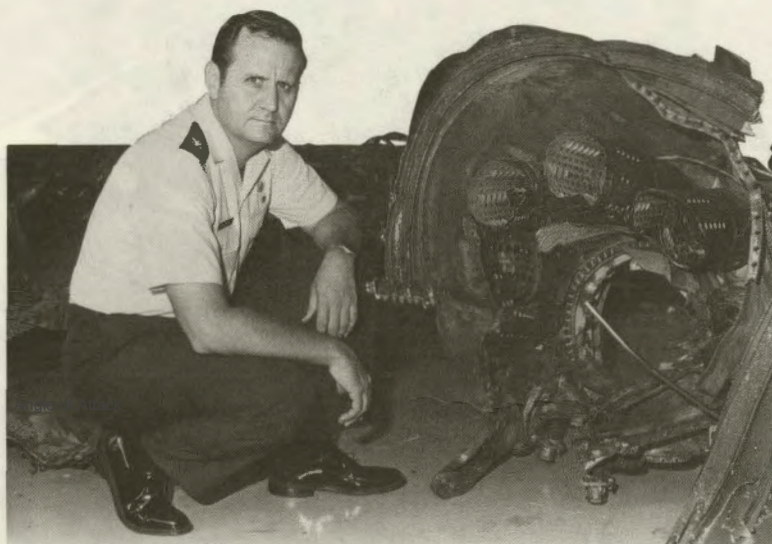


TAC ATTACK

OCTOBER 1983





ANGLE OF ATTACK

The wreckage in the background of the above picture is the result of an aircraft collision with the ground. In 1982, and thus far in 1983, all operator-factor mishaps in aircraft performing air-to-surface missions were collisions with the ground—eight in 1982, four in 1983. Too often we find that pilots are either distracted or diverted from the primary task of flying the aircraft while avoiding the ground to perform other important tasks—changing radios, setting weapons switches, reading maps, etc.

Considerable research is now being done to address distraction and diversion of attention. Maj Gary Goebel instrumented an A-10 simulator and measured the time required to perform specified switch settings and the effect this diversion had on aircraft control. This month we present the first half of his report, and next month we'll publish the conclusion. Additionally, Capt Milt Miller of the Arizona ANG is helping the TAC staff develop a training program that will teach strategies for successfully flying at low altitudes. You can look forward to seeing or hearing the results of his studies soon.

Regardless of your type airplane, if it has two or more engines, Maj Denny Domin's article on A-10 engine-out flight characteristics provides good information for keeping your airplane flying with less than design thrust.

Ms Marty Diller supports national Fire Prevention Week, October 9-15, with her article on "Fire and Your Family." Discuss her article with your family. It could be a life-saving subject at your dinner table.

Finally, I want to thank those of you who responded to our survey. We're analyzing the results. Although we won't be printing any more survey forms, those of you who haven't yet responded can continue to send in forms from the August and September magazines or send in reproduced copies of the form. Thanks for your help.

Harold E. Watson
HAROLD E. WATSON, Colonel, USAF
Chief of Safety



ON THE COVER
F-5 AGGRESSOR

OCTOBER 1983

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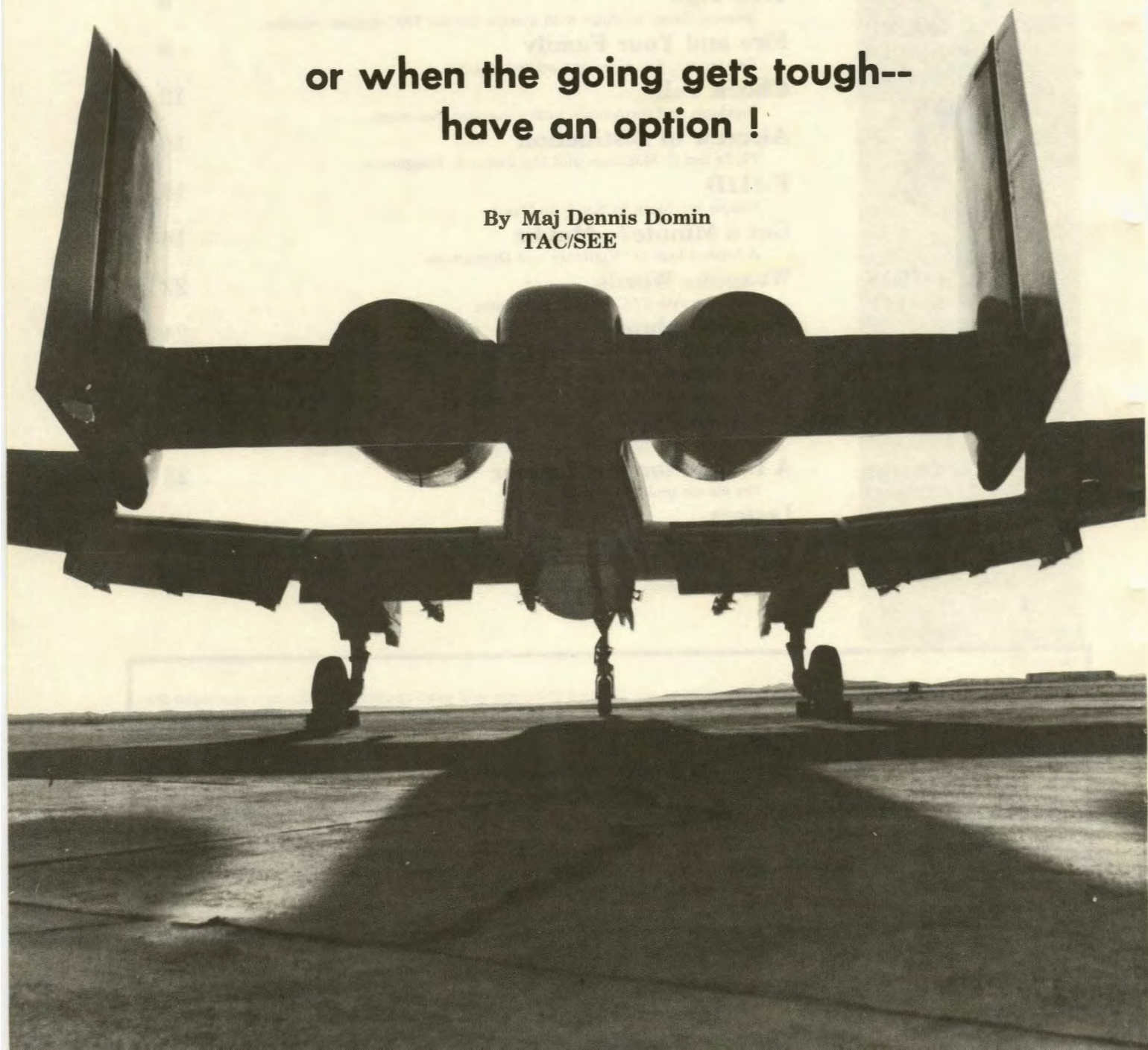
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A-10 SINGLE-ENGINE HANDLING

**or when the going gets tough--
have an option !**

**By Maj Dennis Domin
TAC/SEE**



I don't think anyone has ever stated that the A-10 is overpowered. Well, I won't dispel the common notion. Now that we have set this premise, let's discuss cutting the power in half.

Three A-10s have crashed while in a single-engine configuration. The underlying common thread has been the failure to arrest the buildup of yaw rate. Please heed the word *rate*. The A-10 will fly with yaw, but you can't allow the pointy end (no laughs) to continue to increase yawing. Everyone knows that yaw is corrected by rudders. Not so quick, you black-booted wonders of tank killers, read on for the real answer!

If you are unfortunate enough to lose an engine while fully configured on final and on speed, you need to do a few things rather quickly. One is to kill yaw rate, usually with rudders. The only problem here is that you don't have enough rudder authority at 120 knots to accomplish this. Also, when you apply full rudder—correct—drag increases rapidly. As we all know, the A-10 has plenty of drag already. So what are you going to do now? You bet, *bank* up to five degrees *into the good engine*. The reason this works is that when you lose the engine the longitudinal axis changed due to the additional drag created by the dead engine. Up to five degrees of bank into the good engine will make the single-engine A-10 a lot easier to fly while reducing drag.

What you have just done is to "maintain aircraft control." Keep doing this while con-

tinuing to improve your position. Increase airspeed and clean up the aircraft. This may include jettisoning the stores. Basically, the procedure is similar to a single engine failure on takeoff.

Now you have built some options: go around or land. Either is better than what you had earlier: high drag, low thrust, low airspeed, and certain descent. In short, you have maintained aircraft control while improving your situation.

Now you as a prudent pilot "analyze the situation and take proper action" by landing if you can safely configure the aircraft and obtain proper runway alignment. If you can't, then go around and give yourself plenty of time to set up for the next approach. Remember, keep your airspeed up—the A-10 will not accelerate rapidly on one engine (or even two engines). Airspeed reduces rudder required, thus reducing drag

while improving controllability. However, if rate or angle of climb is critical, use the proper airspeed for your weight and configuration.

I haven't mentioned losing an engine on takeoff or in flight, but the above ideas can be used in all cases of engine loss. If altitude permits, reducing power on the good engine is an effective way to dramatically reduce yaw rate and quickly regain aircraft control. In any case, get the yaw rate controlled by bank *and* rudder.

A lot of you will say, Why is this guy telling us all this basic information? I wish I didn't have to, but three destroyed A-10s are evidence that A-10 single-engine flight characteristics must be reviewed periodically. So, don't let the yaw rate build up, clean up the aircraft, and increase your speed. Then, hopefully, I won't have to write this article again. ➤

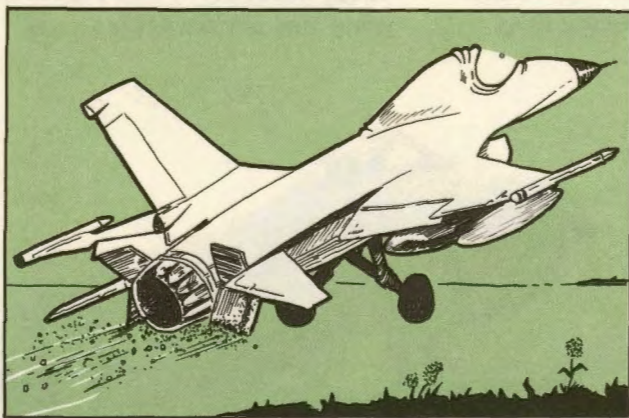


TAC tips

INTEREST ITEMS,

WOW and AOA

A two-ship of F-16s made a formation landing. From a slightly shallower than normal final approach at 11 degrees angle of attack (AOA), they touched down normally. Number 2 bounced slightly. Then they began aerobraking. As the airplanes passed the control tower, the supervisor of flying thought he saw sparks behind the flight. Sure enough, it turned out that number 2 had scraped his speed brakes and nozzle.



The pilot had been using the AOA indicator and the AOA indexer to hold an angle of attack of 13 degrees. That method works fine—until weight on wheels (WOW) occurs. Once the weight is on the wheels, the AOA readings are no longer accurate: the indicator goes to 13.5 degrees, and the indexer shows the green doughnut with the red arrow pointing down. That's what the pilot saw when he thought he was holding 13 degrees AOA.

