

# *TAC ATTACK*

JULY 1984







# ANGLE OF ATTACK

**Burning desire, positive attitude, persistence, commitment to excellence, teamwork, discipline**—familiar words to people in TAC. But these particular words weren't spoken at a commander's call, or during a session of an NCO leadership school, or at a professional military education seminar. They were spoken by Mario Andretti when he recently visited some of our bases and flew with us. Whether visiting the shops, touring flying squadrons, or addressing the TAC Commanders' Conference, he returned again and again to these words describing the *right stuff*, the substance required to be the best—the best racing car driver—or the best in any endeavor. I'm certain you will enjoy reading his article, "From Where I Sit" on page four. You'll see many parallels between his profession and ours.

In another similar vein, May wasn't very kind to either Mr. Andretti or TAC. The victim of a minor collision while maneuvering to get into the pits during the Indy 500, Mario was robbed of the

opportunity to fully demonstrate his machine's potential. Meanwhile, TAC lost two F-16s and an F-4, and the ANG lost two A-7s. We also had a very close call when another F-4 collided with the ground yet recovered with only minor damage. Then on June 1st, we lost two F-4s in a midair and an F-5 Aggressor. Mario will get another chance. Several of our teammates won't...

In this issue of *TAC Attack* we highlight some of the positive attributes of being a professional (the way we like to see ourselves). But all the drive and high standards in the world won't overcome the subtle dangers (often hidden around the next curve) that accompany our profession—fatigue, distractions, carelessness, and miscommunication at a critical time. Only by being aware of the dangers and by constant vigilance can we beat them. Lt Col Jack Baker's article, "The Ultimate Enemy," reminds us of the ultimate low-level threat, the ground. Capt Tom Mascot completes his study of midairs by discussing SA in the multi-bogey environment. Maj Scott Sutton in "What'd He Say?" points out we can sometimes be too GO-oriented. And "Moonlighting" is nearly ten years old, but MSgt Moore's personal story about fatigue couldn't be more current.

Knowledge is power. We can beat these deadly enemies if we are aware of them. But knowledge without application is insufficient. In the midst of the hot summer, let's be vigilant. During your mission preparation, briefings, and informal discussions around ops, carefully consider the pitfalls—and subdue them. *Readiness is our profession.*

**ON THE COVER:**  
An Aardvark on  
final approach.

# JULY 1984

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EDITOR

**STAN HARDISON**  
ART EDITOR

**MARTY DILLER**  
WRITER-EDITOR

**A1C KELVIN TAYLOR**  
STAFF ARTIST

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## TACRP 127-1

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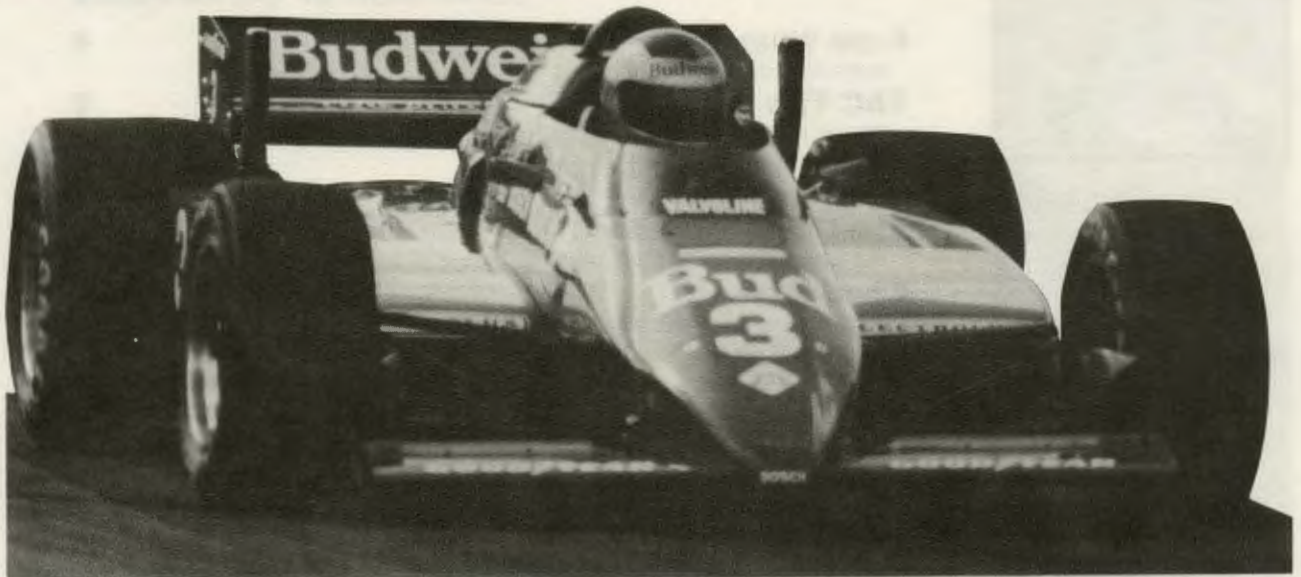
**Subscriptions** for readers outside of DOD are available from the Superintendent of Documents, Government Printing Office, Washington, D.C. 20402. All correspondence on subscription service should be directed to the superintendent, not to TAC/SEP.

TAC Attack (ISSN 0494-3880) is published monthly by HQ TAC/SEP, Langley AFB, VA.

POSTMASTER: Send address changes to TAC Attack, TAC/SEP, Langley, AFB, VA 23665.



# FROM WHERE I SIT



The new racing machine that Mario Andretti is piloting in 1984, the Lola T-800, represents the latest in aerodynamics, chassis design, and construction methods.

## By Mario Andretti

I have always felt that if I could not have been a racing car driver, I would want to be a fighter pilot. Now that I have flown in the F-15 and F-16 and had the tremendous privilege to be with the men and women of Tactical Air Command, I'm convinced that I could fit in, very, very readily.

