau's superb flying skill and Capt Reed's outstanding flight leadership combined to prevent possible loss of life and prevented further damage to the aircraft. Their professional handling of a serious emergency qualifies them for the Tactical Air Command Aircrew of Distinction Award.



Capt James E. Reed



Lt Col Kristian M. Mineau

TIPS

When a man has not a good reason for doing a thing,
he has one good reason for letting it alone.

Thomas Scott

I'm tough. I can take it!

The *T-Bird* was flying a ground radar evaluation mission with a pilot and flight surgeon on board. After a normal takeoff, the aircraft climbed to FL 310. During the mission, cabin altitude varied between 21,000 and 24,000 ft. After 25 minutes of flight, the flight surgeon complained of feeling dizzy and warm. At the pilot's suggestion, he selected 100% oxygen and began to feel better.

Forty-five minutes into the mission, increasing discomfort was felt by the passenger. The pilot directed him to check all connections and return to 100%. He also asked the flight surgeon if he should declare an emergency and abort the mission. The surgeon asked to continue.



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

Soon, pain radiated from both shoulders to the elbows. Pain increased in intensity and within five minutes, tightness of the chest developed. As the chest pains overshadowed the shoulder pain, the passenger asked the pilot to descend. The pilot requested a descent from the controlling agency. Since this would invalidate the mission, a discussion followed delaying the clearance to descend.

Meanwhile, back in the rear cockpit, any attempt at breathing, other than very shallow, inadequate respiration caused choking and coughing. The passenger felt very weak, in a cold sweat, and about to lose consciousness. Due to his problems, he also had difficulty communicating his discomfort to the pilot.

Once the descent started, the flight surgeon began to feel better. He was much improved as cabin altitude reached 10,000 ft and all symptoms disappeared by the time of landing except fatigue and mild chest discomfort.

The flight surgeon classified his problems as decompression sickness, distinct from any of his hypoxia symptoms. Since the problem cleared before landing, attending medical personnel were unable to provide any additional information.

Early in the mission, the pilot was ready to declare an emergency; but the passenger talked him out of it, assuring him the problem was minor. Once the flight surgeon began to have real problems, he was unable to communicate them to the pilot.

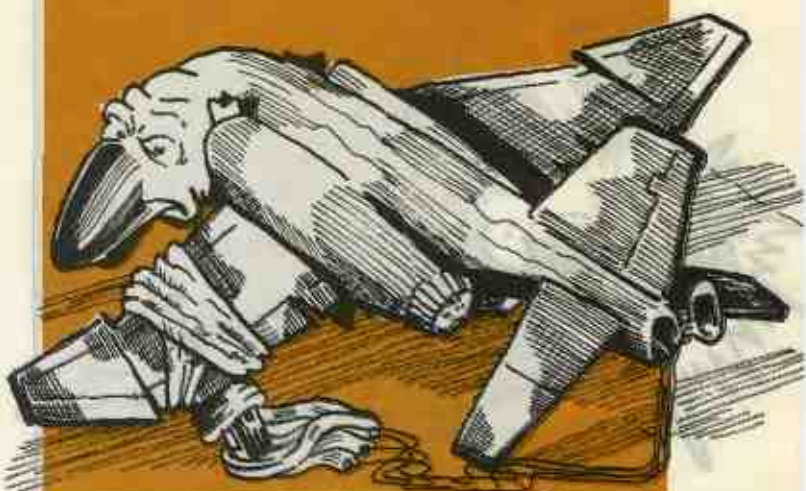
Anyone who is having physiological problems may not be the best judge of his or her own condition. If you know, or even suspect someone in your airplane is experiencing physiological problems, you have one choice—declare an emergency, descend, and land at the nearest field where suitable medical help is available—it's that simple.

Snag!

The *Phantom* driver was returning from an air defense mission and had completed a normal landing. During the taxi back, the pilot didn't jettison his chute immediately because of the winds gusting to 30 knots. When he decided to jettison the chute, the pilot elected to drop it into the wind to keep it away from the aircraft parking ramp.

The pilot tried three times to inflate the chute. On the third attempt to inflate and jettison the chute, the wind collapsed the chute and wrapped it around the left wing. The pilot elected to taxi to the ramp and have maintenance remove the chute. When turning into the parking area, the chute became entangled in the left gear, drawing the risers tight and damaging the left aileron.

The F-4 Dash 1 states the drag chute jettison should not be attempted into more than 15 knots of wind. That is considerably less than



what was blowing this day. For all you folks who use your drag bag, watch out for mother nature when she decides to blow things around, that you don't get all tangled up...



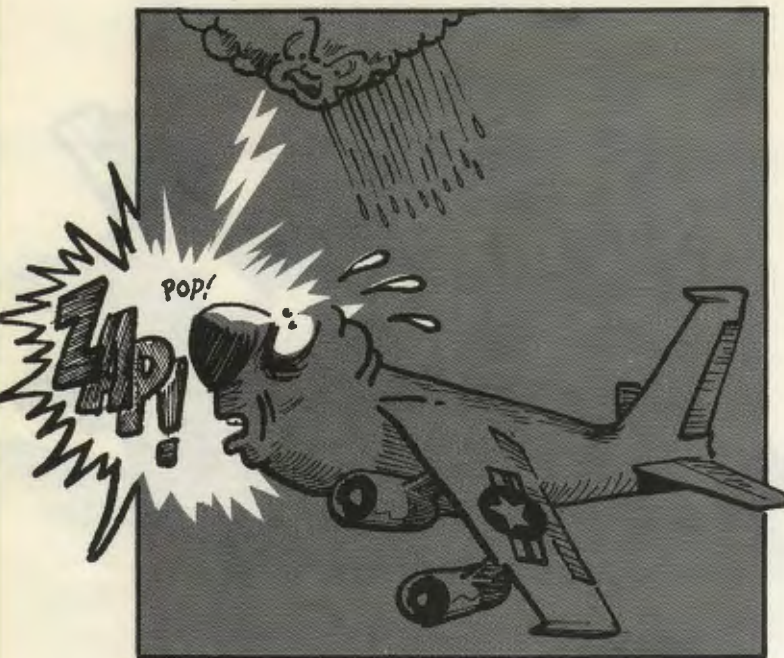
Savoir Faire

If you don't know what that means, I can't help you. However, the ultimate in *savoir faire* occurred a few months ago...

An F-4 belonging to one of our allies had landed and was turning off the runway onto a taxiway. When the front seater opened his canopy, it was jettisoned, followed by the inadvertent ejection of both crew members. Luckily, both of them landed safely.

The plane continued to roll to the edge of the taxiway, at which time, the pilot after a safe descent, ran to the aircraft, climbed aboard, and shut down the engines!

TAC TIPS



Zap!

Rainshowers don't have to have anvil tops and be as dark as the inside of a derby to cause you problems. As a matter of fact, an EC-135 was motoring along recently and approached a small rainshower which wouldn't even paint on their airborne radar.

Shortly after entering the shower, they heard a "pop" and saw a flash off the nose of the aircraft. During postflight, the minor damage from a lightning strike was confirmed.

This summer, while you're avoiding the big ones, watch out for their little brothers—they can trip you up too!

Cockpit FOD

Again in another command, the mission for the F-4 was originally scheduled as a chase on a low level to an RBS delivery for a mission qualification check. When the lead aircraft aborted and the RBS site closed, the prebriefed, alternate mission was flown. The mission included advanced handling, acro, and instruments. Recovery and landing were uneventful. After the engines were shutdown and the canopies were opened, the crew chief discovered the KB-25/A Optical Sight Camera Dummy Magazine (dust cover) wedged between the front cockpit canopy actuator rod and the front cockpit ejection seat mounted initiator firing link and the rear portion

of the banana links. Now what might have happened if the banana links had rotated a bit? We were really lucky on this one!

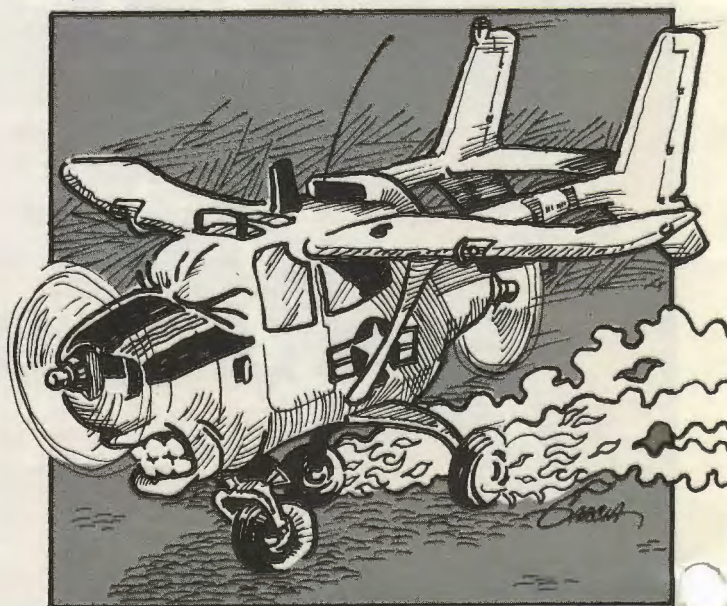
After any mission that involves negative G flight, you really ought to take a close look around the cockpit for any loose items of your own equipment—or the stuff that belongs somewhere else in the aircraft. Map lights, letdown books, etc have a way of migrating where they're neither wanted nor needed. If you have any doubts, ask your backseater or someone on the ground to give you a once over before you pop the lid on your aircraft.