Since the AOA indications showed about 13 de-

grees no matter what the angle of attack really was, the pilot unknowingly exceeded the limit of 15 degrees AOA, where the Dash One warns that the airplane may scrape the runway. On this flight the airplane was carrying two TGM-65 missiles, so weight on wheels took place at a higher speed because of the higher gross weight. But even at lower gross weights, weight on wheels occurs at speeds well above the 80 knots that the flight manual recommends aerobraking to.

Since a specific AOA is recommended for optimum aerobraking, we need some way of measuring it. The trick is to check AOA before WOW occurs and compare it to other references, then use the other references to hold the altitude. That might keep us from dragging our bottoms.

Oops, wrong handle

After landing from a night mission, the A-10 pilot taxied back to his parking spot. Using flashlights, the crew chief directed the pilot while two other maintenance workers got ready to check the tires, chock the airplane, and pin it. The crew chief didn't hook up the communications cord to talk to the pilot on the interphone. After one side of the tires were checked for cuts, the crew chief signaled the pilot to taxi forward again. But as he moved forward, the pilot saw a B-4 maintenance stand on the left side of the airplane; he stopped taxiing to be sure he wouldn't hit it.

The other workers chocked the airplane where the pilot stopped, but the ground wire wouldn't

MISHAPS WITH MORALS, FOR THE TAC AIRCREWMAN

reach the aircraft. The crew chief told one of the other workers to move the B-4 stand and signaled the pilot to hold the brakes as the third worker prepared to pull the chocks. At the same time, the pilot shut down the left engine. Then the crew chief motioned for the chocks to be pulled and signaled the pilot to taxi forward.

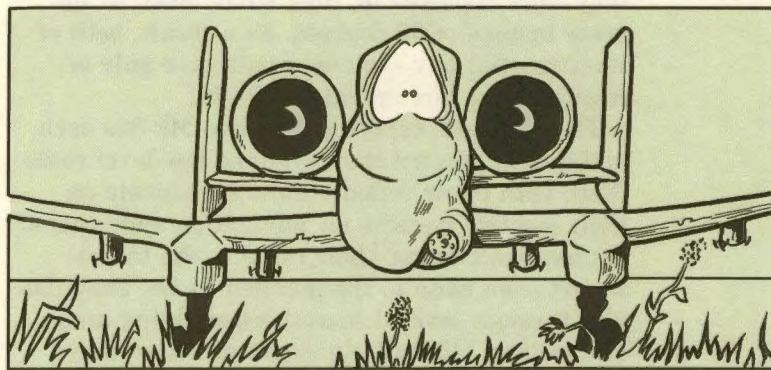
As the chocks were pulled, the pilot was looking inside the cockpit at the inertial navigation panel. Out of the corner of his eye, he saw the aircraft start to move forward. With the left engine shut down in an A-10, normal braking is not available; the emergency brake handle on the left forward side of the cockpit must be pulled to obtain emergency braking. The pilot decided to pull the emergency brake handle, but instead of reaching to the left, he reached to the right and pulled the canopy jettison handle. The canopy jettison rocket fired, penetrated the open canopy, and landed against a shelter about 140 yards away.

We've all heard the saying that the sortie isn't over until the airplane is shut down safely in the chocks. This pilot almost made it that far.

Hog seeks mud

By Maj Dennis Domin
TAC/SEE

While proceeding to the arming area, the A-10 pilot applied brakes to slow his aircraft. Much to his chagrin, the left rudder pedal went to the floor, and his A-10 turned 90 degrees right



onto hard packed dirt. The pilot disengaged nose-wheel steering and brought the plane to a stop.

Obviously, the results could have been much worse. Let's take a look at why this happened so we can avoid a similar incident.

This mishap was caused by a deficient rudder adjustment handle that would not properly seat and so would not lock. Maybe the pilot just released the handle and didn't insure that the rudder pedals were locked. We have to press down hard and jiggle the rudder pedals to make sure they are secure. I know I don't have to tell you this (do I?), but rudder pedals should never be adjusted while taxiing.

Let's say you did all the correct steps for rudder pedal adjustment, and it still wasn't your day—a rudder pedal went full forward while you were taxiing with nosewheel steering engaged. Unless you're Wilt Chamberlain, you're in trouble. Will your first step have to be to move your hands from the canopy rail to the stick to disengage nosewheel steering? In my old squadron, taxiing with your hands on the rails would have been a five dollar fine. The point is, when you're taxiing, keep your hands where they belong—on the stick and throttles—poised to keep your Hog where it belongs.

TAC TIPS

Just call it a bad day

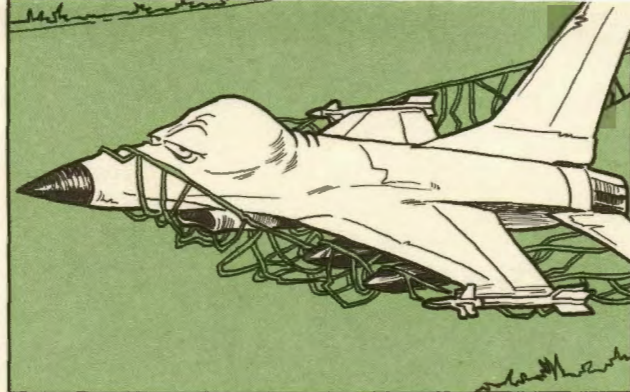
Ever have one of those days when everything seems to go wrong? Often, the smallest oversight seems to start things off wrong; then everything else follows. Here's a case in point:

A flight of two F-16s were scheduled for a surface-attack mission using live ordnance as part of an exercise. Both pilots copied down the wrong present position coordinates for the base they were deployed to; they wrote down 37 degrees instead of 36 degrees. As a result, both of their inertial nav systems would give only erroneous data throughout the flight.

They took off, carrying four live Mk-82s each, and headed toward their planned low-level route. Since both pilots relied almost exclusively on their inertial systems for navigation and ignored the available maps, their route to the target wasn't even close to the planned route. They plowed through several unauthorized flying areas and ranges, blissfully ignorant of where they were. When the time came to strike the target, they couldn't find it since they weren't anywhere near it. Fortunately, nothing that looked like the target was in the area where they were, or who knows what might have happened.

As it was, they finally knocked off their mission and returned to the base with their unexpended bombs. The approach to the active runway (03) required flying over a populated area, so the F-16s were directed to land on runway 21, opposite traffic because of their live ordnance. Tower reported the winds as 360 at 10. Actually the wind direction varied from 045 degrees to 250 degrees, and the speed was anywhere from 5 to 26 knots. Three F-16s had made unplanned go-arounds because of wind shear in the ten minutes just before this flight showed up. One of the F-16s informed ground control about the wind shear after landing, but the information wasn't passed to landing aircrews.

The number 2 F-16 flew his approach first, landing with no apparent problems. Then it was Lead's turn. He flew a steady approach, keeping his flight path marker on or just short of the runway threshold. As he crossed the overrun, he hit the wind shear. The airplane yawed and the AOA increased suddenly. The pilot pushed the



throttle up to full military, but it was too late. The left main landing gear hit the raised MA-1A barrier webbing. Then the MA-1A cable engaged the tailhook of the F-16, even though the hook hadn't been lowered. The airplane, bombs and all, was brought to an abrupt stop.

The damage was less than it might have been: it amounted to \$40,000. And like all bad days, this one had the mercy finally to come to an end.

Maybe we're supposed to learn something from our bad days. Maybe bad days are really ordinary days that just happen to show up our bad habits—like not checking our numbers, not backing up the black boxes with dead reckoning, and not planning our touchdown points to allow a margin for error. Maybe in the Really Big Picture, bad days are good days because we learn from them. Let's hope so.

Need for NOTAMs misunderstood

Air Force Communications Command (AFCC) just finished a survey on how aircrews were using the NOTAM summary boards in base operations. The survey came up with a few surprises.

Some aircrews didn't check the NOTAMs at all. A larger number were checking the NOTAM board but overlooking the Special Notices section. Numerous aircrews were not checking NOTAMs on stopover flights; when queried by base ops people, these aircrews said they had checked the NOTAMs before their first departure.

It could be that we've forgotten what AFR 60-16, AFM 51-37, and FLIP have to say about our responsibility to check NOTAMs. AFCC is developing an audiovisual slide presentation that explains the NOTAM system. In the near future, we can expect to hear more about how we should be using NOTAMs. In the meantime, why don't we review the regs to make sure we're doing it right?

—Adapted from *TIG Brief*, 22 Aug 83



FIRE AND YOUR FAMILY

By Ms. Marty Diller

An unsupervised three-year-old went to the kitchen and turned on all the burners of the stove. A blender was being kept on one of the rear burners. It ignited, spreading flames to the overhead cabinets. Fortunately, the smoke alarm sounded, woke his mother, and they escaped.

Each year TAC has about 50 fires in military family housing. Unattended cooking is the number one cause, followed by children playing with matches or lighters, then careless smoking. TAC differs from the national scene where careless smoking is first, followed by portable heating equipment. No one is completely safe from a residential fire, but you can make the odds better through prevention, detection, and planning.

Prevention

Know the hazards. Get in the habit of checking your home when the seasons change—that's when there's usually a notable increase in home fires.

Careless smoking. Don't smoke in bed. After having a party or company, check under cushions and behind furniture for smoldering cigarettes. Furniture can smolder for hours before the flames appear. Use untippable ashtrays and metal cans to empty the ashes into. And keep track of your matches and lighters if small children are around.

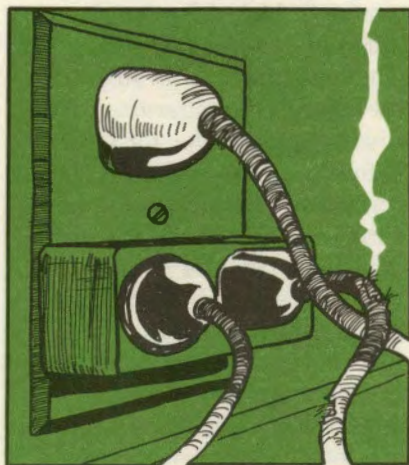
Careless cooking. Be extra cautious on nice-weather days—that's when more things are left unattended on stoves. Never store grease or kitchen appliances on the stove, and clearly mark on/off and high/low settings. Ventilation hoods

Fire and Your Family

should be free of grease. Use larger pans so grease won't splash out. If the stove doesn't work correctly, have it checked by a professional. When barbecuing outside, keep the grill at least ten feet from any building. Don't use anything but charcoal lighter to start your fire; nothing else is safe.

Heating equipment. A wood stove should be installed by professionals. Curtains, carpet, and furniture should be at least three feet from any heating appliance or fireplace. Use only the manufacturer's recommended fuel. Don't store combustibles or flammable liquids near a hot water heater or in the furnace room. Clean and service your central heating system, chimney, wood stove, or fireplace at the beginning of each heating season.

Electrical wiring. Avoid using extension cords; the insulation on an overloaded cord can ignite. TVs and stereos should be far enough from



walls to let the hot air out. Don't walk on electrical cords or hang them from nails. Al-

ways call a professional if you need any repairs on electrical wiring. Don't use a penny for a fuse, and keep combustible materials or flammable liquids away from wiring in case it shorts out and sparks.

Detection

There are two types of smoke detectors: ionization detectors, which respond slightly faster to flaming fires, and photoelectric detectors, which react faster to smoldering fires. Heat detectors should be used only to back up smoke detectors. They respond to a fixed temperature or to



how fast the temperature rises.