There are many parallels in comparing successful racing car drivers and successful fighter pilots. In both, there is a lot of sacrifice, but the achievement is worth all of the effort.

I especially appreciated the opportunity to visit the maintenance shops and visit with the technicians. Just as in my profession, the importance of a quality machine is demonstrated

in the battle. I could sense the confidence the pilots feel in knowing that the maintenance is done professionally and that the machine is ready.

Preparation equals performance. I believe in strict attention to the details and an 8 to 5 approach simply doesn't get the job done. We have a new team and car this year. While we got off to a slow start, our preparation is paying off with the win at Long Beach and we are ready for more checkered flags.

A racing car is much like a fighter. It is purposely designed to provide utmost performance beyond the limits of the normal person. Only those who are fully prepared, well trained, and have a burning desire to succeed can safely and professionally extract maximum performance from either a racing car or a fighter.

The measure of success for you and for me is in going against the enemy. Both of us survive by going for the win ten out of ten times. Yet, neither of us can exceed the limit. The mark of a professional is in being able to draw the line then never crossing it.

On the race track, durability is critical. I estimated that in the one-and-a-half-hour race at Long Beach, I shifted some 3,600 times. Heat stress is great. I have lost as much as twelve pounds in one race weekend.

When I reflect on the great people in the racing world that I have known, I especially respect Mr. Ferrari for his manner of projecting authority and earning respect. He was always fully in charge of his team but he was respected by everyone. Colin Chapman had a special quality



of sophistication with a friendly, approachable manner. He was a superb engineer who is responsible for today's air and ground effects devices such as wings and the airfoils under the car which create a vacuum twice the weight of the car to hold it on

the ground.

There are some human qualities common to winners, whether they are in the Air Force or on the race track. The first is a burning desire to excel, to be number one. Most people are happy to be in second place

because it is convenient and comfortable; but winners have a great pride of accomplishment that is only satisfied by leading at the checkered flag. Attention to detail is essential. Everyone on our team spends a lot of time looking at the car, our procedures, and every aspect of our operations. Perhaps one of the guys cleaning the car will notice something out of alignment or a part that is about to break.

Professionals maintain the highest standards and take great pride in their accomplishments and they constantly work hard to be the best. In my association with members of the TAC team, I've learned that all of you are committed to excellence. My short five hours of flying has shown me that your personal standards and burning desire to be number one shows through in everything you do. My time spent with you has been a highlight of my life. ➤



Mario Andretti can justifiably lay claim to being the best all-around driver in the history of motor racing. His first race was at age 13 when he drove a formula junior in Italy. Since then he's raced and won in competitions from stock cars to Formula 5,000. Mario has been a winner in every class of internationally recognized competition including—

- the USAC National Driving Championship in 1965, 1966, and 1967
- the Daytona 500 stock car race in 1967
- the Indianapolis 500 in 1969
- the Dirt Track championship in 1974
- six Formula One Grand Prix

victories in 1978, including the South Africa, Questor, Spanish, French, Italian, and US Grand Prix of the West.

- the 1978 World Driving Championship

Although he would rather be described as one of the world's most versatile drivers, the fact is he is one of the sport's great test drivers as well. He has been instrumental to the development of his team's newest car, the Lola T-800. According to one of the co-owners, "He has the ability to translate into words for the engineers what a car is doing on the track under specific conditions."

This season marked Andretti's nineteenth trip to the Indianapolis 500. But it was his first time

competing with his twenty-one-year-old son. Michael, co-winner of rookie-of-the-year honors, finished the Indy 500 in fifth place.

Mario qualified at a blistering speed of better than 202 mph, even though a failure in the fuel/air mixture computer shut down his engine coming out of turn four and he coasted across the qualification finish line. On race day, he was running very well but was unfortunately forced out of the race when his Lola was struck by another race car as he was entering the pits.

But you can bet he'll be back. Those who know him know that the most important thing for Andretti, "the only reason for racing," is to win.



# TAC tips

INTEREST ITEMS,

## Heavy-handed

Double ugly's stabilator always seemed too *small* to me when I would try to get the nosegear off the concrete during takeoff—and too *big* when I was screaming through a low level or warning area with my hair on fire. The contractor said they weren't interested in variable-dimension stabilators and that we'd all have to live with it.

Not long ago, an F-4 crew rediscovered how *big* the stab feels when you're transonic. They were fighting 1-v-1 against an F-5 in a warning area when the Tiger II closed into range for a gun shot. The Phantom was going downhill in a bogey-gathering turn at 500 knots, passing about 12,000 feet above the water when the pilot saw the handwriting on the belly of the aggressor. Before the F-5 settled into a good position to take some gun camera film, the F-4 pilot pulled back on the stick a little more. The F-5 pilot got pic-



tures of the top and the bottom of the Phantom in close succession.

The F-4 pilot was surprised by the amount of stabilator authority (8.4 Gs) and pushed the stick forward. The stabilator was very effective in that direction too; the WSO's G-meter was pegged (minus 5 Gs). The crew recovered the aircraft without difficulty.

Five hundred knots at 11,000 feet equates to .9 Mach, a flight regime where the stabilator seems nearly as big as the wings. It's a regime we strive to fight in (vice not-so-hard-turning at 250 knots). And it's a regime where we can't afford to forget how responsive the stick is—no matter who's in the rearview mirror.

## Metric minima

If your unit has an overseas commitment in an area where the natives speak in meters and milibars, heads up. Now, not only will RAPCON report the visibility in kilometers, even some of the data in flight information publication (FLIP) documents won't be in English measurements.

The purpose of the change to meters in FLIP is so that aircrews don't have to consult a meters-to-feet conversion chart to determine if a field is above or below minimums when meters is the way the airport reports weather to aircrews. On final at Oberstufenheim Air Base in the midst of changing weather conditions isn't the time to worry about metric calculations.