How to start a brake fire!

This method is guaranteed to work. Get yourself an O-2; and during your "before taxi" procedures, discover a 175 mag drop during the rear engine magneto check. As you run the engine up to defoul the plugs, lead calls to taxi. Go ahead and taxi using max power on the rear engine and brakes to control your speed. Shortly, someone will tell you that one or both wheels are smoking—fire will only be minutes or seconds away.

I wouldn't even bother to mention this, except it happened in TAC a few months ago. Fortunately, a nearby ground crew extinguished the fire.

Aircraft brakes are not designed to be engaged all the time. "Riding" the brakes will result in problems no matter what type of aircraft you fly. Don't do it!



SAFETY AWARDS

individual safety award



SSgt Henry E. Woody, Jr.

Staff Sergeant Henry E. Woody, Jr., 49th Aircraft Generation Squadron, 49th Tactical Fighter Wing, Holloman Air Force Base, New Mexico, is the recipient of the Tactical Air Command Individual Safety Award for July 1980. Sergeant Woody performed his duties as Flightline Expeditor in a superb manner. His safety awareness and dedication were clearly demonstrated during a recent emergency situation. An F-15 loaded with live ordnance caught fire during engine start. Sergeant Woody quickly radioed for the fire trucks and directed a fuel truck away from the area. His decisive actions prevented damage to the aircraft and possible loss of life.



TSgt Walter L. Hair, Jr.

crew chief safety award

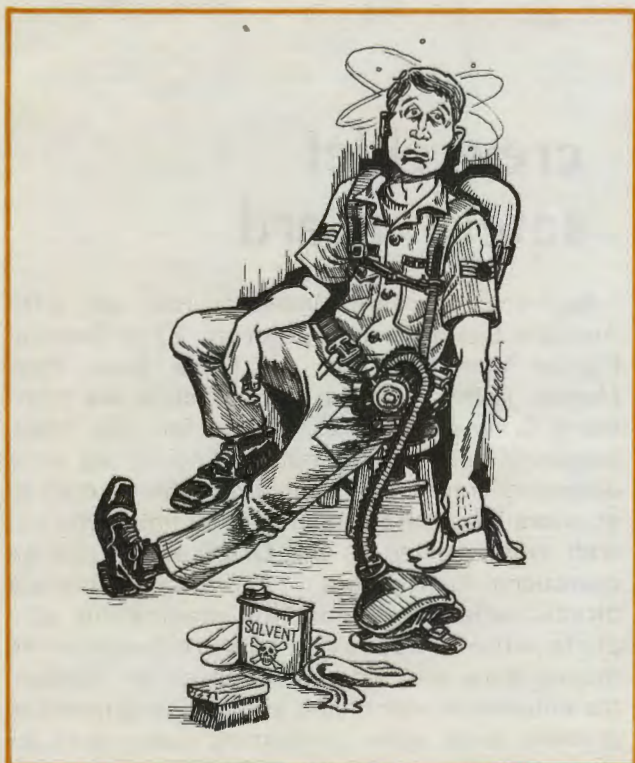
Technical Sergeant Walter L. Hair, Jr., 27th Aircraft Generation Squadron, 27th Tactical Fighter Wing, Cannon Air Force Base, New Mexico, is the recipient of the Tactical Air Command Crew Chief Safety Award for July 1980. Sergeant Hair has an outstanding record as a dedicated crew chief, maintaining his aircraft in an overall excellent condition at all times. His aircraft was selected as the OT&E aircraft for an operational flight program tape revision. This is a direct reflection upon his dedication and professional approach toward preventive maintenance and safety awareness. In addition, his initiative in identifying and resolving potential problem areas while performing supervisory inspections has contributed to the effectiveness of the Mishap Prevention Program.

chock talk

*...incidents and incidentals
with a maintenance slant.*

TAKE A DEEP BREATH

Although this incident concerns a C-130 from another command, it could just as easily have happened in TAC.



A C-130 developed a leak in the number two fuel cell which necessitated repair at a base which did not have an approved fuel cell dock. However, maintenance and fire department personnel coordinated procedures to insure the work was done safely.

After initial purging and cleaning of the cell, an initial coat of sealer was installed. The next step in the process was to clean the repair area with a chemical identified as a primer. The technician performing the repair was using a Scott Air Pack supplied by the fire department. As he was applying the primer, the Scott Air Pack warning sounded, indicating five minutes of air remained. The technician misinterpreted this signal and thought the air was depleted. He removed the mask and continued working for another five minutes.

Shortly after leaving the fuel cell, the technician developed dizziness and other symptoms, gradually losing all feeling in his hands, arms, legs, and feet. Fire department personnel quickly administered oxygen to the disabled airman. Fortunately, he recovered; but if he had stayed a minute or two longer, he would not have.

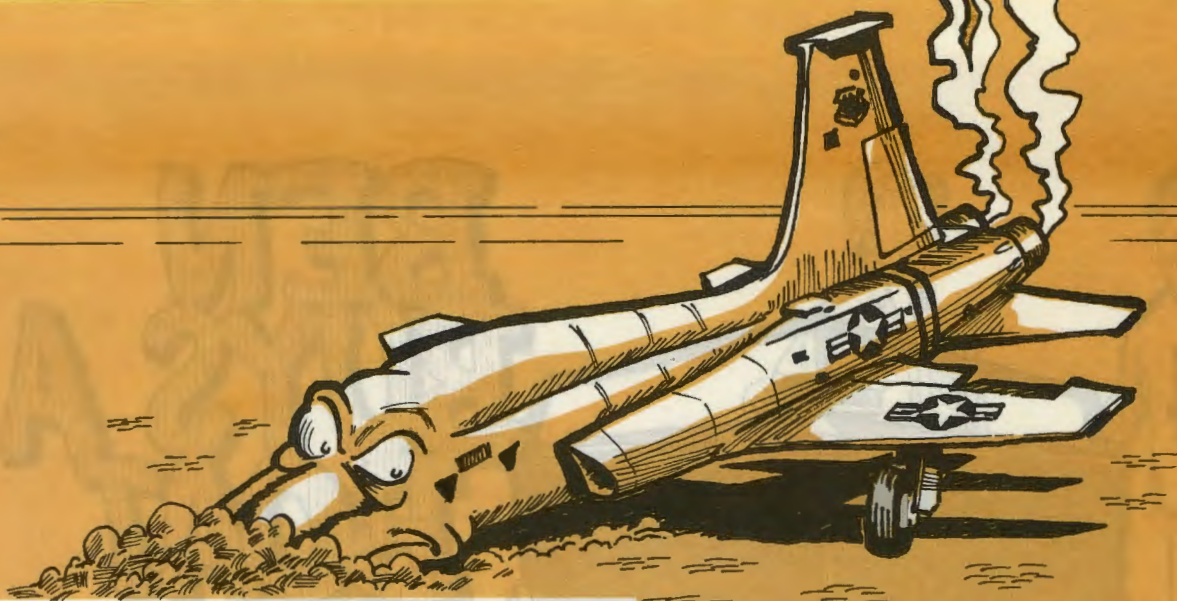
Fuel tank and bladder cleaners, solvents, and primers contain extremely volatile chemicals which can also be deadly if not used with proper care and ventilation.

IS IT READY FOR SHIPMENT ?

Two J-79 engines were loaded onto an airlifter at an overseas location for transport back to CONUS. Shortly after takeoff, the crew noted fuel fumes in the cargo compartment and the flight deck. All crew members donned oxygen masks and tried to identify the source of the fumes.

Investigation revealed one of the engines was leaking. The protective wrapping was removed and two B nuts on the fuel lines leading to the fuel control were loose. The leaks were stopped by tightening both B nuts and covering the exposed lines with plastic bags. The spilled fuel was cleaned up, and the mission continued uneventfully.

Leaking JP-4 in an enclosed area can be extremely dangerous. Even though the paperwork said the engine was properly purged and prepared for shipment—it wasn't. Shortcuts can hurt. Take time to make certain you aren't the cause of one of those hurts!



NOSE GEAR SKID

Even when the "gods" try to help us prevent a mishap, we seem to be able to work around their efforts...

A T-38 required a nosewheel change. The crew chief performed the wheel change, using the tech data. The unit flight chief observed the crew chief torque and spin the tire during installation and performed an inprocess inspection (IPI), after the axle nut was installed. He insured there was no end play between the wheel and axle and the cotter pin was installed properly as required by the IPI. The aircraft was then signed off.