Where should you put the detectors? First, know your escape route. That's where you want detector protection, usually outside bedrooms and in stairwells. Place them high, where smoke will get to them. If you put a detector on the ceiling, it should be at least 4 inches from the wall. On the wall, a detector should be 4 to 12 inches from the ceiling. Don't put it near windows, doors, or air registers. And make sure everyone can hear

it. If you smoke in your bedroom, consider extra protection. Put heat detectors where the humidity is high or where the



temperature is too hot or too cold for a smoke detector: the kitchen, furnace room, laundry room, attic, or attached garage.

A 1982 National Technical Information Service survey on smoke detectors shows that two out of every three households now have at least one smoke detector, but that in most cases, one detector isn't enough. Two detectors give additional early warning, and chances are they both won't be on the blink at the same time.

Check them at least once a month. Check the power source, then give them smoke. Some newer models have a built-in smoke test feature, but a real smoke test could ease your mind.

Smoke detectors provide an early warning system that gives anywhere from a few seconds to a few minutes that you wouldn't have without them. Those few minutes could be wasted time if you don't know what to do. So meet EDITH, or exit drills in the home.

EDITH

It's important to plan for and practice exit drills so that

everyone in the household can escape a fire. Teach small children to escape on their own, not to wait for you. Vary your drills, but practice mainly for when you'll be sleeping because most fatal fires start between midnight and dawn. Practice getting out in just a few seconds and practice for the worst conditions.

Sleep with bedroom doors shut. Doors are barriers and give extra seconds to get out. And always shut any doors that you open during a fire. Have at least two exits from every room, a regular one and an emergency one. Make sure everyone can reach and operate doors, windows, and locks. If you use rope ladders, practice using them. They should have



standoffs at every rung. Make a diagram of your exit plan and post it. Have a distress signal along with the smoke detector alarm. Plan to crawl on your hands and knees so your head is at least one foot from the floor but not higher than two feet. Designate a person to help small children, elderly, or disabled persons. Have a meeting place outside and know the quickest way to notify the fire

department.

In a real fire, roll out of bed and crawl to the door. Feel the door—level with or above the door knob. If it's hot, or if smoke is coming in through the



cracks, use your emergency exit. If it's cool, open carefully, but brace yourself and be prepared to slam it. Close the door if you leave the room.

Don't waste time trying to fight a large or rapidly growing fire. And don't call the fire department, get dressed, or collect valuables. Your only goal is to get out.

If you plan to escape through a window, make sure the door is shut before you open the window. Use a ladder or jump. But if you're on the third floor or higher, don't jump. Stuff the cracks of the door, crack open the window—at the top and bottom if you can—and signal that you're there.

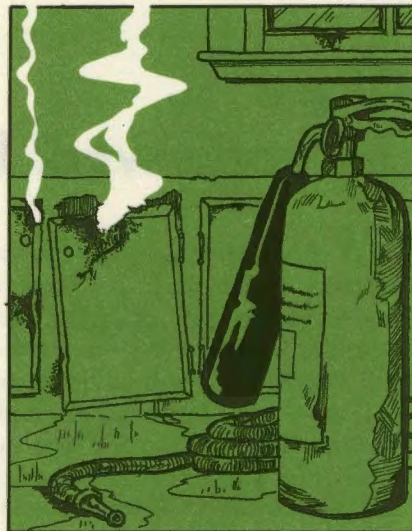
Once you're out of the fire, go to the designated meeting place, notify the fire department, and be sure to give your address. And *don't go back in*.

Many small children hide. They become frightened, not only of the fire, but the firefighter. Encourage them not to be afraid of a firefighter. Always lower small children

yourself—don't go outside and expect them to follow you.

If you catch on fire, drop and roll, don't run. And if someone does get burned, cool the burn immediately with water, nothing else, and get medical attention.

A fire extinguisher and a garden hose are excellent tools to fight a home fire that's small enough to fight. Always smother



er grease fires. For other fires purchase a fire extinguisher labeled with an "ABC." That means it's good for everything: paper, wood, flammable liquids, and electrical equipment. But remember, electrical fires won't go out until the power is cut off. Fire extinguishers last less than a minute, so you have to be accurate and fast. Stand three to six feet from the fire, aim at the base, and use a side-to-side motion. Don't try to remove a smoldering piece of furniture because it could get stuck in the doorway or burst into flames when oxygen hits it.

If you want more information, need a courtesy inspection, or help with your escape plan, call your fire department.

CHOCK TALK

chock talk

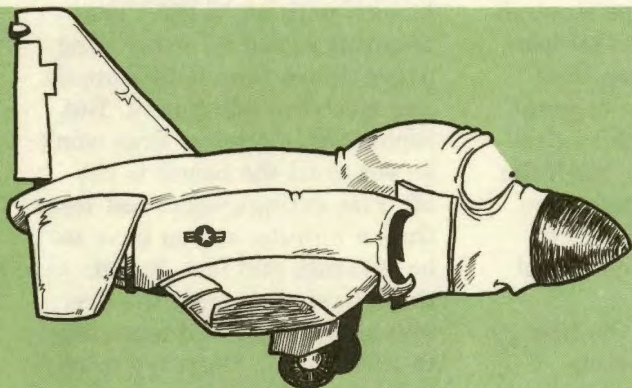
Incidents and

INCIDENTS AND

I'll get the paperwork later

While trying to fly a departure in radar trail on their leader, an F-4 aircrew discovered that their airspeed and altimeter indications were unreliable. Luckily, they were able to climb out of the weather and join up on their leader. As they did, the altimeter oscillated, and the airspeed indicator decreased to zero. The instruments were useless for the remainder of the flight.

After joining with their leader, the aircrew burned down their fuel until the F-4 was light enough to land. Then they flew a formation approach to an uneventful landing.



This airplane had been grounded for a week while some rear cockpit lighting problems were corrected. Fixing those problems required removal of the radar scope and mount. After the lighting defect was repaired by an electrician, a weapons control system technician was given the job of reinstalling the radar scope. He had some difficulty putting the scope back in. To

properly route an electrical umbilical, he had to disconnect a static line at a tee fitting and move it.

The technician had intended to document the disconnected static line so that it would be reconnected. But because of the unexpected difficulty and extra time involved in replacing the radar scope and mount, he forgot about it. So the airplane was released for flight with the static line disconnected.

Human memory being what it is, when we postpone documentation, we're likely to forget about it. It may be a nuisance to interrupt what we're doing and take the time to do paperwork, but it's the only way to make sure it gets done. If it doesn't get done, trouble always follows.

Rushing the job

Maintenance workers on the midnight shift in an F-15 unit were tasked to change an engine before the airplane's scheduled takeoff in the morning. The right engine was removed and replaced. After the engine was installed, the workers found themselves rushed in reinstalling the engine bay panels in time for the first launch. Three different crew chiefs were working at reinstalling the panels. One of them discovered that panel 128 was missing two fasteners. He told the mid shift expeditor. The expeditor said that he would get the fasteners and secure panel 128 himself.

In the rush of events and the confusion of shift change, the expeditor forgot about the fasteners. He signed off the forms without checking to see that the panels were secured. In fact, panel 128

INCIDENTALS WITH A MAINTENANCE SLANT

was held in place only by two hooks at the top of the panel.

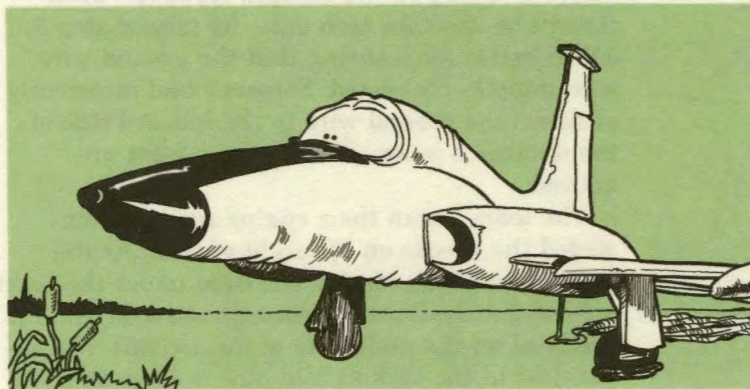
The airplane made its scheduled takeoff time, but after the mission the crew chief discovered that panel 128 was missing. The pilot hadn't noticed anything abnormal during flight. The hooks had kept the panel in place during preflight operations and during low-G flight; but when the G-forces increased, the hooks failed. Fortunately, the mission was flown over open ocean for the most part, so the panel probably did little damage when it fell.

The cause of the dropped panel was the failure of the expeditor to check what he was signing off. But the cause of that failure was the rush to get the airplane ready for the morning launch. Good work routines are often the first casualties of that kind of rush. So the hurrieder we go, the behinder we get.

Let's hurry up and get home

An F-5 returning from a deployment landed at an en route base to spend the night. When the airplane was on final approach, the tower informed the pilot that the runway was wet in places. After touchdown the pilot deployed the drag chute, but for some reason it didn't blossom.

The pilot used aerobraking to slow the airplane as it alternately hydroplaned and skidded between puddles on the runway. One thousand feet from the end, the drag chute finally blossomed, too late to be of much use. The F-5 rolled over the departure-end MA-1A barrier and stopped about 50 feet into the overrun. The left tire deflated.



Maintenance workers who were returning from the deployment were diverted into the en route base to fix the F-5 the next day. They changed both wheel and brake assemblies and prepared the airplane for departure.

The pilot taxied out to head for home, but he didn't get very far. After taxiing about 100 yards, the pilot noticed a slight drag on the left brake, followed by the same feeling on the right brake. The dragging got worse in a hurry; soon both wheels were nearly locked. The pilot stopped the airplane and shut down, declaring a ground emergency.

His taxi route was marked by a trail of parts from both wheels—grease seals, bearings, and bearing seats. It didn't take long to figure out something was wrong with the way the wheels had been replaced. Both wheels were missing spacers that should have been removed from the old wheels and placed on the new wheels.

When they replaced the wheels, the maintenance workers simply hadn't followed the tech data carefully. The maintenance supervisors and inspectors who were available to monitor the work didn't monitor closely enough to catch the error. Do you suppose everyone's minds were on getting home and not on the tech data?

CHOCK TALK

FOD daze

A maintenance team was assigned to run both engines on an F-111 for a leak and operational check. After they arrived at the airplane, the team supervisor did a walkaround inspection before climbing in the cockpit. However, even though he used the tech data, he missed step 3, which called for insuring that the ground wire was properly connected. Someone had incorrectly attached the ground wire to the inboard side of the number 4 pylon, but the error went unnoticed.

The team began their engine run and completed the checks on the right engine. As the ground man was coming out from under the right side of the airplane, he stood up too soon and hit his head on the underside of the aircraft. His supervisor in the cockpit told him to come forward so that the supervisor could look him over to make sure he was all right. The ground man crossed under the airplane behind the main gear and moved forward to the cockpit. As he did, his communications cord snagged the incorrectly attached ground wire and pulled it forward near the left engine intake.

The supervisor looked the ground man over. No injury was apparent, and the ground man said he felt OK. So they decided to continue the engine run. The ground man moved over to the left en-

gine while the supervisor advanced the left throttle.