The change to metric minima is being implemented *worldwide* to align the depiction on DOD



## MISHAPS WITH MORALS, FOR THE TAC AIRCREWMAN

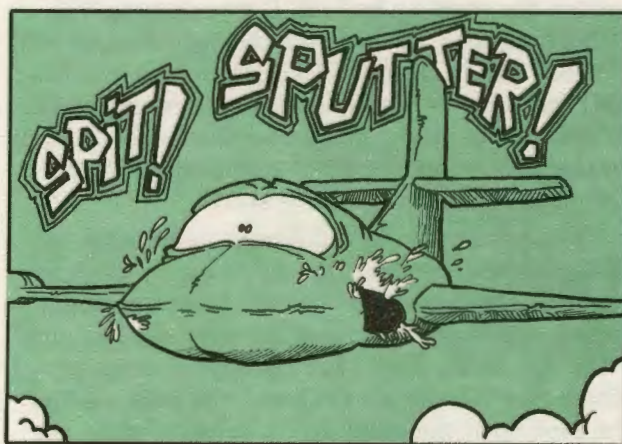
approach plates with what is used in air-ground communications at each location. All FLIP documents depicting landing minima will incorporate these changes as they're revised. Approach plates for the U.S. and Canada are not expected to change to metric minima since aircrews flying in these countries don't get ceiling/visibility reports in metric terms. But it would sure be nice to know before the next deployment.

— Adapted from an article by Capt  
Gale E. Clouse, Jr., Associate  
Editor of *The MAC Flyer*

### Flameout during fill-up

Remember the KC-135 nozzle problem (it allowed fuel overspray during air refueling that was sucked up by an F-15 engine causing an explosion) that we highlighted in *TAC TIPS* last month? Well, air refueling problems aren't limited to F-15s and KC-135s.

A couple of OA-37s were up at twenty-two thousand feet holding hands with a KC-10. One of the pilots hooked up his aircraft's probe to the tanker's drogue and started taking on fuel. Soon he found that the extra weight was making full power necessary to stay in the refueling position. When the tanker reached the end of the air refueling track and began a turn to stay in the assigned airspace, the Dragonfly wasn't able to keep up. When the probe popped out of the basket, quite a bit of fuel continued to stream out. The pilot couldn't keep from flying through the fuel spray. JP-4 jet fuel flowed over his aircraft's



nose into the intakes and flamed out both engines.

Once out of the spray, the engines restarted immediately, and the pilot recovered uneventfully.

The problem was caused by a broken poppet valve in the tanker's drogue. It's supposed to quickly shut off the flow of fuel whenever a disconnect occurs. It didn't. And apparently this wasn't an isolated incident.

Don't know what fixes are in store for the recurring valve problem—but sometimes there is something pilots can do to avoid getting behind the power curve while taking on gas (and increasing the aircraft's gross weight). *FLIP* lists the floor of this particular refueling track at 14,000 feet. Most fighters have an abundance of power in that regime. When the pilot noticed he was near full throttle in straight and level flight, the tanker crew probably didn't have a clue that he was having a problem and needed them to descend. And they won't know you or I have one either, unless we tell them.

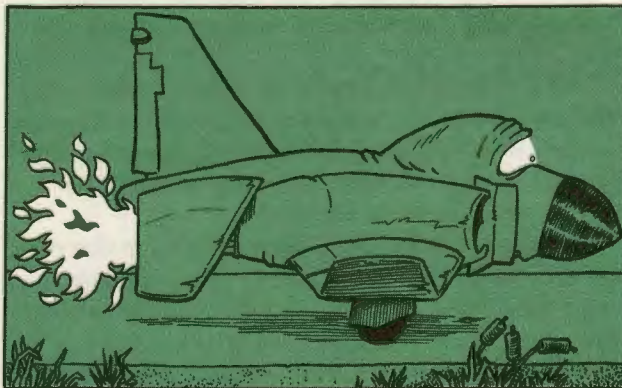


# TAC TIPS

## Pooled fuel

A T-bird pilot was cranking up his aircraft for a target mission. After both igniters fired, he noticed the exhaust gas temperature rising rapidly, so he decided to shut down the engine. The EGT was going through 840 degrees centigrade when he chopped the throttle off. Before he was able to switch the starting fuel off, it was passing 880. After he'd done all he could, the temperature still climbed and peaked at 910 degrees before cooling off. That kind of heat makes for short engine life. Wonder what might cause uncontrollable ignition in the aft section of a jet engine despite the pilot's best efforts to abort the start?

On another day, at a different aerodrome, an F-4 pilot was starting the right engine when the crew chief commented over the intercom that there was white vapor coming from the tail pipe. "Oh, no-sweat, chief, that's pretty common to these new low smoke engines," the pilot said as he continued the start. At 22 percent, when the engine finally lit off (normally, ignition occurs at 13 to 16 percent), the crew heard a loud rumble, and the crew chief saw a fireball in the tail pipe.



The pilot knew this wasn't characteristic of low smoke engines, so he shut down the engine according to the checklist. His backseater called for a fire truck, and they both left the Phantom in a hurry.

Know what these two incidents have in common (besides damaged tail pipes and excited crew

chiefs)? For one reason or another, someone bumped the throttles of both aircraft out of their Cut-off positions sometime before the pilots climbed in to start their aircraft. Fuel was pooling in the tail pipes of both aircraft during their start sequences; and when it ignited, the flare-ups were inevitable.

Ninety-nine times out of a hundred, when the pilot climbs in, he'll find the throttle in Cut-off where the last pilot put it before he climbed out. That kind of frequency can lead one to count on it *always* being in the proper position. But just like the gear handle, speedbrake and flap switches, sometimes they get moved out of position. When they don't get returned, it's up to the pilot to catch the error.