The next morning, the tire shop called job control and informed them that a washer was stuck to the nose wheel bearing which was removed from the aircraft. Job control sent the crew chief and assistant flight chief to inspect the aircraft for the key washer. The crew chief removed the grease cap and neither he nor the flight chief noticed any discrepancies during their inspection.

On the next sortie, the nosewheel fell off the aircraft. Fortunately, the aircraft landed without any major damage. Examination of the nose gear axle revealed the axle nut and cotter pin still attached; the key washer was missing; and the cone (race) of the inner and outer bearings and grease seal were still on the axle. Though severely damaged, it was determined the cone for the outer bearing was installed backwards. This backward installation took up the same space the missing key washer would have. The discrepancy was missed during the IPI and the next day's reinspection.

We came close to catching this one—but not close enough.



DIRT IN THE EYE

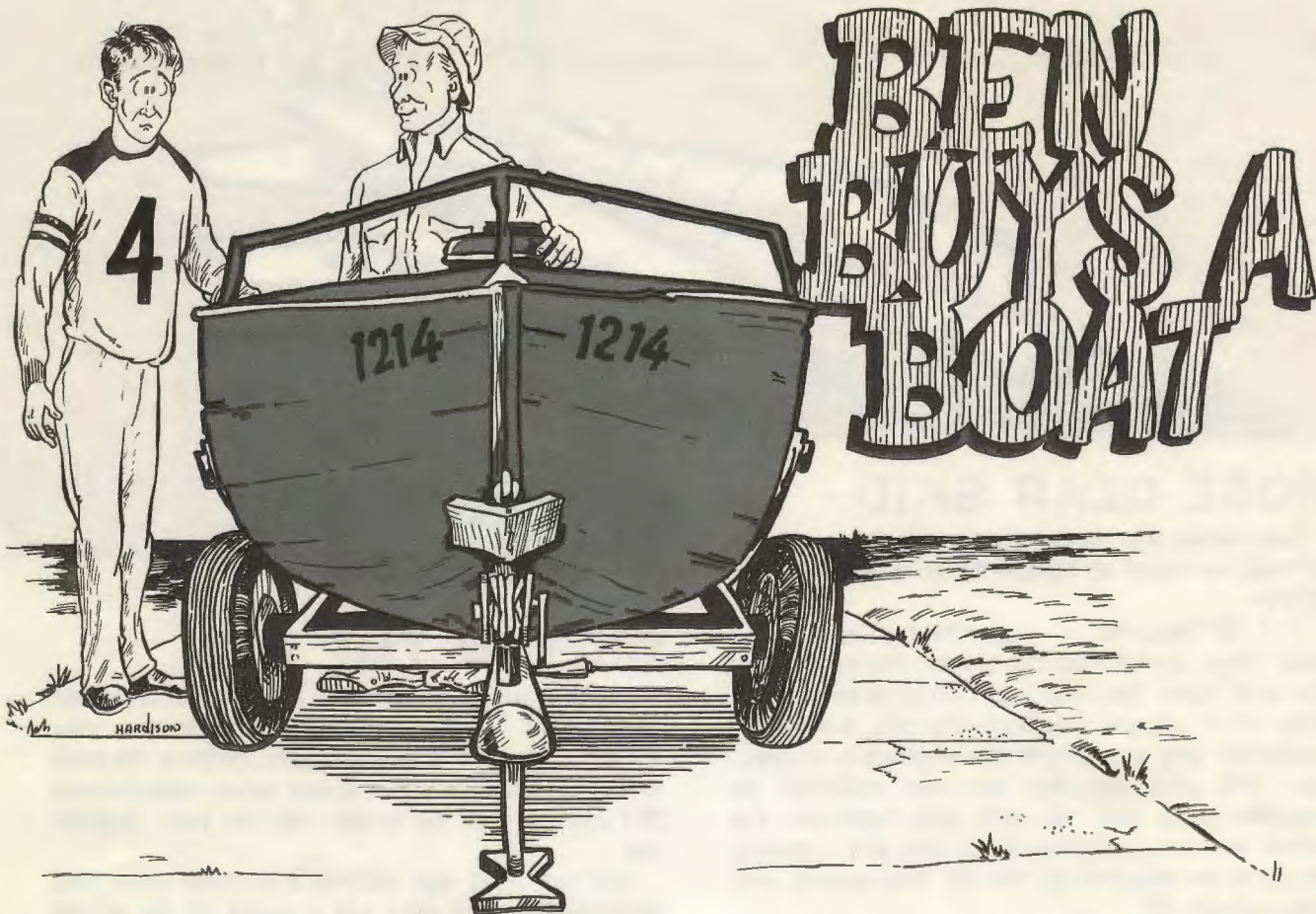
Do the pilots hassle you a lot about dirt and other stuff in the cockpit? I'm sure they do. When compared to tire changes, getting the bird refueled, or some other major work—vacuuming the cockpit can be pretty low on your priority list.

Not too long ago during a mission involving negative G's, the pilot got a speck of dirt in his eye. No sweat; just like a hunk of dust or sand, it seemed to go away quickly. The next morning and over a long weekend, the sensitivity in the eye increased to the point that the pilot was getting stabbing pains.

A trip to the emergency room revealed a speck of rusted metal embedded in the eye near the edge of the iris. An ophthalmologist removed it rather easily; but had it been 1/4 inch over, into the pupil, permanent damage would probably have occurred.

No one expects an aircraft cockpit to look like you have a professional cleaning service, but you can help. Check your shoes so you don't carry mud, etc up the ladder with you. That goes for aircrews too. Keep the canopies closed if they don't need to be open. This will keep out dust and rain which can corrode metal. If it needs to be vacuumed, clean it. A speck in the eye while you're flying 500 knots is not helpful to anyone's longevity.

Contributed by Capt Ben A. Calloni
307 TFS/31 TFW



**By TSgt Dave Tresize
823 CES/SEG**

I never really thought anyone would have the nerve to interrupt me as I watched Gilligan's Island reruns, but my good neighbor, Ben, has always been long on nerve.

It seems Ben had fallen into one of those one time good deals and bought a boat from Ajax Boat Builders and Radiator Repair. Now this was news. Especially in light of the facts that Ben couldn't swim, didn't like to fish, and didn't think water skiing was natural. According to him, the only things water is good for are taking a shower and mixing with Scotch.

As we walked out to the street, Ben explained he'd paid \$75.00 for the boat because it had a flaw in it which probably wasn't too serious because he couldn't find it. I was thinking the trailer alone was worth the money about the same time he said Ajax loaned him the trailer to get the boat home.

Backing into the driveway, Ben managed to hit

the wooden structure we built to hold Martha's plants in spite of my arm waving and shouting. Good thing Martha was over drinking coffee with my wife.

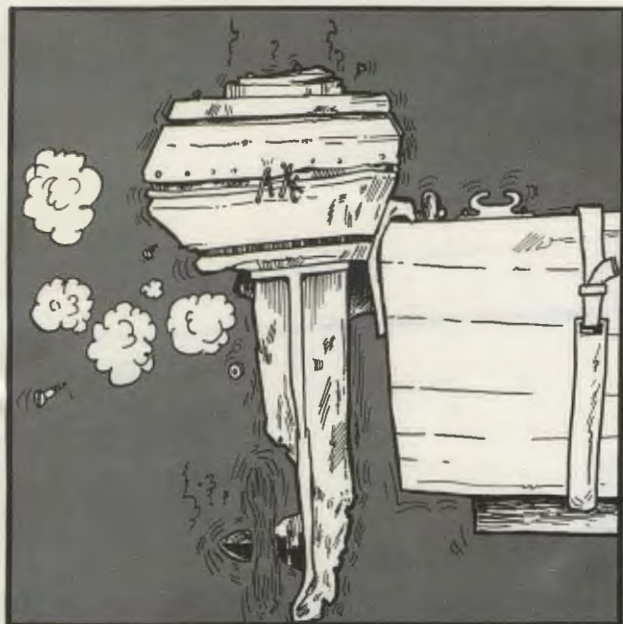
As we got the boat into the garage, the flaw became obvious. There was a hole in the bottom about a foot in diameter. As a matter of fact,



about the only thing that didn't look like a flaw was the U.S. Coast Guard water safety booklet lying in what was intended to be a glove box. Ben tossed it into the corner on top of a pile of instructions for just about anything you might want.

I started to protest but reasoned there'd be plenty of time for all that later, after the thing was ready to float.

Three weeks, \$1,500.00, and many trials and tribulations later, the "S.S. Mistake" was ready for her maiden voyage. The brand new, second-hand, rebuilt 25 horse Evinrude was running as close to perfect as it was ever going to.



Rummaging through the pile of instructions in the corner, I found the Coast Guard booklet and reasoned now was the time for a pitch on water safety.

Ben stopped me before I got started and pointed out that he'd follow that thing if we took the boat to the coast, but since we were going to be on a lake, all that stuff didn't apply. There seemed to be no way to convince him there was no U.S. Lake Guard, so I pulled out my copy of State Laws. No good either. He had it registered in another state and obviously they weren't going to check him out.