Just then, the fire guard saw sparks coming from the tailpipe of the left engine. At the same time the supervisor lost ground communication and engine rpm indications; he immediately shut down the engine. Afterwards, they found that the engine had ingested the communications cord and the ground wire.

The ground man was treated at the hospital and then excused from duty for the remainder of the shift. He could remember nothing from the time he hit his head until he was in the truck on the way to the hospital. Although he had appeared normal to the supervisor, he had been in a daze the whole time. That's why he didn't notice the position of the comm cord and the grounding wire.

Since most of us aren't capable of diagnosing head injuries, we're probably better off to assume the worst and call a halt to the whole operation when someone knocks his noggin. We shouldn't expect him to be able to do his job, no matter how normal he seems to us. And we can't rely on his own diagnosis of his condition, so let's send him to the professionals.

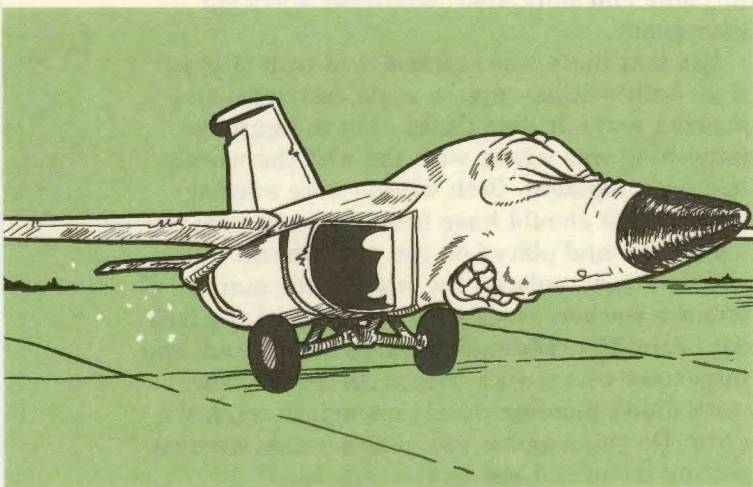
Conductivity can prevent fuel tank fires

Two recent fuel tank fires point up a danger in purging fuel tanks. The tanks involved contained blue polyether reticulated foam as a fire suppressant. The foam is electrostatically active, and static buildup can trigger a fire. In both fires, the purge fluid being used had a low conductivity level.

Conductivity additive relaxes electrostatic buildup during fuel handling. The conductivity level of purge fluid should be between 100 and 700 conductivity units. The problem is that the conductivity level of the fluid drops with each use, so the level needs to be checked periodically.

The folks at base fuels can tell you how to check the conductivity level of your purge fluid and how to maintain the proper conductivity. Talk to them and make sure the fluid you're using is safe.

—Adapted from *TIG Brief*, 22 Aug 83



AIRCREW OF DISTINCTION

On 15 April 1983, FLT LT IAN C. MATTIMOE, RAF exchange pilot, and MAJ JAMES J. DOUGHERTY, USAF flight surgeon, were leading a two-ship of F-16s on a surface-attack tactics mission. While egressing the target area at 500 feet above the ground and 540 knots, Flight Lieutenant Mattimoe made a level turn to the right, pulling three to five Gs. During the hard turn the right leading edge flap failed; the F-16 suddenly rolled further right to 120 degrees of bank and started to descend.

Flight Lieutenant Mattimoe unloaded the Gs and rolled the airplane back to wings level, then pulled the nose up and climbed. During the climb Flight Lieutenant Mattimoe and Major Dougherty learned that the inboard two-thirds of the right leading edge flap had been completely torn off the airplane. The remaining outer third of the flap had failed 90 degrees upward, perpendicular to the windstream. Flight Lieutenant Mattimoe locked both leading edge flaps to eliminate commands from the flight control computer. Major Dougherty discovered that the missing portion of the flap had struck the vertical stabilizer, destroying the top eight inches and punching a three-inch hole in the rudder.

While Flight Lieutenant Mattimoe held heavy left pressure on the side stick controller to keep the wings level, Major Dougherty gave him the information in the checklist. They jettisoned the external wing tanks and manually applied full left flaperon trim, which reduced the amount of left stick pressure required and also lessened the aircraft's buffeting.

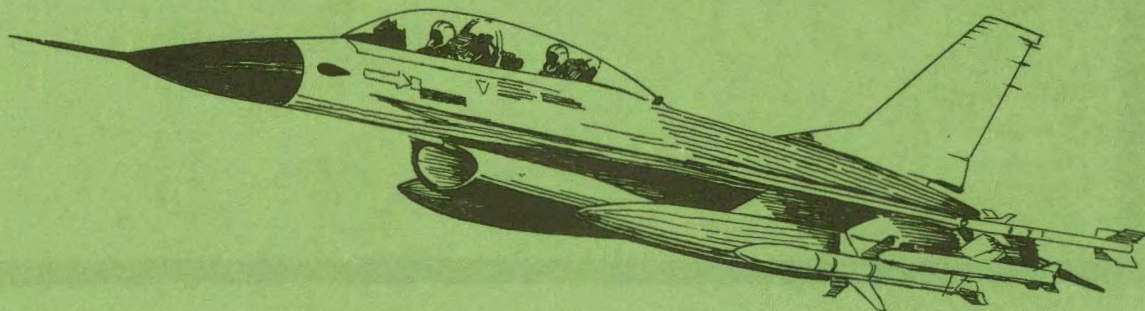


Maj James J. Dougherty
Flt Lt Ian C. Mattimoe
4 TFS, 388 TFW
Hill AFB, UT

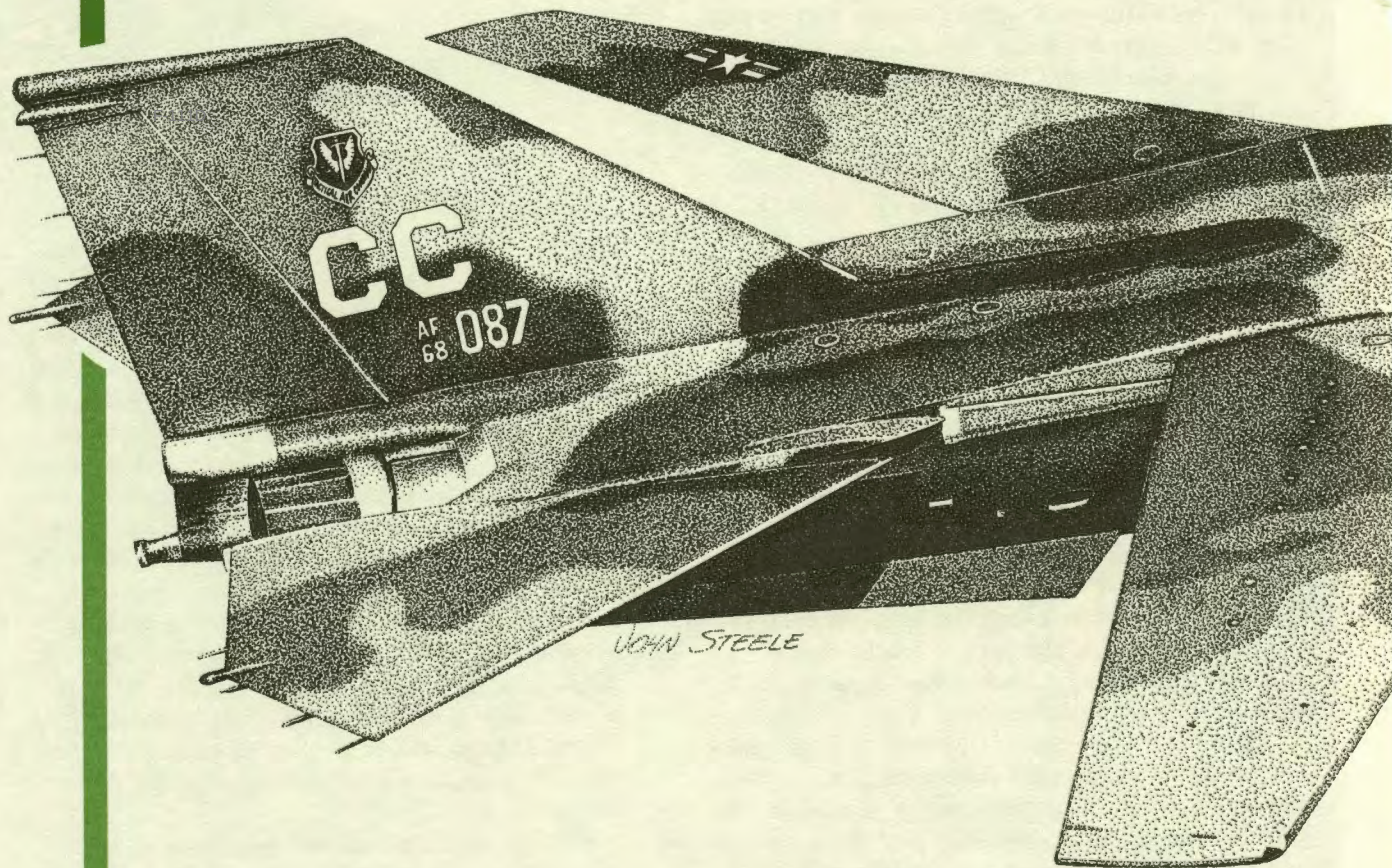
As they diverted to a nearby emergency field, Flight Lieutenant Mattimoe did a controllability check in the landing configuration and decided he'd be able to fly a flat, straight-in approach at 8 to 10 degrees angle of attack and 220 knots.

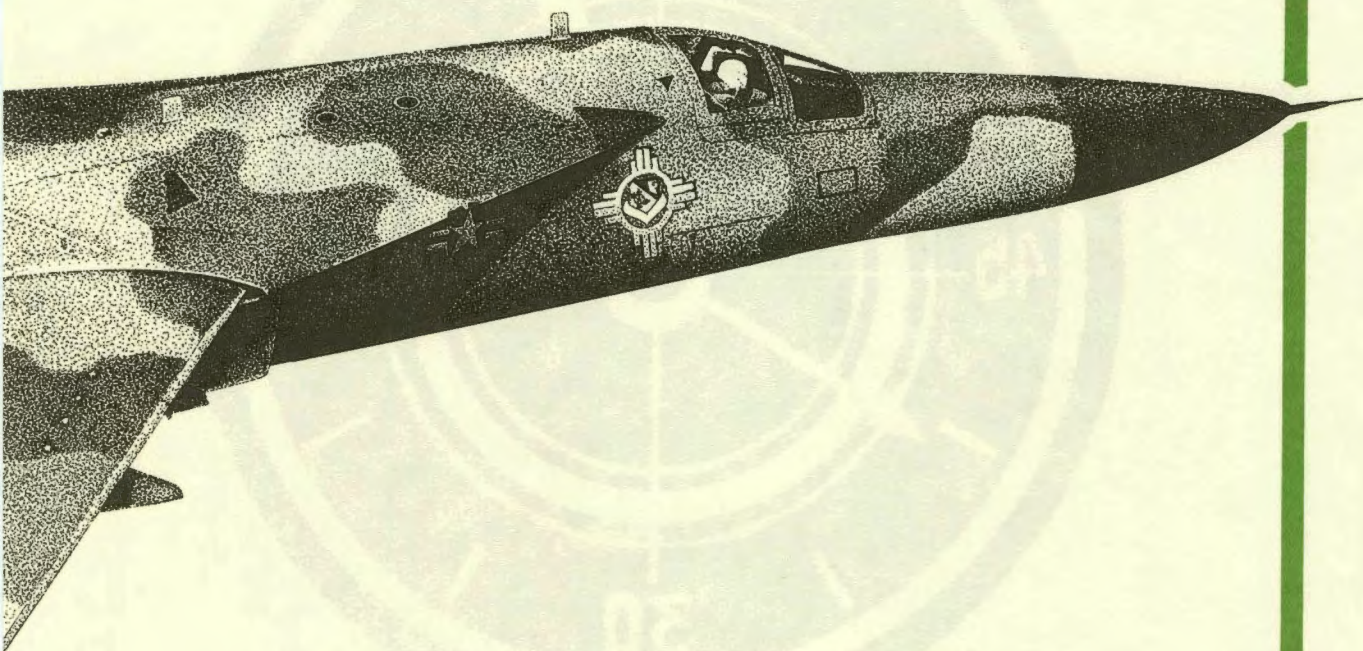
En route, Major Dougherty reviewed the data on the divert airfield. Flight Lieutenant Mattimoe flew with his left hand on the side stick controller to give his right arm a rest before flying the approach. Then he flew the approach with the right wing slightly low to control a noticeable left drift. Just before touching down at 205 knots, he applied rudder to align the airplane's nose with the runway. After landing, he lowered the nose and controlled the airplane with wheel brakes, stopping just short of the departure end barrier.