Checklists can reinforce our habit patterns and help us guard against making false assumptions about switch positions. But we gotta use 'em.

## 'Lectric surprise

A lightning strike is an event that grabs an aircrew's full attention. In that sense, it's a surprise. What shouldn't be surprising is the lightning strike that occurs as a result of flying through an area of high lightning potential.

According to the Air Weather Service, flying through any of these four conditions could light up your cockpit—whether lightning is forecast or not:

- \* Flying within 25 miles of a thunderstorm, even when you're in the clear.
- \* Flying in the cirrus shield of an active or dissipated thunderstorm.
- \* Flying through precip from cumulus-type buildups.
- \* Flying through precip near the freezing level in any kind of clouds.

The AWS believes there is an increasing amount of evidence that most lightning strikes are really triggered by the aircraft itself as it accumulates an electric charge in flight. At first glance, it seems we don't have much control over that—but we do have some control. By changing our altitude and deviating around these caution areas, we may be able to carry that electric charge away from the areas of highest lightning potential . . . and avoid surprise lightning.



# AIRCREW OF DISTINCTION



On 13 January 1984, Capt Lawrence M. Danner was returning to base after completing a functional check flight in a single-seat F-16A. In the weather, about 7,000 feet above the ground (AGL), the engine began a series of stalls, and the rpm began to decay. When he retarded the throttle to idle, the engine continued to stall; so Capt Danner shut down the engine according to the checklist. Then he selected JFS-Start 2. It ran normally, as did the emergency power unit. He declared an emergency and continued toward home base which was fifteen miles away, beneath the weather. Gliding in instrument meteorological conditions (IMC), he switched his radio to Guard channel to insure simultaneous contact with tower, approach control, and the supervisor of flying. Recognizing an altitude-critical situation and drawing from tech order guidance and thorough systems knowledge, he immediately selected back-up fuel control (BUC) for his airstart attempt.

Capt Danner had recently returned from a mishap investigation of an F-16 that crashed because its malfunctioning engine would not restart. There, he learned that in low altitude, time-critical situations, with engine malfunctions similar to those he was now observing, selecting BUC is the recommended airstart procedure.

Despite IMC, Capt Danner maintained control of his F-16 while performing many cockpit tasks to regain his engine and accomplished something no one had ever done—successfully complete a BUC airstart below 10,000 feet AGL. With a responsive engine at 3,800 feet AGL, ten miles from the base, Capt Danner broke out of the weather and completed a straight-in approach and landing. Maintenance troubleshooters later found significant



**Capt Lawrence M. Danner**  
**4 TFS, 388 TFW**  
**Hill AFB, UT**



unified fuel control and engine discrepancies which may have prevented an airstart in UFC.

Capt Danner's exceptionally cool presence of mind, positive aircraft control in the weather, and adept flying skills saved a valuable aircraft and earned him the Tactical Air Command Aircrew of Distinction Award.



# THE ULTIMATE ENEMY



By Lt Col Jack Baker  
116 TFW/SE (ANG)

Some time ago, an F-4, flying a dissimilar air combat training (DACT) mission, never returned. It happened like this:

The crew began the engagement in a warning area on a southerly heading at 7,100 feet above the water with approximately 400 knots. The opponent was initially at their left seven o'clock position, one and a half miles out, slightly low. The F-4 crew entered a nose low, left descending turn that

ended on a northerly heading—at water impact.

The accident board found fault with the crew for breaking the ROE (rules of engagement) by continuing the fight after the defender completed his 180-degree turn and by descending below the briefed minimum altitude. They felt that the probable reasons for this crew not recovering were:

1. Reduced *situation awareness* which resulted from the lack of good visual references (the prevailing haze over the ocean made it difficult to identify the horizon) and/or

2. During the turn, the crew focused their attention on the opponent, degrading their *situation awareness*.

SA; it seems that we talk endlessly about situation awareness. On every Air Combat Maneuvering (ACM) ride, we recite a long list of ROE to jog our memories and keep our SA at a high level: learning objective, head-on passes, into the sun, area boundary, etc. And although we brief a ground-kill altitude, nowhere in the ROE is the *ultimate enemy* spelled out—not only are we fighting real or simulated enemy



planes, we are also 1-vs-1 with *the ground*. Usually we all fully recognize the importance of keeping track of this ever-present threat. However, the mishap record shows that crews tend to slide ground awareness too far down the list of things to scan in their crosscheck patterns during the heat of battle at low altitude.

One-third of all the F-4 losses in 1982 were the result of the crew's lack of SA with the ultimate enemy, the ground. While the F-4 fleet improved the record somewhat in 1983 (three out of 14 losses were collisions with the ground (CWG)), A-10s and F-16s seem to be trying to make up the difference lately.

Accident board reports show that CWG losses frequently occur in two distinct categories of missions. The first of those categories is low-altitude intercept/ACM rides. Here is an example:

The mishap aircraft was the simulated MiG (Baron), providing visual awareness training for a two-ship of F-4s. After entering the range, the Baron made two simulated attacks on the Phantoms as they were navigating into the target area. Both attacks were from the rear hemisphere at medium altitude. Both attacks terminated when the two-ship spotted the threat and made a 90-degree defensive turn. Later, as the flight egressed the target area westbound, the Baron was offset about 2,000 feet north of the flight, on a reciprocal heading, about 4,500 feet above them. He started a rapid, descending right turn, followed shortly by ground impact.

The board believed that the Baron aircrew had terminated their attack but misdirected their attention to the other airplanes while still in a rapid descent. The cause for this is most likely an old enemy that we don't hear a lot about anymore—namely, target fixation. This lethal mistake can occur not only on air-to-mud rides but during air-to-air scenarios, like this one, as well. Furthermore, during air-to-air missions, target fixation can bite either the target or the attacker. One common air-to-air technique—padlocking (having to keep a constant eye on an adversary) can contribute to target fixation. At low altitude, padlocking can kill you.