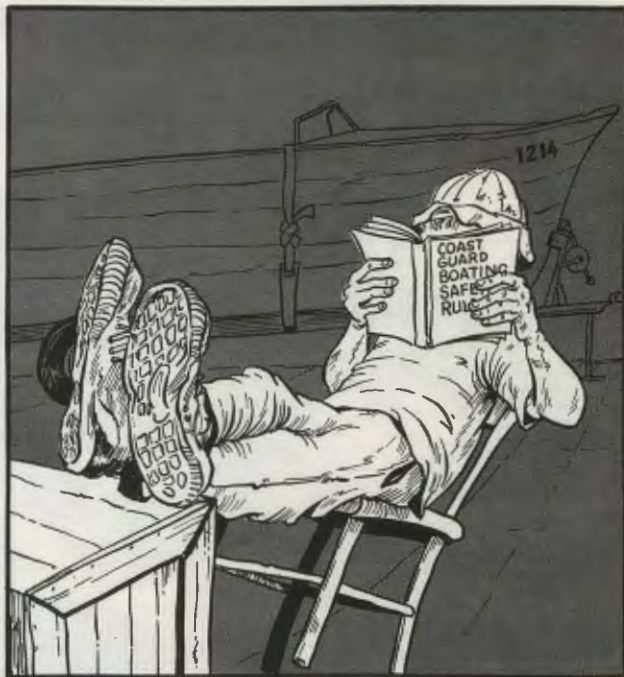
Saturday morning arrived and was just cool enough that I talked Ben into wearing one of my fishing vests which just also happened to be a personal floatation device.

Launching the boat was a completely unique experience. Ben had trouble backing down the

ramp; forgot to take the tie down strap off and had to pull back out; forgot to put the plug in and almost sank the boat; and backed the car too far into the water and had to be towed out.

Things went well for awhile and all functioned smoothly until the lake patrol stopped Ben for a safety check. This is where Ben found out he was wearing a PFD; the Lake Patrol could and did enforce Coast Guard regulations (even if Ben wasn't on the coast), and all the stuff he didn't have was going to cost him a \$67.50 fine.

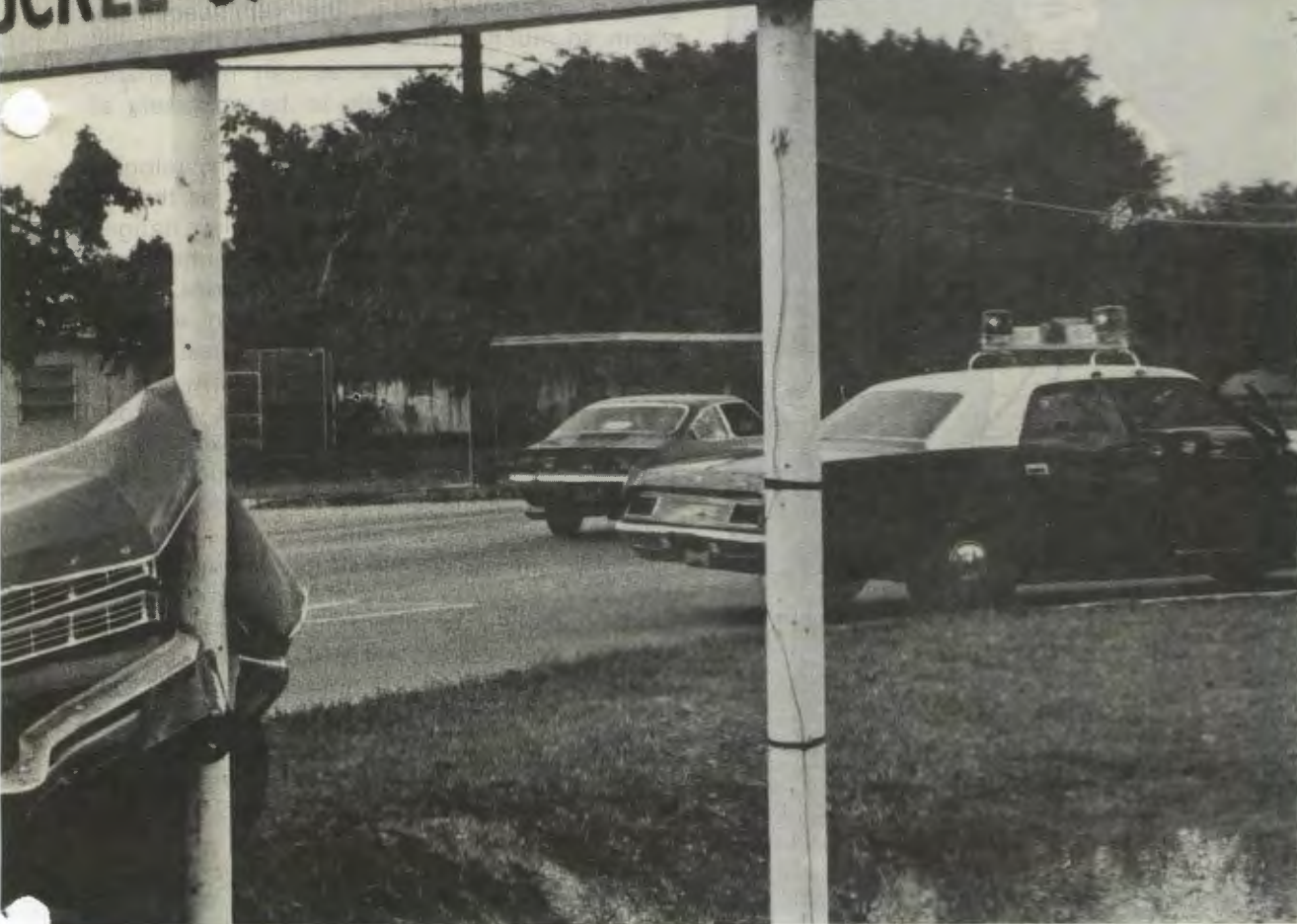
That evening I walked over to Ben's and found Martha looking suspiciously at her plants. I didn't let on I knew they'd had an accident a few weeks back. She said Ben was reading. I went in and there was good old Ben reading the U.S. Coast Guard Boating Safety Rules, a book of tips for safe towing, backing, and launching, and the state laws about boating. One thing about Ben, you don't gotta hit him with a brick to get his attention. A \$67.50 fine will do it every time. A fine was the easy way though. A serious accident isn't nearly so easy to get over.



• • •

"Ben and Martha" are the creation of TSgt Dave Tresize, Ground Safety Technician at the 823 CES, Hurlburt Field, FL. He uses the characters and their misfortunes throughout his ground safety program. We'll feature them periodically in future issues.

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UCKLE UP FOR SAFETY SAKE



SUMMER OPERATIONS

NO SWEAT

By Wing Commander Peter S. Wilkins
RAAF, FS, MC
Chief of Aviation Medicine
HQ TAC/SGPA

Summertime. . .and the living is anything but easy for many of the folks in TAC. Long, hot, humid days can exact a toll from aircrews and ground personnel alike. The very people on whom so much of the TAC mission directly depends, our aircrews and aircraft maintenance personnel, are most likely to be adversely affected by severe summer weather.

This article will review the major physiological problems of hot weather operations as they affect the immediate environment. Other dangers of high summer, such as severe sunburn and heat exhaustion, are far likelier to arise in survival or recreational situations than at work. Heat exhaustion is covered in the next article. One further caveat: This will necessarily be only an overview, and you should consult your local flight surgeon's office for expert advice on just how your base, your people, and your aircraft's operational requirements can best adjust to the hazards of summer operations.

The heat stress an individual experiences will arise from a combination of environmental and human factors. The importance of each factor will vary from person to person, from place to place, and from time to time. Acceptable heat stress limits will also vary according to circumstances.

There are four environmental variables that determine an individual's heat stress:

- a. Air temperature,
- b. Humidity,
- c. Air movement, and
- d. Surface-reflected heat (radiant heat load).



? DON'T BET

The relative importance of each of these factors will depend on local climatic conditions. For example, heat stresses in a desert region with a high radiant heat load and high air velocity will differ from those in a coastal region where humidity is higher and levels of solar radiation and air velocity are variable.

There have been many attempts to devise a simple means of assessing the degree of stress imposed by these environmental factors, but no single measure has been found which is appropriate in all situations. The heat load in a closed fighter cockpit is very different from that on the flight deck of a transport aircraft and both these differ from the problem on the parking ramp. Your local flight surgeon's office can provide guidance tailored to your particular conditions.

Human factors of importance in heat stress are less well defined and defy ready quantification. Recognized factors include the following:

- a. Metabolic heat production (produced by the body at work),
- b. Degree of acclimatization (how long you've lived in a particular climate),
- c. Rate of sweat losses,
- d. Rate of water replacement,
- e. Clothing characteristics (weight, permeability, etc),
- f. Level of physical conditioning,
- g. Personal habits,
- h. Age, and
- i. Sex.