By their quick reactions, excellent systems knowledge, and skillful flying, Flight Lieutenant Mattimoe and Major Dougherty saved their airplane and possibly their own lives. They deserve the title Aircrew of Distinction.



F-111D





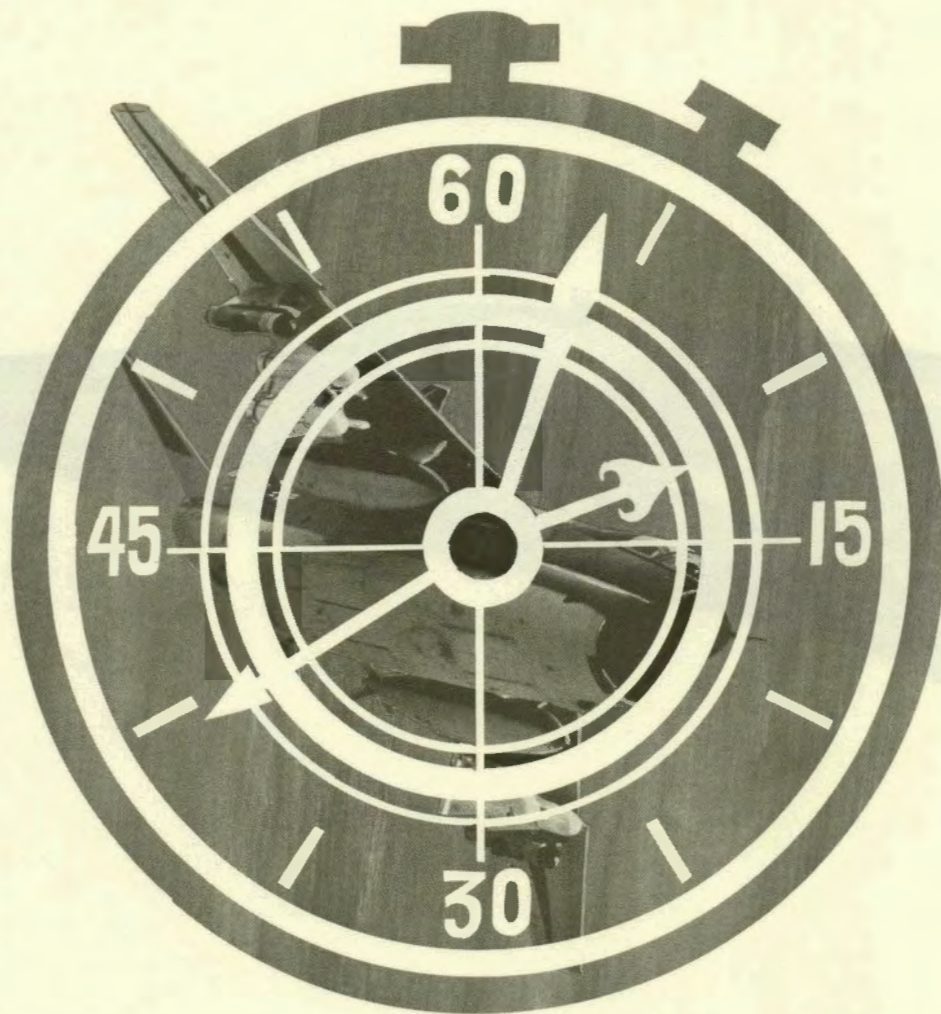
A further look at "Vigilance and Distraction"

By Gary M. Jacobson
17 JULY 1988
Herndon 101st F1

A brief history of the relationship between the F-15 and the F-16. The F-15 was the first of a new class of fighters, the F-16, which was designed to be a more maneuverable and agile fighter. The F-15 was designed to be a more powerful and more capable fighter. The F-16 was designed to be a more maneuverable and more agile fighter. The F-15 was designed to be a more powerful and more capable fighter.

The F-15 and F-16 are both highly maneuverable and agile fighters. The F-15 is a more powerful and more capable fighter. The F-16 is a more maneuverable and more agile fighter. The F-15 was designed to be a more powerful and more capable fighter. The F-16 was designed to be a more maneuverable and more agile fighter. The F-15 was designed to be a more powerful and more capable fighter.

GOT A MINUTE ?



A further look at "Vigilance and Distraction"

By Maj Gary M. Goebel
USAFAGOS
Hurlburt Field, FL

We had a mid-air collision between two F-15s, during a routine UHF channel change. We had another F-15 mid-air collision during a routine check on inertial position. An A-7 collided with the ground on downwind leg in

the gunnery pattern—most probably *while the pilot was checking bomb computer data*. In each case there was no emergency, operations were routine, and the aircraft were apparently performing well. In these cases, as in many other cases where preoccupation in the cockpit is a known or suspected cause of the mishap, there was no question of aircrew capability to perform the mission and to

--MAYBE

handle both in-cockpit and out-cockpit demands. *Yet during routine activity*, inadequate pilot attention to position relative to flight leader or to the ground produced disaster.

This 9th Air Force message from two years ago is a classic statement of a continuing problem that has had little research or analysis done on it, yet has killed many pilots and destroyed countless dollars worth of equipment. Last year, I addressed the problem in my article "Vigilance and Distraction" in the August 1982 *TAC Attack*. The problem is the division of attention between control of the aircraft and other secondary cockpit tasks.

I call controlling the airplane the "vigil," that is, the primary task that must be maintained while occasional brief secondary tasks, or distractions, must also be performed. The vigil might require maintaining a set clearance above terrain while flying low, maintaining position in formation, or simply flying instruments. In my article I tried to quantify the "safe" length of time a pilot could be distracted from his vigil. My estimates were based on pilots' answers to a questionnaire. But my conclusion was that no hard data was available to properly quantify the length of time it takes to do typical cockpit tasks, so individual pilots must on their own develop personal strategies for dealing with cockpit tasks and distractions and then build habit patterns based on this strategy.

Since then, I've continued studying the problem in hopes of getting more accurate values for the time it takes to perform typical cockpit tasks and to refine the estimates of allowable distraction time given by the pilots. I also examined more closely the various strategies invoked by experienced A-10 pilots, hoping that we'd find some commonalities that could be taught to younger pilots—some ways of doing the tasks that result in better aircraft control. On the other hand, some habit patterns might result in problems.

We set up a video camera inside the cockpit of an A-10 simulator to monitor pilot actions. The camera could generate time series down to tenths of seconds. A TV monitor was mounted on the simulator console. The cockpit was closed, with the internal floodlights full up. Eight experienced A-10 instructor pilots were given the primary task of maintaining altitude at 5,000 feet while they were given a variety of other tasks. Altitude deviations were recorded, and the timing was measured by the videotape.

The tasks we gave the pilot were straightforward, typical tasks done while flying. I divided them into four categories—short-duration, medium-duration, long-duration, and thinking tasks—based on what I anticipated the tasks would require. Here's what the tasks involved:

Short duration.:

1. TACAN channel change.
2. Weapons switch setup.

Medium Duration:

1. UHF frequency change.
2. IFF frequency change. Many pilots felt this was the most difficult switching task.

Long duration:

1. Checklist reference. The checklist was located on the right console. Pilots were tasked to find the page they would refer to for particular emergencies.
2. Letdown book access. Pilots were asked to get the Southwest letdown book from among several books in the publications container at the rear of the right console. Changing hands on the stick was required. The book was set aside for later use.
3. Letdown book reference. Pilots were requested to find a specific letdown procedure in the Southwest letdown book.

Thinking tasks:

1. Time-to-bingo computation. Pilots were told that the runway was closed and were asked to compute endurance time until 1,500 pounds of fuel remained.
2. Fuel-to-distance computation. Pilots were asked to compute fuel required to fly 100 miles at present fuel flow.

Here is the list of average time values recorded for doing the tasks. Notice the wide range of values in each category. If a pilot anticipates a certain length of time for a task, but, in fact, the task becomes prolonged, the disparity could be deadly.