The other category of ground contact mishaps is low-level flying. Sometimes restricted visibility is contributory as it was in the following case:

The mishap sortie was a single-ship F-4 air-to-air refueling and low-altitude tactics mission. The crew was flying down a narrow river valley at low altitude. The pilot made a hard left turn to the east, flew over the slope of a broad hill into a shallow valley, and made a hard right turn, resuming his original southerly course. The sun was approximately 18 degrees above the horizon and due south. At this time of day, the bright sun silhouetted the hills ahead, masking a gentle upslope in the foreground. The perceptual problem was made more difficult by the near-5-G turn the aircraft was performing at the time. The pilot misjudged how low he was. Even though he had established a slight climb, it

was not enough to clear the more rapidly rising terrain.

In each of the above mishaps, SA with the ground was lost—along with our air machines and, as almost always in this type of mishap, the troops who operate them.

Two unwritten additions to the rules of engagement may help us survive in our potentially lethal combat training environment:

Addition 1: During low altitude intercept training, don't fix your attention exclusively on the adversary for very long.

Addition 2: When visual conditions in the low-altitude environment are degraded, use an additional altitude pad. If it's shaky, knock-it-off and fly the mission on another day.

Since neither the human body nor our aircraft design allows us to see all of the "big sky" at one time, situation awareness must necessarily be a relative matter. As the scenario increases in players from 1-vs-1, we get busier, and our SA is spread even thinner. But there is always a 1-vs-1 that is *not* relative but locked in concrete, no matter how many other players are in the act—this is the ultimate enemy, the ground. His guns never jam and he always has more G available.

In the heat of battle, let's not fail to maintain SA of the ultimate enemy. ➤

Lt Col Baker is a 1964 graduate of the USAF Academy. After pilot training at Laughlin AFB, Texas, he checked out in the F-100 at Luke AFB, Arizona. He flew the Super Sabre in Vietnam (3TFW), Europe (20 TFW), Callender NAS (159 TFW), and Dobbins AFB (116 TFW) accumulating almost 2,000 hours in the F-100. Also at Dobbins he was an F-105 Wild Weasel driver and is currently trying to master the F-4D.



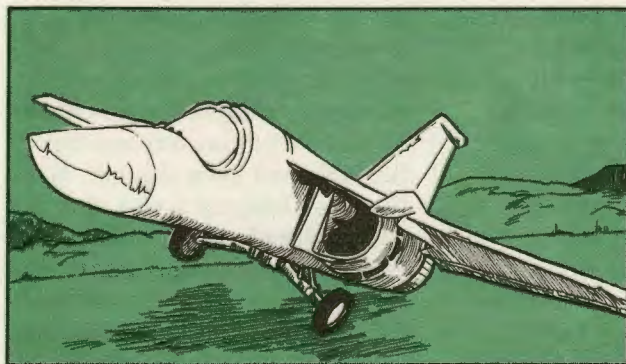
# CHOCK TALK

chock talk incidents and

## INCIDENTS AND

### Work performed by MURPHY

An F-111 pilot was practicing some touch and go landings under the watchful eye of a Stan/Eval FE in the other seat. The pilot was filling some semi-annual training squares for simulated-emergency patterns. As the gear struts compressed on the first landing, the aircraft began an uncommanded left roll. The pilot countered



with right stick, added full power, and took the Aardvark around. Once the throttles were advanced, the rolling tendency seemed to stop. The crew deselected the ground roll spoilers, and the next, and final, landing was uneventful.

Maintenance troubleshooters found the right inboard spoiler would not return to a locked down position where it belonged; it was just floating.

The forms revealed that work had been done in the area of the right wing spoiler servo actuators. To get at the area, workers had disconnected the hydraulic pressure and return lines leading to both the inboard and outboard servo actuators, just like the tech data directed. But when it was

time to reconnect the lines, guess what Murph did? Would you believe he reversed the pressure and return lines?

In Murph's defense, the hydraulic lines are the same size and have the same connectors. And the tech data didn't specify how to identify which line was which. Well, we're working on straightening out the tech order, but we learned something else too: When the pressure and return lines were reversed and hydraulic pressure was applied, the servo actuators were both damaged, *but not noticeably so*. When the lines were corrected and pressure reapplied, everything seemed to work just fine. And the aircraft flew uneventfully for several flights before the problem showed up in the affected spoiler.

In the miles of plumbing that holds these iron birds together, wonder how many other lines are alike? Also wonder how many electrical wires are similar enough to be miswired.

What's involved here is a little horse sense. If you had to replace the distributor on your car, you might find some very similar electrical wire connectors, not to mention 4, 6, or 8 nearly identical spark plug wires. The trick is to find a system to remember which clip goes here or which wire goes there, so after a break or after lunch, you won't make the same mistake.

### New formula for high-speed aborts

An F-4 aircrew had an opportunity to practice their abort procedure while barreling down the runway at about 100 knots. They also got a tour of the departure end cable when they were un-



## INCIDENTALS WITH A MAINTENANCE SLANT

able to stop. The occasion for the abort was the absence of airspeed on the indicators in both cockpits. When the crew saw 100 knots on the groundspeed indicators, they knew it was time to abort. We may never know just how fast they were going when the pilot initiated the abort, but it was probably well over 100 knots (115 mph).