Most of these are obvious. Younger men who maintain a high level of physical fitness are generally able to cope with relatively great heat stresses after a period of some weeks of acclimatization. Older personnel, or those who are not in good physical condition are going to experience more problems.

Even experienced personnel can be adversely affected by unexpected stresses; e.g., a new aircraft type, a new base, or new equipment such as chemical warfare (CW) protective garments. Supervisors need to be more conscious of the

heat factors likely to affect their workers and to be knowledgeable about adequate preventive measures. Physical dangers are most likely to occur toward the end of a long work day, though workers' efficiency may be impaired much earlier.

Adequate fluid intake is absolutely critical in preventing heat stress, but this concept is poorly understood by many. Thirst is NOT an adequate

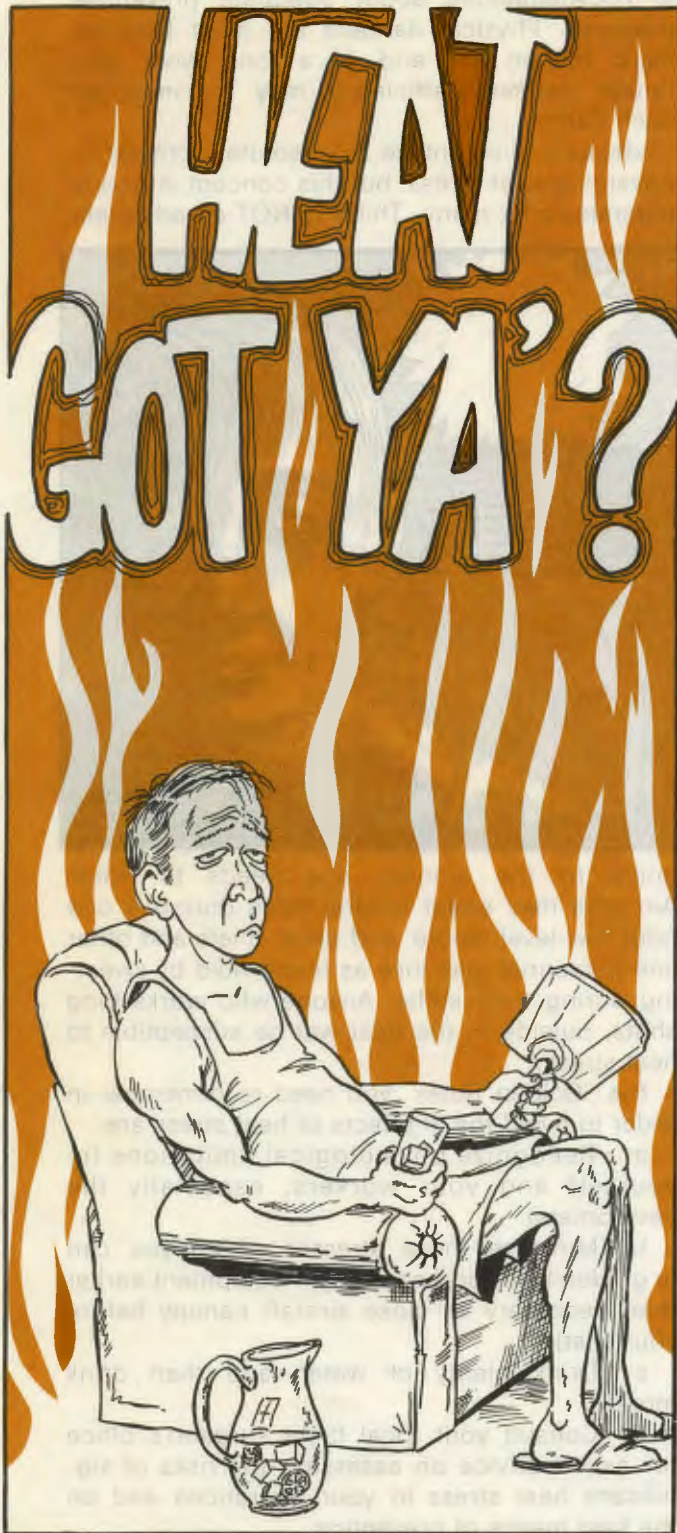


guide to the amount one needs to drink: Aircrews may sweat several litres during a one hour low-level sortie and crew chiefs and other line personnel may lose as much fluid by sweating during their shifts. Anyone who works long shifts, outside in the heat will be susceptible to heat stress.

The "Golden Rules" you need to remember in order to avoid the ill-effects of heat stress are:

- a. Recognize physiological limitations (in yourself and your workers, especially the newcomers).
- b. Minimize those stresses which you can (e.g., don't put on heavy flight equipment earlier than necessary or close aircraft canopy before you must).
- c. Drink plenty of water—and then drink more!
- d. Consult your local flight surgeon's office for expert advice on assessing the risks of significant heat stress in your operations and on the best means of prevention.

The article on heat exhaustion will explain what to do if these prevention methods don't work or are ignored.



It could very easily. Doctor Wilkins' article explained the factors which cause heat stress

and how your awareness can keep you from experiencing problems. Many people naturally slow down when the weather gets uncomfortably hot. You aren't used to the heat stress so you adapt your activities to a slower pace. Some folks however will not do that. They only know one speed—flat out. These may also be the folks who are most likely to suffer heat exhaustion and heat stroke.

Heat exhaustion, while potentially dangerous, normally can be handled quite easily. Heatstroke, on the other hand, is a serious condition requiring immediate medical attention. Let's cover a few things about heat exhaustion first.

If a person experiences heat exhaustion, he or she may be apprehensive, listless, pale, have clammy skin, and a weak, rapid pulse. These may be accompanied by weakness, headache, dizziness, blurred vision, nausea, and vomiting. To treat this problem, have the victim lie down, loosen any tight clothing, and move to a cool place if you can. Make sure the victim doesn't get chilled however, and call a doctor.

A person suffering from heatstroke looks flushed. The reddish skin is hot and dry and the pulse is rapid and strong. These symptoms are in definite contrast to heat exhaustion. The victim may also experience weakness, headache, dizziness, nausea, vomiting, and convulsions. In heatstroke, the body's air conditioning system has gone haywire, and a person's temperature will continue to climb. Send someone for a doctor, move the victim to a cool area and remove most of the person's clothing. Use wet, cold towels to cool the victim down. Do not use ice and don't place the victim in a pond, pool, or tub of water unless someone can support the victim and keep his or her head out of the water. If you haven't called a doctor by the time the temperature is normal, do it now.

The factors mentioned in the previous article and the symptoms I've talked about here omit one point. These symptoms can be insidious. You will probably recognize them in someone else before you see them in yourself. So watch the people you work with this summer, especially on the flight line or any other outside job. The pressure of getting the job done may force you to push yourself or your people too hard—to the point of exhaustion or worse. So take care this summer and don't let things boil over. Keep cool.



FIRE

Recently a fire occurred at another base when two fuels personnel were transferring fuel from an above-ground storage tank to a refueling truck. They were using a small, gasoline powered diaphragm type pump to move the fuel.



(Mistake) Shortly after the pumping operation began, the diaphragm ruptured and began spraying fuel. The fuel ignited when it contacted the pump's hot exhaust system. Fortunately, the fuels personnel managed to quickly shutdown the gasoline engine and shut off the tank valve. One of the individuals received extensive, but not overly serious, burns.

The primary cause of this accident was use of a pump that was unsuitable for pumping flammable products. The fuels personnel were not aware the pump (NSN 4320-00-287-4271) was designed to pump water, not fuel.

Whether it is JP-4, Avgas, Mogas, etc., being transferred, we should all keep in mind pumps and related equipment must be approved for use in pumping petroleum products.



PASS THE SALT

Summer is here for sure. Seems hotter than Hades out there and the humidity must be close to the temperature. Sure do sweat a lot, don't you? In years past, the Air Force and many other employers provided salt tablets to folks to replace salt lost through perspiration. While on extremely hot, heavy jobs, workers should increase salt intake, indiscriminate use of salt tablets should be avoided.

If you have any questions about how much salt you need, ask your doctor. He can help you get just what you need to stay healthy.


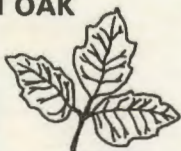
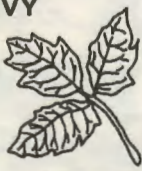
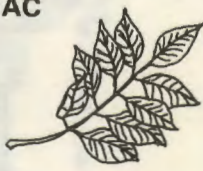
DOWN TO EARTH

POISON WHAT ?

"Leaves of three, let them be," and all the other phrases, etc may not help you avoid poison ivy, poison oak, or even poison sumac. But, if you intend on having an enjoyable summer and you're planning on trying your hand at backpacking, camping, and the like, you ought to have a good idea what this stuff looks like.