GOT A MINUTE ? --MAYBE

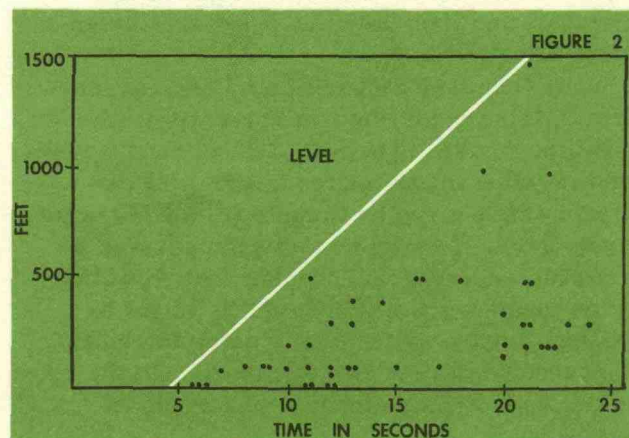
FIGURE 1

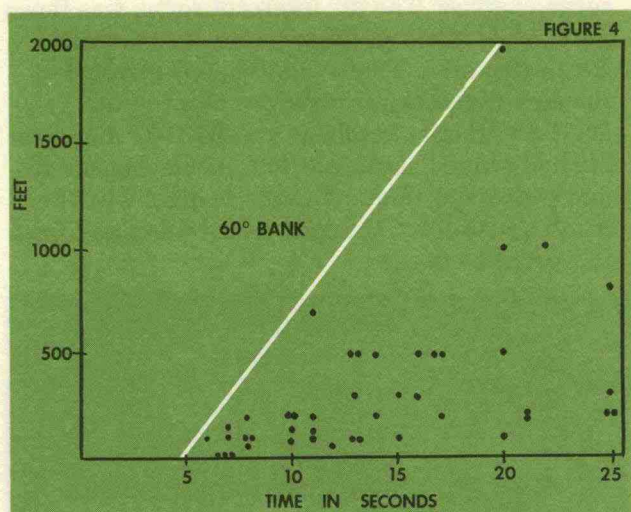
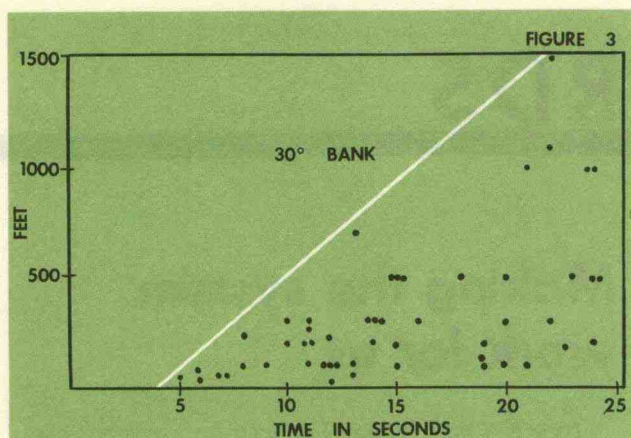
TASK	TIME USE			ALTITUDE CHANGE	
	MINIMUM	MAXIMUM	AVERAGE	MAXIMUM	AVERAGE
TACAN	2 sec	15 sec	6.3 sec	100 ft	38 ft
Weapons	4 sec	20 sec	9.7 sec	300 ft	95 ft
UHF	5 sec	16 sec	9.6 sec	100 ft	37 ft
IFF	4 sec	22 sec	9.8 sec	300 ft	80 ft
Checklist	10 sec	54 sec	28.8 sec	600 ft	197 ft
Bk Access	7 sec	46 sec	26.3 sec	500 ft	169 ft
Bk Refer	12 sec	80 sec	26.6 sec	200 ft	84 ft
Bingo	5 sec	69 sec	27.4 sec	900 ft	214 ft
Fuel/dist	17 sec	120 sec	44.4 sec	300 ft	144 ft

Despite the more convenient location of the weapons switches, time spent on them was longer than anticipated. In fact, the average time for weapons, IFF, and UHF switching was very close. This contrasts with the results of my questionnaire in last year's study. In the questionnaire, weapons switches were not seen as a problem, but IFF and UHF switches were.

Another surprise was the amount of time the mental calculations took. A 900-foot altitude deviation resulted when a pilot became totally engrossed in the mental calculation.

That leads us to the question, What is an allowable distraction time? We looked at that more





specifically in a second part of the experiment. We asked the pilots to look away from the main instruments and over their shoulder until told to recover, simulating total distraction or occupation in a secondary task. Each pilot was given a look-away at wings level and at 30 and 60 degrees of bank angle. The results are shown here in three scatter diagrams. The line on each diagram is drawn to encompass all values; it is a worst-case boundary.

The altitude deviations shown here did not include room for recovery. Because of the rates of descent, in an actual situation an altitude loss of 500 feet could result in ground impact before re-

covery was possible even if the starting altitude was above 500 feet.

Times away from the instruments of less than three seconds resulted in no noticeable deviations from normal flying performance and occurred routinely during normal instrument flight. But the steepness of the worst-case line is surprising, especially for wings-level flight. A loss of 500 feet in 11 seconds leaves little room for error.

Last year, we asked the pilots how long they thought they could be distracted in any one interval without endangering themselves. The average answer for an altitude of 500 feet above the ground was conservative—six seconds for level flight and about two seconds for maneuvering flight. But it shows that pilots expect a greater difference between level flight and maneuvering than may actually exist. The worst case line at seven seconds shows a 200-foot deviation in level flight and only a 250-foot deviation for the same time at 60 degrees of bank.

We compared pilots statistically to see if better trimming techniques or other differences between pilots made some better able to maintain altitude while looking away. But the differences were not significant. It appears that good pilots are as bad as bad pilots if they aren't looking at the instruments.

If we compare the results of our allowable-time experiment with the results of our time-used experiment, we can see that *none* of the selected tasks could be done all at once without altitude deviations. The pilots had to employ some sort of *strategy* to do the tasks, even those tasks expected to be of short duration. The results also show that some of the strategies used were not working particularly well at times—witness the wide altitude excursions.

Next month, we'll take a look at those strategies—what did and what did not seem to work. ➤

Maj Gary Goebel, after more than four years as an A-10 instructor pilot at Davis-Monthan AFB, Arizona, was recently transferred to the Air-to-Ground Operations School at Hurlburt Field, Florida. His earlier article, "Vigilance and Distraction," received wide attention and was recently reprinted by the Royal Air Force's Strike Command in their journal, *Flight Safety Review*.

WEAPONS WORDS

Bombs away

A weapons load crew was loading Mk-82 low-drag bombs on the centerline MER-10A of an F-4. They loaded the first five bombs without any problems. Then the number 3 crewmember drove the MJ-1 bomb loader over to the MHU-110 trailer that was parked over 300 feet away from the airplane. He intended to pick up the sixth bomb; the number 1 and number 2 crewmembers stayed at the aircraft.

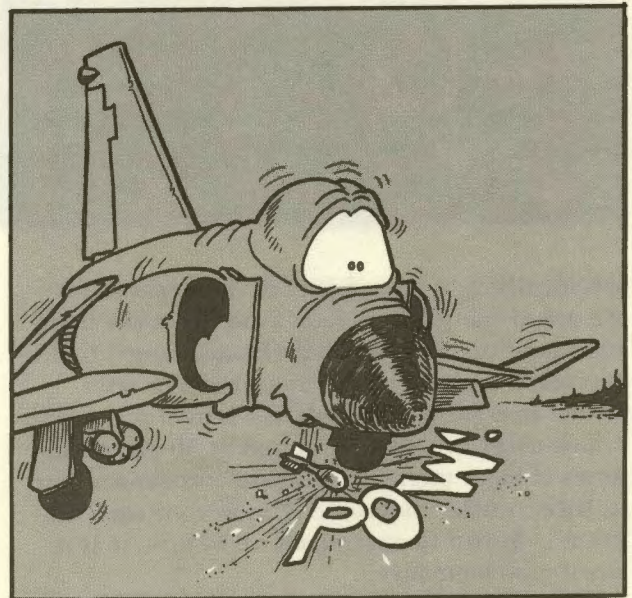
The bomb had been prepositioned on the MHU-110's rail extender. A weapons expeditor who was in the area and had been helping position bombs on the loader headed over toward the trailer. But before the expeditor got there, the number 3 crewmember tried to pick up the bomb without any help. He picked up the bomb with the MJ-1 and raised it three inches, just clearing the trailer chocks. Suddenly the bomb slid off the MJ-1 table. It hit the ramp nose first, landing on the M904 nose fuze. The weapons expeditor evacuated the area and notified explosives ordnance disposal.

With 300 feet of separation between the airplane and the trailer, the load crew chief had not been in position to monitor the entire loading operation as he should have. The expeditor also was not doing his job as a supervisor. By helping position the bombs on the MJ-1, he too lost his ability to observe the operation. The number 3 man was allowed to operate independently, and he didn't have the patience to wait for help. Maybe if he'd had help, they might have tied the bomb down before they moved it.

But as things were, impatience combined with a lack of supervision was bound to lead to a mishap—and it sure did.

Making the system work for us

An F-4 was loaded for both an air intercept sortie and an air-to-ground sortie as part of a surge exercise. The air intercept sortie was flown first. After landing, the airplane was taxied to the dearm area. There the weapons member of the end-of-runway crew began pinning the BDU-33 practice bombs in the SUU-21 dispenser. He had pinned stations 3 to 6 in the dispenser and was about to pin stations 1 and 2 when the bomb on station 2 dropped to the ramp and fired its spotting charge.



No one was injured, and the damage only amounted to \$20.00; but because of the potential for injury, the unit investigated the incident



thoroughly. The SUU-21 was tested with unarmed BDU-33s in an attempt to duplicate the problem. It didn't recur. So the SUU was downloaded and taken to the armament systems shop, where it was torn down and the "brain box" function checked. Everything checked out OK.

Unable to find the cause, the unit submitted a materiel deficiency report (MDR). The dispenser was sent to depot for engineering evaluation. Responding to the MDR, the engineers found a manufacturing defect in the ejector base solenoid. The bushing that separates the positive terminal post from the solenoid case was made of black rubber instead of the high-strength material required by Air Force specification.

The rubber material can crush and split, causing shorting of terminal to case at the base of the terminal post. In some cases, resistance of a solenoid with the rubber bushing will change as torque on the nut of the positive terminal is varied. In this incident, the shorting and the altered resistance of the solenoid resulted in a partial release of the BDU from the clamps. Airframe vibrations or some other force could then cause the bomb to fall all the way out of the clamps.

Because of what was learned from this incident, an inspection of solenoid bushings has been added to the tech order inspection criteria for SUU-21A dispensers. Because this unit did the job right and used the MDR system, another hazard has been reduced. That's the way the system is designed to work.

Misfit equipment drops bomb

A munitions handling crew was sent to the flight line to get some munitions and return them to storage. The task required the crew to load 24 Mk-28 bombs onto 6 MHU-85 munitions trailers, 4 bombs per trailer.

An MJ-1 bomblift truck was scheduled for the job but was unavailable, so an MHU-83 bomblift was used. The crew couldn't find tiedown straps and roller assemblies for the MHU-83; instead, they took along the MJ-1's tiedown strap and roller assemblies. But after arriving at the flight line, they discovered that the MJ-1's tiedown strap wasn't compatible with the table on the MHU-83 and the roller assemblies fit loosely in the table holes. Nevertheless, the crew decided to press on, using their spotter to help stabilize the bombs and hold them on the MHU-83's table.

That worked for a while. The crew loaded 21 Mk-84 bombs onto trailers. But as the 22d bomb neared the trailer, it slid off the MHU-83. The bomb struck the concrete nose first, crushing the nose fuze. The area was evacuated, and an explosive ordnance disposal team responded and safed the bomb. No other damage was done.

A workman is only as good as his tools. In our business, if we don't have the right tools, we'd better stop—before we let 2,000-pound bombs do nose dives on our ramps.

FLEAGLE SALUTES...

SSgt Alvin L. Bivines, 347th Aircraft Generation Squadron, 68th Aircraft Maintenance Unit Weapons Flight, 347th Tactical Fighter Wing, Moody Air Force Base, Georgia. While supervising the loading of live Mk-82 bombs at a deployed location, Sergeant Bivines learned that one of the fuzes had armed. He evacuated everyone from the area and notified EOD. When EOD arrived, he helped them by transporting the bomb on an MJ-1 bomblift to a safer area on an abandoned taxiway, where it was dearmed.

Capt Mark S. Olson, 74th Tactical Fighter Squadron, 23d Tactical Fighter Wing, England Air Force Base, Louisiana. While serving as runway supervisory officer (RSO), Captain Olson saw an A-10 line up on the runway for takeoff with a nosewheel that seemed to be tilted slightly. He told the A-10 to hold position while he contacted the supervisor of flying, who relayed the problem to maintenance. Maintenance analyzed the problem as worn nosewheel bearings that could have seized or broken at any time if the airplane were taxied or towed. The nosewheel was changed on the runway. Captain Olson's alertness prevented a catastrophic failure on takeoff or landing.