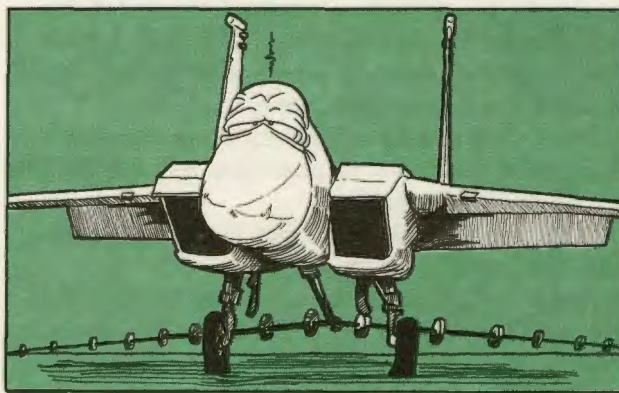
You might wonder why it took them so long to decide to abort. Next time you're doing some work in the cockpit, take a look at the airspeed indicator over there to the left of the big attitude indicator. The lowest number that's marked is 80 knots. About the time the crew senses the airspeed should be registering, it's only one potato, two potatoes, and the Phantom's doing a hundred knots.

Why no airspeed? Some time ago, the crew chief noticed a tear in the pitot tube cover. Rather than order a new one, he repaired it with some heavy tape. Over a period of time, as the cover was repeatedly installed and removed, debris from the deteriorating tape lodged in the end of the tube. When the pilot turned on the pitot heat before takeoff, the debris burned into ash. During the takeoff roll, the ash was forced into the pitot tube by air pressure. Voila. A new formula for high speed aborts. In this case thrifty wasn't better.

### Gear down and . . . locked?

When an F-15 pilot returned to base and lowered the landing gear handle, he sensed normal gear-down flight characteristics but couldn't find any evidence in the cockpit whether the rollers were in place or not—no gear indicator lights,

no red light in the gear handle, no popped gear circuit breaker. The pilot tried recycling and pulling the emergency extension system, but he never saw any reassuring gear-down signs in the cockpit. A wingman drifted in and reported that the gear were all down, so he tried a landing. Touchdown, nose-high aerobraking, and rollout were all normal until the pilot tried the brakes; there weren't any, normal or emergency. The Eagle ended up in the departure end cable. Whew.



Quite a bit of gear door damage greeted the folks who met the aircraft. Part of the door attached to the right main gear had ripped and separated in flight. The nut, bolt, and cotter pin (that attaches the lower brace to the strut and the aft door drive link) were missing. And both the normal and emergency brake hydraulic lines were severed. The left main gear area had similar but less-severe damage.

Troubleshooters figured that the attaching bolts on both main gear had been installed without cotter pins. The aircraft flew for over sixty hours before the consequences showed up, but consequences nearly always show up, don't they?



## CHOCK TALK

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Apparently one of the workers who helped with the 800-hour phase inspection of the aircraft didn't use the tech data when he or she worked in the main gear area. The nuts were removed by mistake; there was no tech order requirement to undo or remove them. But there is tech data which details how to reinstall them. Guess that doesn't matter though—if we don't use tech data for one job that we're unfamiliar with, it's not logical to expect us to use it for another . . .

### Know the players without a program?

A handful of fighters were deployed to a remote landing strip to lend flying support to a field training exercise. Shortly after one of the jets started an engine, a munitions specialist, who was helping with the aircraft launches while at the deployed location, walked in front of the jet's intake. He was wearing his fatigue hat—that is he was wearing it before he walked in front of the intake. Schwooph.

A number of cute comments come to mind:

- \* So now we have to pass the hat for \$6,500-worth of engine repairs.
- \* Who said the weapons troop could toss his hat into the crewing business?
- \* Guess the specialist was keeping the fact that he hadn't been trained on the flightline under his hat.

But it really isn't funny. We've had folks who weren't aware of some of the dangers of working around airplanes who were sucked into engines, who've had arms crushed by flight controls, and who've had feet crushed by tires that supported more weight than they imagined possible.

Wonder why the pilot didn't insist that the worker remove his cap before he started the engine. Maybe he didn't see him. But a more fundamental question is why the launch and weapons supervisors didn't stop him from working in the area? Surely they knew he wasn't trained to help launch the aircraft. Maybe they didn't have a program.

Doing our jobs at deployed, bare-base locations

presents challenges for each of us. There is often a heightened sense of esprit de corp; everyone wants to pull together to get the mission done. But no peacetime mission requires scheduling (either intentionally or inadvertently) an individual whose lack of qualifications may jeopardize his or her life. No true friend would ask an untrained buddy to help launch, arm, recover, or dearm an aircraft. And no competent shift supervisor would allow a friend to expose an unqualified helper to unfamiliar flight line operations that can be and have been fatal.

### Phantom gets nose bent

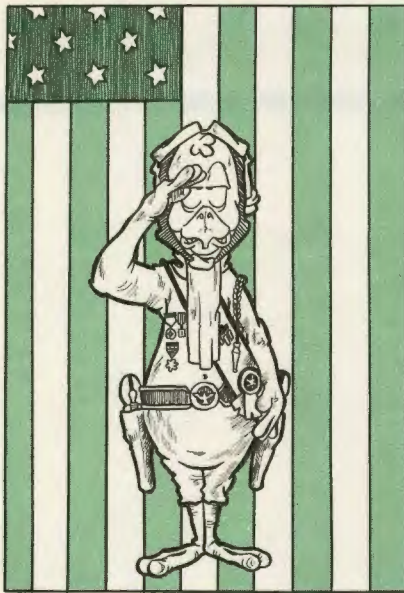
An aircrew returned their Phantom to the parking area after what seemed like a very long mission—in their chemical gear. Things weren't going real swiftly for the ground crew either—they had worn their chemical ensembles and gas masks for several hours.

The crew chief was marshalling the aircraft into position for an integrated combat turnaround (ICT). While the Phantom was spinning around into the parking spot, its pitot tube struck a Dash 60 power cart that was parked nearby. The power cart won . . .

The chemical gear worn by both the pilot and crew chief restricted their peripheral vision. The best way to compensate for tunnel vision is to move the head around more frequently to scan the areas we normally pick up with our wide angle eyeballs. That may not be an easy habit to develop, but it's one that would benefit each of us who occasionally wears chemical gear—whether we're driving airplanes, parking them, or just crossing the street.