Since the majority of people are sensitive to these plants, the only sure prevention is avoidance. The symptoms — itching, rash, and sometimes blisters—develop within a few hours or may be delayed a week or more. Having watched my wife and children suffer through poison ivy last summer, I'm sure it's quite irritating and bothersome.

The following table should help you identify and avoid these plants:

	COMMON POISON IVY	WESTERN POISON OAK	OAKLEAF POISON IVY	POISON SUMAC
WHERE IT GROWS:	 In all parts of the United States except the extreme Southwest — and in all Canadian Provinces.	 All along the Pacific Coast, from Southern California in to Canada.	 Throughout the Southeastern United States — from New Jersey in to Eastern Texas.	 Some in the damp areas of almost every State. The general prevalence is East of the Mississippi.
HOW IT GROWS:	As a woody vine, the vine stems look like "fuzzy ropes." As trailing shrubs, mostly on the ground. As erect woody shrubs, without support.	Most often as an upright shrub, with several woody stems. In open fields it can grow into large spreading clumps - In forests it becomes a vine and grows upward to 30 feet.	Usually as a low growing shrub. The slender branches often have a downy look.	As a coarse woody shrub or as a small tree. Never as a vine
THE LEAVES:	Always in groups of three leaflets. The edges may be quite smooth or notched. Green through Spring and Summer, colorful in the early Fall, with scarlet, orange, and russet shades.	Always grow in groups of three leaflets. The center leaflet is apt to be similar on both sides and have a definite "oak-leaf" look. The side leaflets often take irregular shapes.	Always in groups of three leaflets. The center leaflet usually has an oak-leaf look. The side leaves may have uneven edges, have a downy appearance on the top surfaces.	7 to 13 leaflets, arranged as pairs along a central midrib with a single leaflet at the end. They have a smooth velvet texture, bright orange in the Spring. They turn to a dark glossy green with scarlet midribs in Summer.

By the way, this stuff doesn't necessarily grow in the woods. You might find it in your own backyard. If you have to clear it out, use a commercial brush killer or poison ivy control chemicals. Don't be fooled by a shriveled up, brown, dead plant. A dried up poison ivy plant is just as irritating as a live one. Never burn poison ivy. Inhaling the smoke can cause serious problems—just imagine the itch inside your lungs. Now how are you going to scratch them?

OUCH

A worker was dispatched with a 5-ton wrecker to retrieve an inoperable forklift. While attaching a cable from the forklift to the wrecker boom, the worker decided to climb down the side of

the wrecker from the control console rather than use the normal access at either the front or back of the truck bed. When the worker dropped to the ground, a ring on his finger caught on a console control box and stripped the flesh from his finger. The finger required amputation.

It doesn't take a minute to remove your rings, ID bracelets, or other jewelry. Better yet, leave the stuff at home if you work around machinery or other equipment which can grab you.

Ya know, it's against AF regs to wear jewelry in many maintenance and repair facilities and this will only give the regulation writers more reason to add it somewhere else. Why should plain old common sense have to be written in a regulation when our workers and supervisors ought to be practicing it?

learn to swim

LEARN TO SWIM !

That's a guaranteed life-saving investment. Nearly everyone enjoys the water, be it in a lake, pool, stream, river, or ocean. When the temperature hits 90°+, I defy anyone to resist the temptation for a cool dip in the water.

That same cool dip could be very dangerous. It's a plain fact of life that many people do not know how to swim. If they did, we wouldn't lose so many every year.

Can you swim? Before you answer yes, think about it. Can you just swim from one end of the pool to the other and then rest five minutes before you start back? Or can you easily swim 100, 200, or even 300 yards? I would say you



can't swim well enough if you can't get out of potential trouble spots. Say you're floating down the river on an inner tube and you slip out. If you can't stay afloat and either swim to shore or back to the tube—you really don't know how to swim.

With all the swimming classes available from the Red Cross, YMCA, YWCA, base, and recreational pools, there isn't a good reason why everyone can't at least stay afloat and swim to safety. Think about it before you charge off into the water and possibly end up in trouble. After all, 28.3 grams of prevention is worth .45 kilogram of cure!



a funny thing happened on my way...

By Lt Col Robert D. Mielbrecht
366 TFW/DOT

Funny thing happened on the way back from XC...logged a night takeoff at 1400L and a low visibility approach on a CAVU day. The proximate cause for these bizarre events was the eruption of Mount St. Helens.

It all started on a clear morning at Fairchild Airpatch, where we had brought our trusty Aardvark for a static display. After breakfast we stopped by the weather shop on the odd chance we might be able to log some cloud passages on the way home that evening. No such luck, but the weather man provided some interesting information on the eruption of the volcano a few hours earlier. The rest of the morning was spent fielding the predictable open house questions (how fast, how high, where is the nearest potty, etc) and casually noting that the sky to the west was darkening. The flying demonstrations had been cancelled in anticipation of lower ceilings, but we were all surprised by the announcement that the open house was cancelled and everyone was requested to leave immediately. We grabbed a show official and found out that Yakima (100 miles west) was indefinite obscured and 1/16 mile in falling ash. It was estimated that we had an hour to "get out of Dodge." I split for Base Ops while Bravo set out in search of Transient Alert. When I left the bird, it was a dull overcast day. After filing, WX brief, and bag drag (in record time), it was literally night.

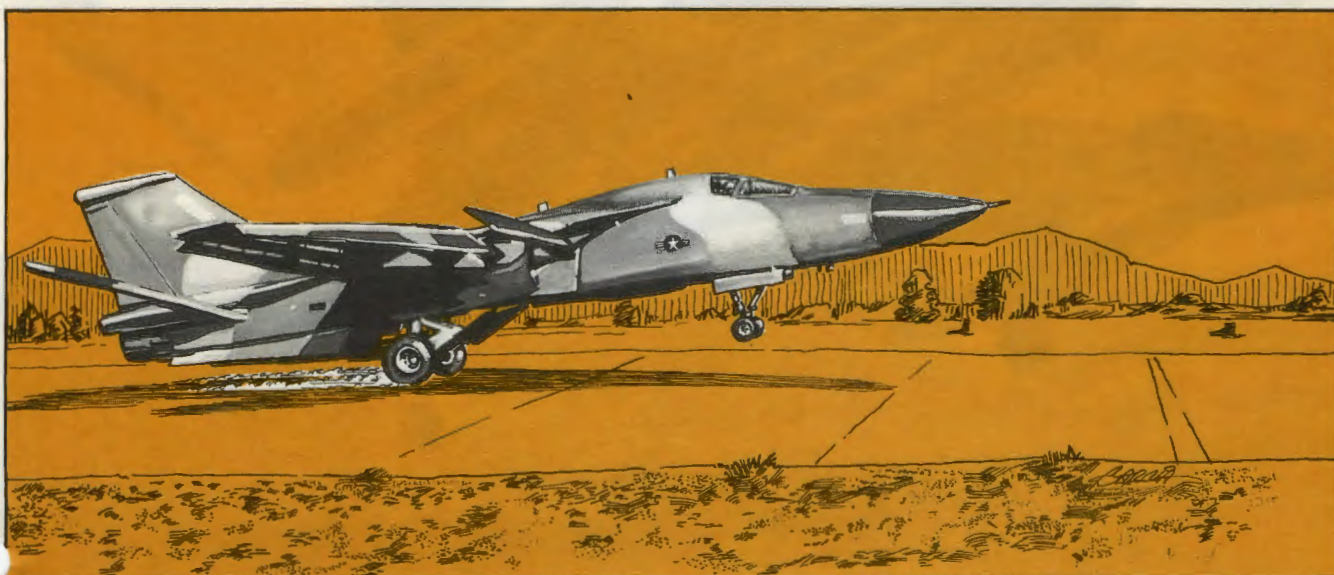
While my Wizzard packed our gear in the weapons bay, I pulled the pins, thanked our lucky stars that the accumulators had held pressure, and checked all the hidden corners for bubble gum and pop cans. Dash 60's and MD-1's were at a premium, but we had brought

starter cartridges and quickly loaded one. Once in the cockpit we had it made...at least until we found out that the battery was dead. Thankfully an A-7 had just cranked next door and TA plugged in his MD-3 to provide the requisite electrons. The checklist never seemed longer, and there were a few "don't forget the whatchamacallit dummy" calls from my immediate right, but we were finally ready to roll. Our taxi was greeted with our ATC clearance and a friendly suggestion to expedite taxi. In spite of the ominous black, we managed to keep it under the mach and resist the temptation to make an intersection takeoff. An eternity later we were finally airborne and climbing toward the light in the east. Little did we know that Mother Nature wasn't through with us yet.

Thirty miles east we were cleared to 230, direct Mullins Pass, flight plan route. We entered the overcast at about 15,000', hit 230 just prior to MLP, and turned south for Boise. We realized that we were flying in light volcanic ash, but thought nothing of it. It looked like thin cirrus, and we passed an estimate of 2-3 miles inflight vis to center. Thirty minutes later we were cleared to descend to 15,000' direct to the IAF. I was enjoying the Idaho wilderness out of the left hatch, when old fearless informed me that he couldn't see out of his windscreen. There wasn't a cloud in the sky. Our short trip through the ash cloud had "sand blasted" our windscreens. So much for vectors to initial. After a few quick radio calls, we had; a wingman if needed, full bright runway and approach lights, clearance for a TACAN/ILS, and a nervous SOF.