Capt Karl J. Mosso, Capt Daniel B. Foor, Capt James B. Smith, and TSgt Robert G. Leach, 6th Airborne Command and Control Squadron, 1st Tactical Fighter Wing, Langley Air Force Base, Virginia. While returning from a CINCLANT training mission in their EC-135, they heard distress calls from a civilian aircraft. The civilian pilot was upset and disoriented, his transponder and navigational

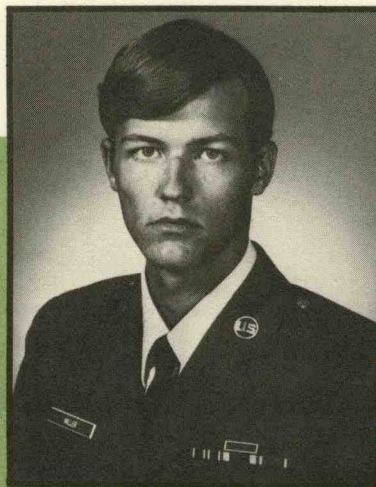
equipment weren't working, he couldn't communicate with anyone or find a place to land, and his fuel was critically low. Captain Mosso and crew talked to the pilot on the radio and calmed him. Using their knowledge of the area, they estimated his position and put him in contact with Norfolk Approach Control. The civilian pilot received vectors to a nearby field where he landed with less than 10 minutes of fuel remaining.

CREW CHIEF SAFETY AWARD

A1C MIKE T. MILLER, an assistant F-16 crew chief with the 474th Aircraft Generation Squadron, 474th Tactical Fighter Wing, Nellis Air Force Base, Nevada, is this month's winner of the Tactical Air Command Crew Chief Safety Award.

While launching an F-16, Airman Miller saw a large piece of roofing tile from a nearby hangar blowing toward his aircraft. He alerted the aircrew and then caught the piece of tile. As he picked up the tile, he noticed it had nails on it. So he immediately started a FOD walk and found six additional roofing nails.

Another time, Airman Miller noticed a small rivet sticking out from the exhaust nozzle of an aircraft. He notified the crew chief, and the aircraft was shut down. Further investigation revealed that the rivet was a crush pin used to secure the exhaust nozzle segment at the hinge point. Failure of this pin could cause extreme overheating because the nozzle wouldn't open normally. Segments could then melt and fall off in flight. The rivet he spotted was only 1/8-inch wide and a 1/4-inch long.



A1C Mike T. Miller

Airman Miller has been a repeated winner of his AMU's Golden Washer Award. A washer is randomly placed and monitored on the flightline and whoever finds it gets a letter of appreciation and a day off.

Airman Miller combines safety awareness with a keen eye for detail. That combination has made him a valuable asset to his unit and has earned him the Crew Chief Safety Award.

INDIVIDUAL SAFETY AWARD

SGT TIMOTHY M. SCOTT is this month's winner of the Individual Safety Award. He works in the 72d Aircraft Maintenance Unit, 4456th Aircraft Generation Squadron, 56th Tactical Training Wing, MacDill AFB, Florida.

Since the activation of the 72d AMU in July 1982, Sergeant Scott has distinguished himself as an F100 jet engine mechanic on the F-16, contributing to the unit's record of 10 consecutive months of flying without an engine-related high accident potential (HAP) mishap. Sergeant Scott personally has had 29 "zero defect" engine installation inspections. He has had only two repeat writeups and no recurring writeups on engines he worked on. In the unit he is recognized as the number one borescope operator for bird strikes and engine FOD incidents, and he has been frequently called on to help the other AMUs with engine problems.

Sergeant Scott has regularly worked overtime in order to provide safe and effective engines. His efforts have paid off as the 72d has had only eight sorties that weren't effective because of en-

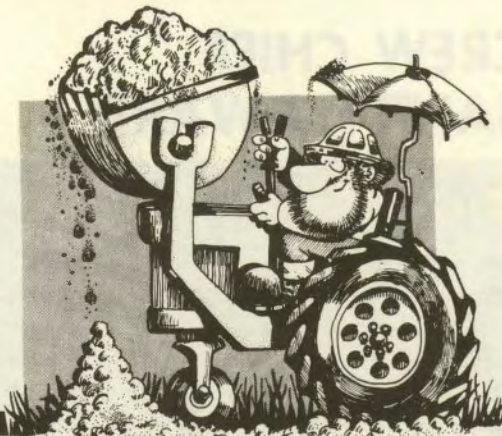


Sgt Timothy M. Scott

gine malfunctions in a seven-month period. His expertise was shown on his simulator check for engine run emergency procedures when he received no discrepancies.

Sergeant Scott's overall performance, expertise, devotion to duty, and concern for providing a quality product have helped prevent engine mishaps and have earned him the Tactical Air Command Individual Safety Award.

DOWN TO EARTH



An open letter from a parent

By MSgt Phil Henriksen
TAC/SEG

Recently I had the privilege and honor of attending my child's high school graduation. Where did the years go?—just yesterday a baby and today ready to challenge the world, to make a mark in society.

After the commencement address, special presentations, and music, the time for the presentation of diplomas finally arrived. As I watched the kids in caps and gowns streaking across the stage to receive their diplomas—each with a smiling face and that look of Hurry up, Let's go, It's finally over—I had to wonder what the future held for them and where.

Certainly, some of them would go on to college, others into the job market. Some would probably enter the military service. That's what I did 22 years ago; and it's safe to assume some percentage of my child's class will also, maybe not as a career but at least until they decide what they want to do, learn a trade, save a nest egg, etc. The reasons are as varied as the colors in a rainbow.

However, there is one difference between when I came into the Air Force and now: my father wasn't able to communicate to the commanders and supervisors and ask them to help take care of his child; to see to his needs by providing the best, the safest environment you can; to give him the opportunity to mature and succeed down life's path.

As my child's graduating class leaves the security of the nest, I can ask what my father couldn't. Please, as a commander or

supervisor, accept the challenge of our children's well being. Take care of our children—all of them.

Drug- and alcohol-abuse project launches

A nationwide Public Broadcasting Service telecast scheduled November 2 will launch a community project to fight the drug- and alcohol-abuse problem among school-age children.

Called "The Chemical People," the project is sponsored by PBS and 26 national organizations. The two one-hour national telecasts will feature First Lady Nancy Reagan as host.

Working with the Coalition for Addictive Diseases of Southwestern Pennsylvania, station WQED, Pittsburgh, conceived and originated "The Chemical People" campaign with several hours of prime-time programming. The effort's success attracted more than 12,000 people in the Pittsburgh area to town meetings. This led to the nationwide awareness campaign and the two-part television series.

Station officials said the first show combines documentary and drama to inform and motivate



viewers concerning alcohol and drug abuse. It analyzes the emotional and sociological aspects of the chemical problem. Substance abuse and its effects are also discussed.

The second hour of the series tells communities how to form permanent task forces to prevent and combat substance abuse. Experienced community resource people detail model programs of information, prevention, intervention, and treatment.

—Courtesy Air Force News Service

The price of impatience

A maintenance worker was using a power hack saw to cut a large piece of plastic in order to manufacture a canopy blocking tool for the F-16. He had to trim a small piece of plastic from a larger piece and then shape the piece to exact specifications.

On this hack saw, the power arm is hydraulically raised and lowered. The hack saw blade must be in motion for the arm to raise hydraulically. So the normal, and proper, method of operation is to turn the machine on to raise the power arm up, then turn the machine off. As the hydraulic pressure bleeds off, the power arm will slowly lower. While the arm is slowing coming down, the work piece can be placed into cutting position and the vise closed to hold the work piece in place for cutting.

The piece of plastic used by this worker was cut from a cylinder of plastic and was the wrong size and shape for the vise. So the worker decided to use a C-clamp to hold the work piece solidly to the cutting table. He turned on the machine, hydraulically raised the power arm, and shut off the machine. The power arm slowly came down. But the positioning of the work piece took longer than he'd figured; the power arm was all the way down before he was ready.

He started the machine again and raised the power arm. But this time he let the machine continue to run while he tried to line up the work piece. The moving saw blade hooked his glove and pulled his left hand in between the saw blade and the work piece. His left index finger was severed between the first and second joint.

This machine was designed without any guards in front of the saw blade. A guard might have saved his fingertip. But the real reason he lost it is because he lost patience with the correct procedure and tried to take a short cut.

Put guards on your machines. But don't expect the guards to take the place of patience.



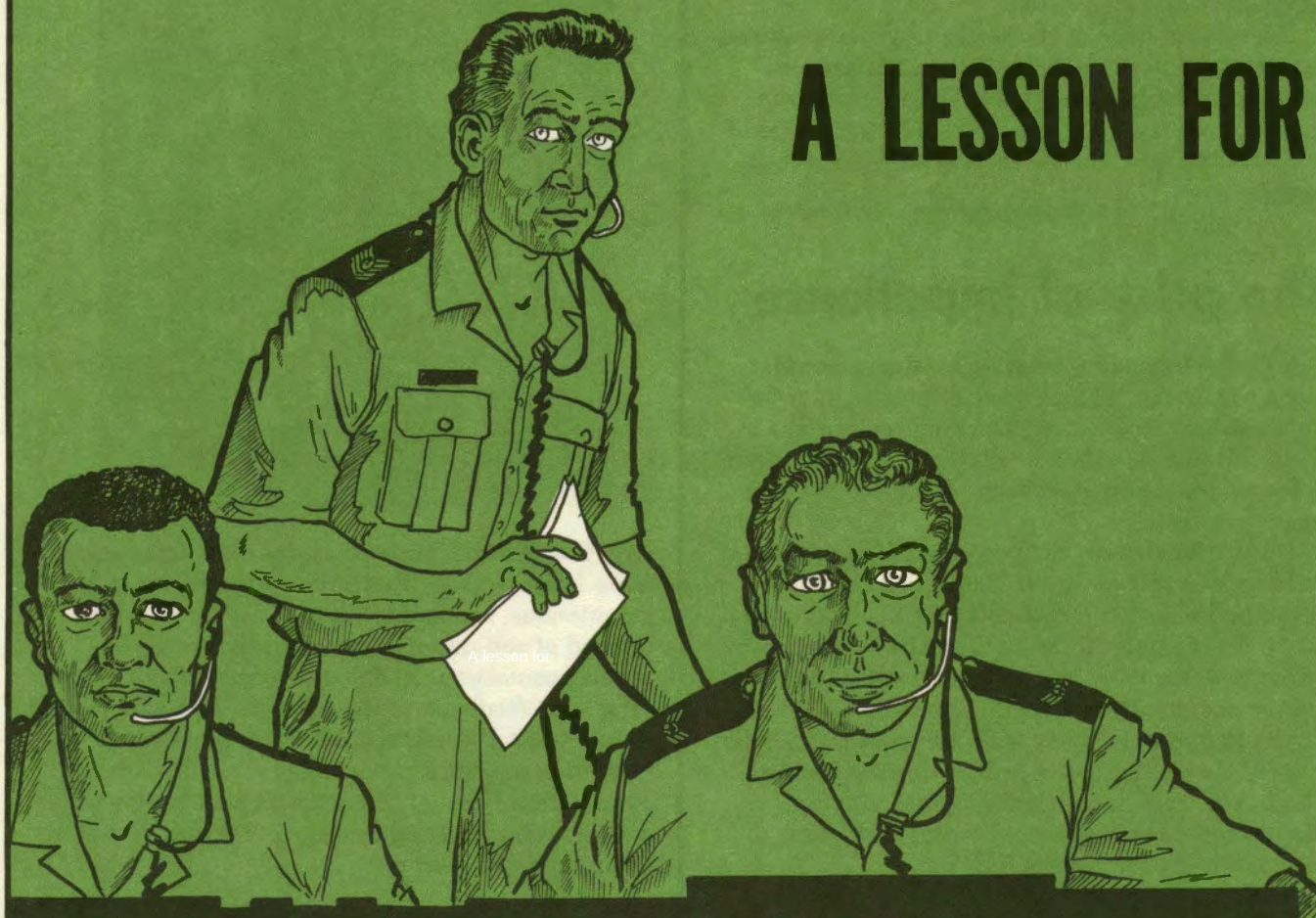
Are You Tired? Tasks that are most affected by sleep loss are those that are uninteresting and monotonous, are being learned, are work-paced instead of self-paced, involve a high workload, require continuous and steady performance, or give little feedback to the worker. How will you be affected? Slowed reaction time; impairment in reasoning and making complex decisions; errors of omission; lapse of attention; erratic performance; and increased feelings of fatigue, irritability, and depression.