It's too late to reorder and too expensive to modify all our F-4Es by moving the pitot boom up on the tail, like the D models. And we need to keep practicing our combat skills in chemical gear so we're able to do them if the balloon goes up and we really need to. But while we're practicing, we have to be more cautious performing tasks that usually don't require much forethought.





# FLEAGLE SALUTES-

the support assembly of the retract actuators on two aircraft. If this assembly were to come loose, the main gear would not operate properly and serious aircraft damage could occur. Because of Sergeant Hendershot's find, a Materiel Deficiency Report was submitted, and local inspection procedures were changed to include the bolts on the retract actuator's support assembly.

**MSgt Jerry L. Hendershot**, 366th Aircraft Generation Squadron, 366th Tactical Fighter Wing, Mountain Home AFB, Idaho. As a flight chief, Segeant Hendershot regularly follows up preflight inspections. One area he consistently inspects is the main wheel well of the F-111. Although his inspections of this area are not required by tech order, it's paid off. Sergeant Hendershot found a defective bottom left mount bolt head on

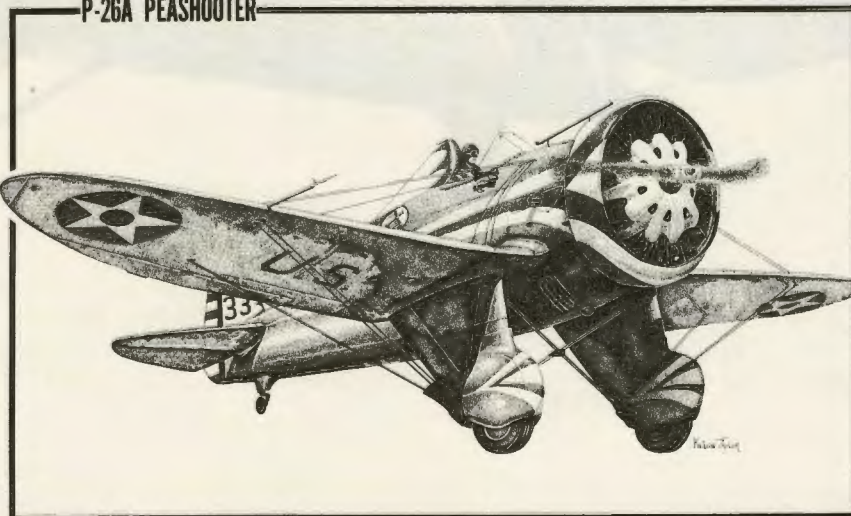
**Capt William K. Tomajan**, 961st Airborne Warning and Control Squadron (552d Airborne Warning and Control Division), Kadena AB, Japan. Capt Tomajan was performing as the supervisor of flying during a deployment to Clark AB in the Philippines. During the pretakeoff visual inspection of an E-3A, he noticed an almost invisible fine mist being sprayed from the lower portion of the number three

engine cowl. He advised the pilot who returned the E-3 to its parking spot. An inspection showed that the fuel pump had failed internally and the mist was really fuel being sprayed back onto the aft hot section of the engine. Had this problem gone undetected, a serious inflight fire and/or explosion could have occurred.

**SSgt James L. Miller**, 682d Air Support Operations Squadron, 507th Tactical Air Control Wing, Shaw AFB, South Carolina. The 682d was deployed to a wooded area to participate in a squadron exercise. During removal of camouflage netting from an M-820 van, a short circuit in the van's battery box ignited the battery. Sergeant Miller was first to notice the fire and quickly warned everyone in the van to leave. He found an extinguisher in a nearby vehicle and extinguished the fire. Because of Sergeant Miller's quick response and correct actions, damage was limited to the battery box only.

## IN THE CENTER

P-26A PEASHOOTER



The P-26A Peashooter was America's first all-metal monoplane fighter. It was one of the best known aircraft of the period between World Wars I and II. Built by Boeing, the first aircraft was delivered to the Army Corps in 1933.

The famous 34th Pursuit (Thunderbirds) Squadron, based at March Field, California, painted their P-26s mostly red, white, and blue. Their chrome wings were painted a bright yellow.