It was really weird looking out the side at mountains thirty miles away and out the front at nothing past a fuzzy pitot boom. At a mile and a half the approach lights appeared and at a mile the runway was discernible. No sweat...just like a foggy day in USAFE. Wrong! Ground references continued to improve as we approached touchdown. One last check of the gages confirmed a stable, on speed descent—then back outside to...(expletive deleted). The wheels hit the ground at the same time as the realization that a 300' runway doesn't provide the light/dark contrast we had been using for visual reference. To make a long story short, we brought the bird to a safe stop by keeping the edges of the runway equally distant from the UHF radio.

In retrospect, we did some things right and some things wrong. We obviously failed to appreciate the significance of the eruption, but some of our preplanning (intake covers, starter carts, etc) facilitated our rapid departure from Fairchild. We could have, and should have, avoided the ash cloud completely, but 300 miles seemed like a safe distance for volcano avoidance. At home station a formation landing would have been ideal, but such things are not done by Aardvarks. Maintaining runway alignment by looking out the sides is a tricky, yet transferrable skill, from night backseat landings in the F-4. In the final analysis it was an expensive lesson...two windscreens at 30K each...but rapid dissemination of the experience saved many others from a similar fate, including 12 of our brothers returning from Torrejon the following day.



A DIFFERENT KIND

**By Maj Wayne P. Skora
HQ TAC/SEF**

Near misses are getting altogether too commonplace. However, the subject really seems far out when the near miss is with a truck, instead of a fighter or bug-smasher. In these days of control and SOFs, RSU officers,

tower controllers, radar controllers, radios, and flare guns—it is interesting to see how events can take place which nullify our multitude of accident prevention controls. It happened once; only by knowing the circumstances might we prevent it from happening again.

The F-4 had split from its flight to shoot a GCA full stop. Naturally there was controller training in progress; but since the weather was clear-and-a-million, the pilot let the WSO fly. The aircraft was on course and altitude, configured for landing at 4 miles on final. In the interest of training, the WSO followed the approach instructions, even though the instruc-



OF NEAR MISS

tions caused him to cross the approach path from left to right. At about 3½ miles on final, the pilot realized he would have to take over in order to align the aircraft with the runway and land out of the approach. He took control of the aircraft and flew a visual approach, disregarding further instructions from GCA. He assumed they were course corrections. At this time a restricted low approach clearance, instead of landing clearance, was issued, which the pilot did not understand or acknowledge since his attention was directed on the landing.

A few minutes earlier the last aircraft to land had lost its drag chute on the runway. The runway supervisory officer (RSO) asked the supervisor of flying (SOF) to assist in removing the chute. The RSO left the RSU and drove out to the runway with the SOF where they were cleared on by the tower. The F-4 was about 3 miles on final. The tower had issued clearance to GCA for a restricted low approach.

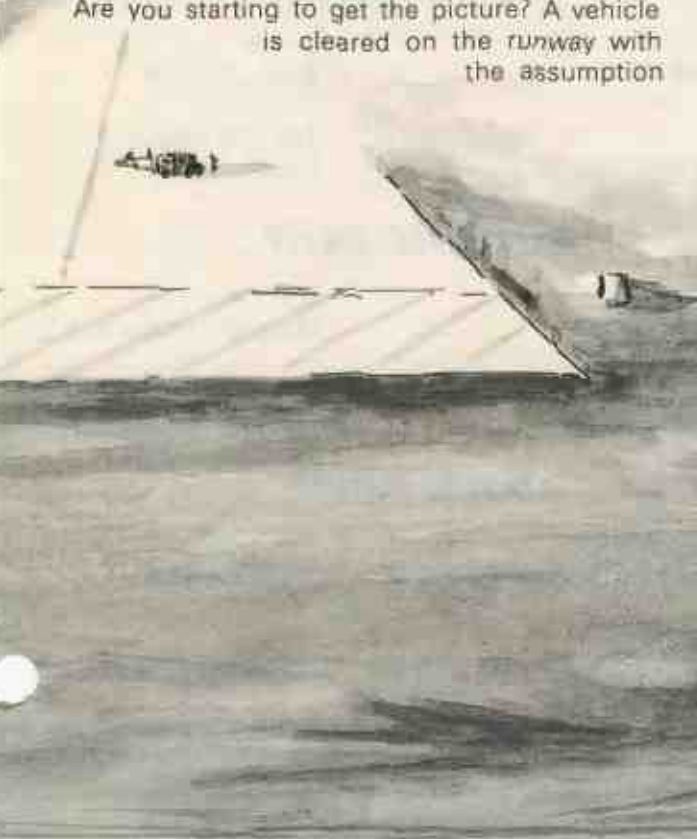
Are you starting to get the picture? A vehicle is cleared on the runway with the assumption

the aircraft on final will adhere to the restricted low approach instruction. The pilot of the aircraft is intent on salvaging a bad approach and landing—so he mentally tunes out instructions from GCA. He assumes he is cleared for a full stop, since that is what he expected. The RSO has left mobile with the SOF to retrieve a drag chute, so no one is in mobile to use the radio or fire a flare. And last but not least, the F-4 had guard channel turned off because of an active emergency locator transmitter, so all the calls to go-around made by tower and GCA were to no avail.

Amazing how seemingly innocent events can combine to make a situation dangerous. The many assumptions made during this course of events are almost mind boggling—assuming instructions were received and would be complied with, assuming clearance to land, assuming the runway to be clear as it "always" was when making a landing.

As it turned out, the SOF and RSO heard the call on guard for the aircraft to go around, saw that the aircraft was going to land regardless, and began to beat a hasty retreat off the runway. The aircraft, whose pilot never did see the vehicle, landed 500 feet prior to the vehicle, and passed it on the left. (Great clearing by the aircrew!)

They were lucky this time. It was only a near miss. But it resulted from basic procedure and common sense violations. One, the pilot did not receive landing clearance. He landed based upon his expectation of a full stop. Secondly, he failed to monitor GUARD frequency. There were technical violations of AFR 60-16 (paragraphs 4-6 and 5-6). Even worse, the incident displayed some lapses in professionalism. The professional doesn't become so preoccupied that he misses radio calls. A professional doesn't leave the RSU when an aircraft is on final. Above all, the professional never assumes anything. He makes certain, each and every time. How about you?



CONGRATULATIONS
to the
**TAC Active
and Gained
USAF
Safety Plaque
Winners**



FLIGHT SAFETY

1 TFW
Langley AFB VA

1 SOW
Hurlburt Fld FL

24 COMPW
Howard AFB PN

31 TFW
Homestead AFB FL

57 FIS
Keflavik Iceland

917 TFG (AFRES)
Barksdale AFB LA

188 TFG (ANG)
Ft Smith AR

191 FIG (ANG)
Selfridge ANGB MI

347 TFW
Moody AFB GA

479 TTW
Holloman AFB NM

507 TAIRCW
Shaw AFB SC

552 AWACW
Tinker AFB OK

602 TAIRCW
Bergstrom AFB TX

116 TFW (ANG)
Dobbins AFB GA
(Includes 149 TFG,
Kelly AFB TX and
159 TFG, New
Orleans NAS LA)

MISSILE SAFETY

33 TFW
Eglin AFB FL

57 FIS
Keflavik NAS Iceland

84 FIS
Castle AFB CA

144 FIW (ANG)
Fresno IAP CA

EXPLOSIVES SAFETY

33 TFW
Eglin AFB FL

67 TRW
Bergstrom AFB TX

366 TFW
Mountain Home AFB ID

919 SOG (AFRES)
Eglin AF Aux Fld 3 FL

NUCLEAR SAFETY

Det 3 425 MUNSS
CFB Bagotville Quebec Canada

366 TFW
Mountain AFB ID



Dear Editor,

Just finished reading your interesting and well written article in the May TAC ATTACK. At about the same time, I was posting Change 3 to the A-7D-1. Amongst the changes was the addition of the word "airspeed" to the following sentence—"If final approach airspeed drops below computed and the sink rate becomes excessive, correct first by adding power and then adjusting attitude." Of course, the addition of "airspeed" only made the sentence meaningfully correct—it didn't change the impact. The point I'm trying to make is "their" choice of correcting FIRST by adding power, doesn't really jibe with your article and everything I have been taught or learned myself in 25 years of flying all single seat, single engine aircraft. I agree with your premise and that's what I teach around here. The above quote is in SECTION II, on page 2-26.

Again my congrats for a well written article and for an excellent magazine.