Better the Ring than Your Finger. If you want to make wearing a ring safer, have a jeweler make partial cuts through the band so that the ring will break away if it gets caught on something.

Kitchen Grease Fires. Smother them. Decide if you can put the fire out; if not, call the fire department. Don't pick up the pan—leave it where it is. Grab a lid, cookie sheet, cutting board, or another pan and ease it over the fire from the side—not the top. Don't use water, flour, or cereal; baking soda might not be effective. Don't turn on the exhaust fan.

Model CMX1000 Mr. Coffee Recalled. This Mr. Coffee is a potential fire hazard. It has a digital clock and timer and was made between September 1981 and April 1982. Look for these codes on the bottom metal plate: 1981 codes are 38-1 through 52-1. 1982 codes are 1-2 through 21-2. Exchange customers who still own one should stop using it and return it to the exchange for a full refund.

A LESSON FOR



By MSgt Timothy E. Brown
1913 Comm Gp (AFCC)
Langley AFB, VA

Editor's Note: The classic problem for an instructor pilot has always been deciding how far to let a student go. If you don't let the student make mistakes, he won't learn; but if you let him go too far, you may not be able to recover when he gets in trouble. This story covers the same dilemma from a different perspective, that of the trainer in air traffic control.

It was fairly quiet, a few F-15 recoveries in the overhead and a light mixture of radar

traffic—nothing the trainee couldn't handle with little or no help. Departures weren't backing up, but the inbound board showed that soon numerous airplanes would be recovering.

A couple of flights of F-15s entered the overhead pattern and graciously consented to carry through for departures. Another flight of F-15s from a low approach with GCA checked in for the overhead, and the trainee controller instructed them to break midfield for a departure.

Not a bad move, the trainer thought, but I hope he heard GCA check in with that U-21 at nine miles. I guess he'll figure it out.

One more flight checked in for the overhead, and the trainee instructed them to follow the flight of four.

This is definitely not going to work in front of

THE TRAINER

the U-21. But I've told the trainee that. Maybe he'll figure it out yet.

GCA called for the clearance on the U-21 at four miles. No response from the trainee. GCA called again. Still no response.

I'd better help him out. I'll inform those F-15s that they will be numbers 2 and 3 respectively behind the U-21 and clear the U-21 to land There, that should keep the trainee going and highlight the fact that the F-15s are not going to fit.

A UH-1 from the south calls for landing. The trainee clears him to land.

Oh no, this will be a simultaneous landing. And he still has not figured out that the F-15s are not going to make it behind the U-21.

The first F-15 in the four-ship breaks out on



his own. So do the second and the third. Two more flights check in for the overhead.

That's it. I'd better break out the F-15 on final and find out where the rest of the F-15s are.

By the time the monitor intervened in this situation, he had 12 F-15s in the traffic area within three miles—all the same color, and no one sure who was on first or second. So even the watch supervisor got to talk on the frequency a little.

The sequence of events in this story is factual, extracted from tape recordings. The thoughts of the training monitor are hypothetical but are based on information obtained from the person involved. It may be Monday morning quarterbacking, but the tapes of this episode sure leave the impression that tower didn't have a handle on the traffic situation.

We have some of the best controllers in the world—right? Right. But we all are sometimes overextended when we're training for the position. Although the trainer does not make all the decisions for the trainee, the fact remains that he or she is responsible for all of them and for their impact on the ATC services provided.

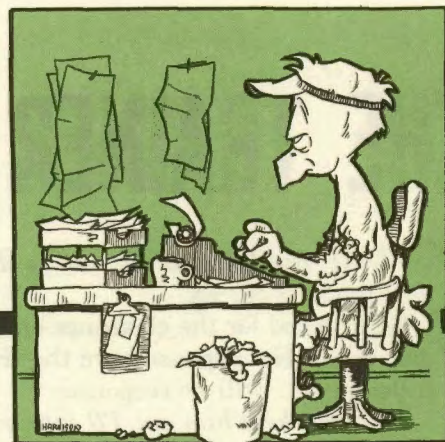
It's true that the trainee must be given enough latitude to get the most benefit from the traffic at the position, but that latitude cannot be justified at the expense of the ATC service we provide. We have to find a middle ground where the greatest training benefit will be gained while we still provide the service required. Mistakes are normal in the training situation; but we have to correct them—all of them—in a timely manner.

In any ATC facility responsibilities are layered three deep—watch supervisor, training monitor, and trainee. We'd like the trainee to make all the decisions, but at any given time one, or both, of the others may have to step in. The point at which the monitor or the watch supervisor should intervene depends upon many factors, such as equipment constraints, weather, traffic conditions, airport conditions, and—probably most important—the capabilities and experience of the monitor. But the intervention must be made and errors corrected before ATC services are adversely impacted.

Training is an ongoing, never-ending way of life in air traffic control. It's important that trainees be exposed to as many traffic situations as possible to gain the most benefit from position time. But let's remember that our primary mission is the best possible ATC service for the users. Positive control must be maintained at the position at all times. We can only go so far out on a limb before the trainee loses the Big Picture—or more importantly, we do! ➤

Sergeant Brown, a senior master sergeant selectee, is en route to Nellis AFB, Nevada, from Langley AFB, Virginia, where he was chief controller of ground controlled approach (GCA). He holds a bachelor's degree in professional aeronautics from Embry-Riddle Aeronautical University.

LETTERS



Dear Editor

This letter is about an article in the July 1983 issue of *TAC Attack*, "The Motorcyclist's Worst Enemy."

I was glad to see such a fine article addressing the safety of motorcyclists and their bikes. I have been riding for five years on the streets and nine years on dirt. I have been extremely lucky not to have had an accident as of yet. I had gone through the Motorcycle Defensive Driving Course two years ago at the Naval Air Station, Memphis, then I realized that it was about time that I went through it again. On June 1st of this year I went through it for the second time. It really helped me to remember the hazards we all are confronted with.

I am a very small-framed female and short. My physical stature has a lot to do with how well I handle my bike. A lot of riders fail to see the physical factors that determine how they handle their motorcycles. Those physical factors I have no control over, but I have learned how to compensate for the differences they make. A few environmental factors that we also don't have

any control over are rain, snow, wind, other drivers, and road conditions. If you get caught in the rain, have the sense to stop your bike and wait until it is safer to ride. Remember the first five minutes after it has started to rain are the most dangerous.

Even though I have five years road experience under my belt, I still don't rely solely on my experiences; motorcycle and driving education are your best bets for safer and better motorcycling. I feel it is very important to stress the need for refresher courses for all riders every one to two years.

In the Navy, we are required to attend a Motorcycle Safety Foundation course before we can obtain our DOD base sticker.

The article stated that drinking and driving (car as well as motorcycle) do not mix; the combination is deadly. There are so many things that can happen when you are on a motorcycle and sober, let alone the things that can happen when you are intoxicated. People have a hard time seeing me even though I ride a large motorcycle, a Kawasaki 440LTD. I have had drivers

pull out right in front of me, and I know that I was in plain sight; but they don't always look out for you. There are some bad attitudes about motorcyclists, some people seem to feel that we all belong to the bad motorcycle gangs. I have found out that if you show some courtesy to the other drivers and respect their rights, they'll do the same for you.

I enjoy riding because it gives me a feeling of freedom from the problems and worries of everyday life. But remember to pay attention when you ride. You never know when something is going to happen, and you may have to take evasive action to avoid a hazard.

I have seen a lot of motorcycle accidents, ranging from minor cuts and road burns to deaths. So if you value your life and bike, be aware and alert at all times to everything around you and do not take any chances that you don't have to. One way or another you will end up paying for your mistakes and foolishness.

Mitzi R. Staples
Tradesman Third Class (TD3),
US Navy
NAS Cecil Field, Florida

TAC TALLY



CLASS A MISHAPS
AIRCREW FATALITIES
TOTAL EJECTIONS
SUCCESSFUL EJECTIONS

TAC		
AUG	THRU AUG	
	1983	1982
1	20	22
1	7	12
0	20	20
0	17	17

ANG		
AUG	THRU AUG	
	1983	1982
0	8	5
0	6	2
0	7	5
0	4	4

AFR		
AUG	THRU AUG	
	1983	1982
0	1	1
0	1	0
0	0	2
0	0	2

TAC'S TOP 5 thru AUGUST '83



TAC FTR/RECCE	
class A mishap-free months	
45	355 TTW
28	363 TFW
24	58 TTW
17	4 TFW & 35 TFW
14	37 TFW

TAC AIR DEFENSE	
class A mishap-free months	
127	57 FIS
80	5 FIS
77	48 FIS
36	318 FIS
27	87 FIS

TAC-GAINED FTR/RECCE	
class A mishap-free months	
136	188 TFG (ANG)
128	138 TFG (ANG)
127	917 TFG (AFR)
124	116 TFW (ANG)
105	114 TFW & 174 TFW (ANG)

TAC-GAINED AIR DEFENSE	
class A mishap-free months	
110	177 FIG
76	125 FIG
59	119 FIG
43	107 FIG
34	147 FIG

TAC/GAINED Other Units	
class A mishap-free months	
169	182 TASG (ANG)
153	110 TASG (ANG)
149	USAF TAWC
141	84 FITS
137	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	4.0	3.8	4.5	4.1			
	1982	7.8	5.7	5.9	5.2	5.9	5.7	5.1	4.7			
ANG	1983	9.1	7.0	4.4	4.3	3.4	4.2	4.8	4.2			
	1982	0.0	2.7	3.2	3.4	3.6	2.9	3.1	2.7			
AFR	1983	0.0	0.0	0.0	0.0	0.0	0.0	3.6	3.1			
	1982	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.5			

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

THE NUMBER ONE CAUSE OF FIRE IN MILITARY HOUSING IS UNATTENDED COOKING.



IT'S A BIT FRIGHTIN' WHEN YA' THINK OF ALL TH' WAYS YOU CAN BURN YOUR HOUSE DOWN.



YOUNG ONES PLAYIN' WITH MATCHES, SMOKING, HEATERS, AND TH' LIST GOES ON



SEE THAT GRILL? IT AIN'T FAR ENOUGH AWAY FROM TH' HOUSE.



THAT SURE DO LOOK GOOD.



KEEP YOUR FIREPLACE AN' CHIMNEY CLEAN.



SNIFF! SNIFF!