Donald L. Dudrow, Lt Col, USAF
Chief, Standardization/Evaluation
178 TFG/DOV

Dear Lt Col Dudrow

My thanks for your kind words about the magazine. As to the disparity between my article and the A-7 dash one, I'm not certain I can solve it. Adding thrust alone will slow the rate of descent, but will not correct the airspeed for a length of time. Decreasing AOA—which will probably result in a momentary increase in rate of descent while increasing thrust at the same time—is the only quick way to increase airspeed in the "low and slow" situation. Calibrated airspeed is what gives you maneuvering ability to get back to the glidepath.

I hope pilots, faced with this situation, would make simultaneous corrections to both airspeed and rate of descent. Again, as I mentioned in the article, I'm concerned with the worst case—where thrust available is less than thrust required. If good, correct flying habits aren't developed during daily flying—the right decision won't be made when the worst case happens.

Ed

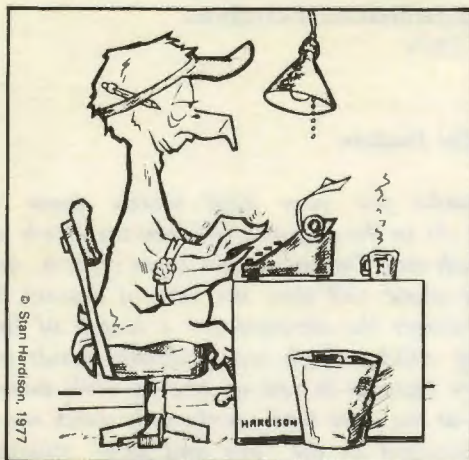
Dear Editor,

I was very surprised to see an article and picture of my 370 gallon fuel tank test stand in the April 1980 TAC ATTACK. I turned in this very same test stand setup as a suggestion in 1967. At that time I was a member of the 33d Tactical Fighter Wing. I received a cash award for this suggestion and later received a TAC Economy Champion Recognition.

Hey! pass it along... nine others are waiting.



LETTERS



This is a proven method, not a new idea. Furthermore, we at the 21 EMS Fuel Systems Shop have been using this test stand for 18 months. I fully agree that it is a very good idea as it was 13 years ago when I turned it in as a suggestion.

Sincerely,
MSgt Eugene M. Sullivan
NCOIC Fuel Systems Shop

Dear Sergeant Sullivan,

We may have mistakenly given the impression this method of tank checkout was new. As noted in the article, it is contained in the T.O., indicating it has been around for awhile.

My congratulations on the original idea.

Ed

Dear Editor,

Your article, "Behind the Power Curve," in the May 1980 TAC ATTACK, just blew 17 years of my teaching aerodynamics to the FSO classes at USC.

For all of that time I have been preaching to hundreds, nay thousands of FSOs that it is 100% wrong for jet jocks to even mention the word "POWER."

- Jet aircraft do not produce power.
- Jet aircraft do not use power curves.
- Jet pilots do not add power.
- Jet pilots do not reduce power.

Everytime I see or hear these expressions, I see red. I am enclosing an article on this subject, which I hope you will publish at your convenience in TAC ATTACK. [In a future issue.—Ed]

I am in the process of publishing a new aerodynamics text book which will replace Hurt's Aerodynamics for Naval Aviators, and I am sending you a rough copy of it, Aerodynamics for Flying Safety Officers.

I think what is confusing in reading Harry Hurt's discussion on page 353 of ANA, is that he is trying to explain the region of reversed command to both jet pilots and prop pilots at the same time. He does not explain in detail in this discussion that both types use entirely different curves. He tries to invent a term that means "add thrust" to the jet pilot, and also means "add power" to the prop pilot. His term for this is "power setting." This is unfortunate because to the casual reader when Hurt says "power setting" he does not mean "power." What he does mean is "throttle setting."

Your article was written strictly for jet pilots so you should have used the term "increased thrust" for "increased power setting."

Dr. Charlie Dole
The Safety Center
Institute of Safety and Systems Management
University of Southern California

Dear Dr. Dole,

My apologies for blowing 17 years of your teaching. I deserve to have my calculator short-circuited permanently. I hope you'll agree despite the improper use of terms, the thrust of my article was in the right direction.

My next concern is that I never hear from the experts out there until I blow it. If there's something that's been on your mind for the last umpteen years or some area of TAC's operations which leaves you uncomfortable—why not say something about it in writing. Try your hand at an article and send it to me. I can't guarantee it'll get published—but your chances are always zero when you don't try! You might even win a Fleagle T-shirt or take some heat off the editor—or both.

Ed

P.S. Don't expect your crusade to bear any immediate results. Never once in my flying career have I ever heard an instructor tell me to "add thrust." It's always been, "get the power in," etc.

TAC TALLY



CLASS A MISHAPS	▶
AIRCREW FATALITIES	▶
TOTAL EJECTIONS	▶
SUCCESSFUL EJECTIONS	▶

TAC		
MAY	THRU 1980	MAY 1979
3	12	17
2	8	15
3	13	19
3	10	10

ANG		
MAY	THRU 1980	MAY 1979
1	7	6
1	6	5
0	7	4
0	4	2

AFR		
MAY	THRU 1980	MAY 1979
0	0	3
0	0	2
0	0	3
0	0	1

TAC'S TOP 5 thru MAY '80



TAC FTR/RECCE	
class A mishap free months	
27	33 TFW
23	56 TFW
20	1 TFW
19	31 TFW
14	388 TFW

TAC AIR DEFENSE	
class A mishap free months	
102	84 FIS
88	57 FIS
41	5 FIS
38	48 FIS
24	318 FIS

TAC GAINED FTR/RECCE		
class A mishap free months		
135	152 TRG	(ANG)
97	188 TFG	(ANG)
89	138 TFG	(ANG)
88	917 TFG	(AFR)
85	116 TFW (128 TFS)	(ANG)

TAC GAINED AIR DEFENSE		
class A mishap free months		
94	191 FIG	(ANG)
75	102 FIW	(ANG)
71	177 FIG	(ANG)
37	125 FIG	(ANG)
20	119 FIG	(ANG)

TAC/GAINED Other Units		
class A mishap free months		
130	182 TASG	(ANG)
123	193 TEWG	(ANG)
115	110 TASG	(ANG)
110	USAFTAWC	(TAC)
106	919 SOG	(AFR)

CLASS A MISHAP COMPARISON RATE 79/80

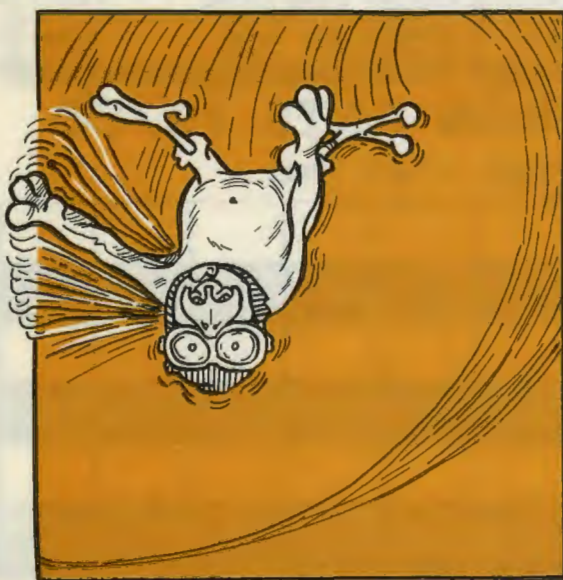
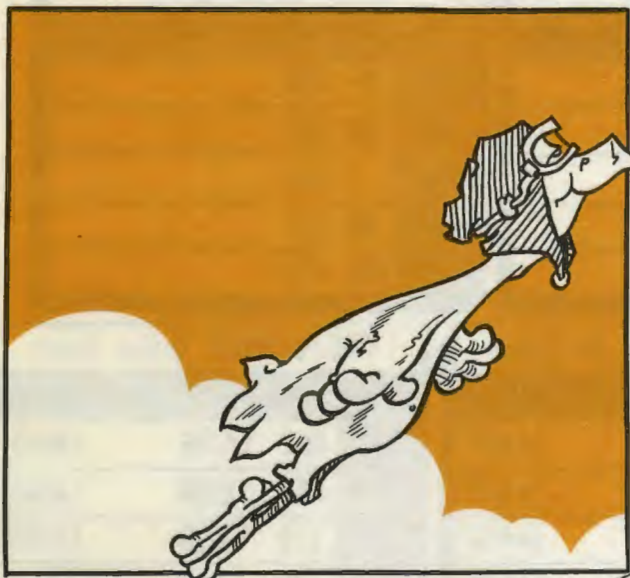
(BASED ON ACCIDENTS PER 100,000 HOURS FLYING TIME)

TAC	1979	6.9	7.0	5.9	6.6	7.4							
	1980	2.0	4.0	5.2	4.4	4.7							
ANG	1979	0.0	11.4	9.0	9.7	7.6							
	1980	5.0	7.6	6.6	7.1	6.5							
AFR	1979	0.0	0.0	19.9	23.1	17.0							
	1980	0.0	0.0	0.0	0.0	0.0							

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