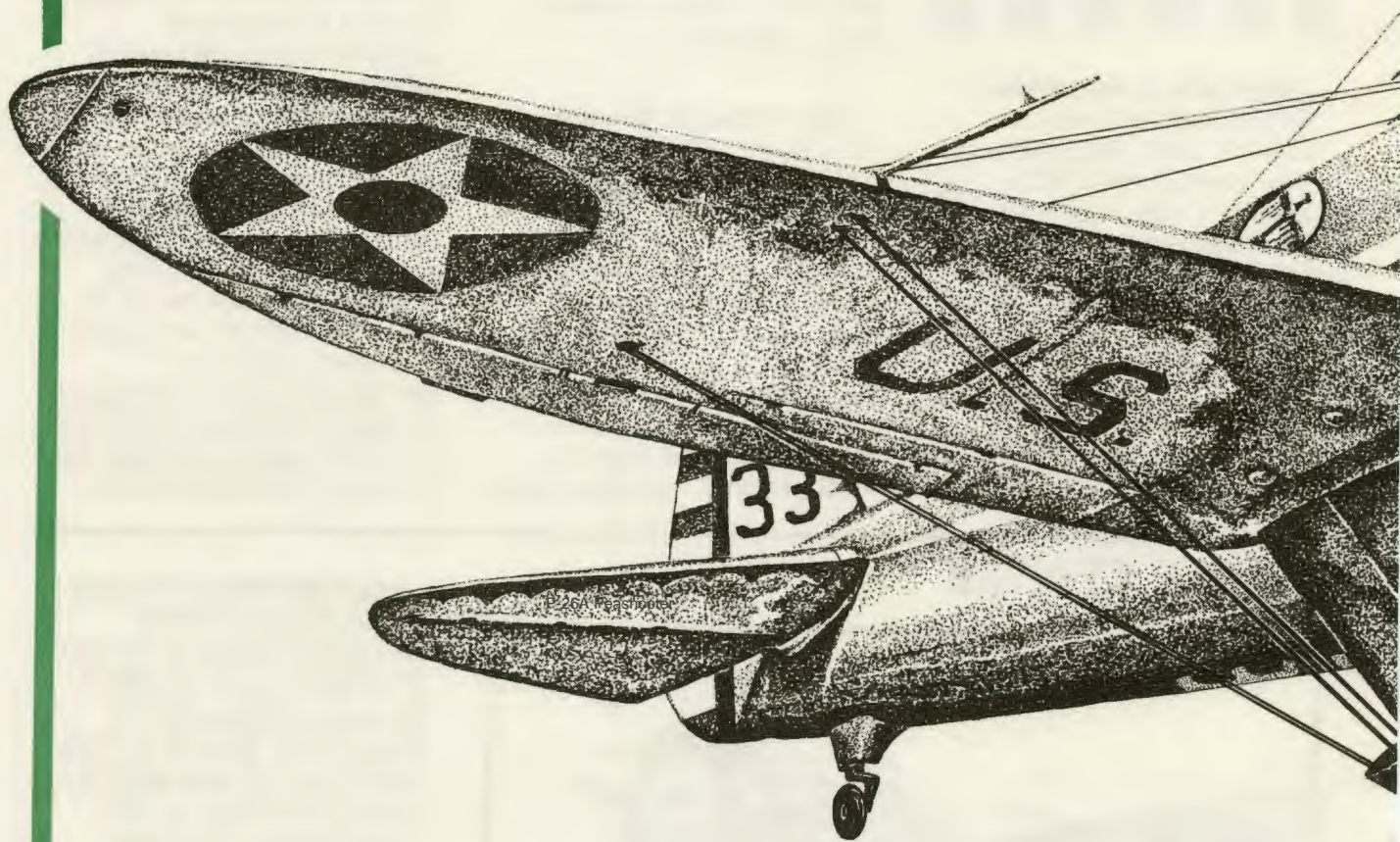
Top speed: 234 mph

Length: 23 feet, 7 1/4 inches

Wing span: 27 feet, 11 1/2 inches



# P-26A PEASHOOTER









# WEAPONS WORDS

## Tactical considerations

The common aircrew, maintenance, and weapons folks' goal of *bombs on target* is only achieved when everything works. The basic aircraft systems are reliable, the ordnance is correctly attached and armed, the delivery system locks onto the correct target, and, of course, the pilot reaches the target.

Sometimes tactical considerations compete for the pilot's time. Sometimes they get in the way of his switchology and give him less than ideal parameters from which to begin the weapons delivery.

Tactical considerations—maneuvering and employing ECM against SAM and AAA threat simulators, searching for bandits, checking the wingman's position, considering delivery geometry, planning egress maneuvers—and, oh yeah, putting the bombs on target without flying through their frag envelopes. Even sitting here on the ground, it's almost mind-boggling to think about all the things an aircrew has to check while flying along at 500 knots or more, not far above the dirt, rocks, and trees.

Unfortunately, these phenomena can keep a pilot from noticing minor errors in the delivery systems that he might readily recognize in a benign environment. That can mean bombs on the wrong target. Here's an example:

Capt Joe Bagadonuts was leading a two-ship of F-16s against a tactical target in a simulated combat scenario. Their mission was to destroy a specific target on a tactics range with BDU-33 practice bombs. As the flight approached the target area, Joe selected the dive/toss delivery mode and planned to drop all six bombs. He slewed the target designator (TD) box on the HUD about 15 miles south of the flight path marker (FPM). Then

using the point blank method, he designated the target with the pickle button. The TD box initially stabilized on the target. At sometime during the attack maneuvering, however, the TD box caged to the FPM and then stabilized on some real estate that was quite a way beyond the target. The bombs released as the Falcon was climbing some 1,500 feet above the target and sailed a couple of miles past it.



We don't know for sure why the TD box broke lock from the target and chose its own target—could have been that a faulty side stick controller gave only an intermittent consent and designate signal to the fire control computer. But from the videotape, we do know that Joe didn't notice the TD box movement or the 2+ mile range to go reading when he was nearly over the target. That's no great mystery though; he was probably physically looking at the target, not the HUD display. The problem was his bombing system was looking elsewhere, and that's where it sent the ordnance.

Now a pilot doesn't have a lot of time to stare at the gauges (even the HUD) when he's on a high speed bombing run. And we certainly don't



want to encourage any technique that might foster *target fixation*. What we do want to emphasize is *target confirmation*. A quick peek to make sure the TD box is still on the designated target *before* bomb release should confirm we're about to drop on the right group of bad guys, armor, or plywood targets, and prevent pickling in the wrong county.

## Captive sidewinders

by Capt Bill Danielson, TAC/SEW

A number of our fighter aircraft drag around captive AIM-9P missiles for training. Couldn't the pilots train just as well without that extra drag? No. The captive Sidewinders used in training produce the same tone in the pilot's headset that lethal missiles do when a heat source gets in the seeker head's way. Without the tone, it's only a matter of guesswork whether or not a live AIM-9 would track and destroy a MiG in a similar situation.

Many parts of captive missiles are the same as those on live missiles. The missiles are tamed for training by replacing several key parts (like the rocket motor and warhead) with inert parts and by modifying the cannon plug connector so the missile never gets guidance signals. Without this last mod, the fins would be out there working their little hearts out—and using up all the fuel in their gas grain generators.

The adapter that's installed (instead of a complete cannon plug) is missing the two pins that would carry current to the gas grain generator. Quick conversion, cost-effective, and it generally works—except when the adapter never gets in-



stalled and we burn up another gas grain generator that has to be repaired at depot.

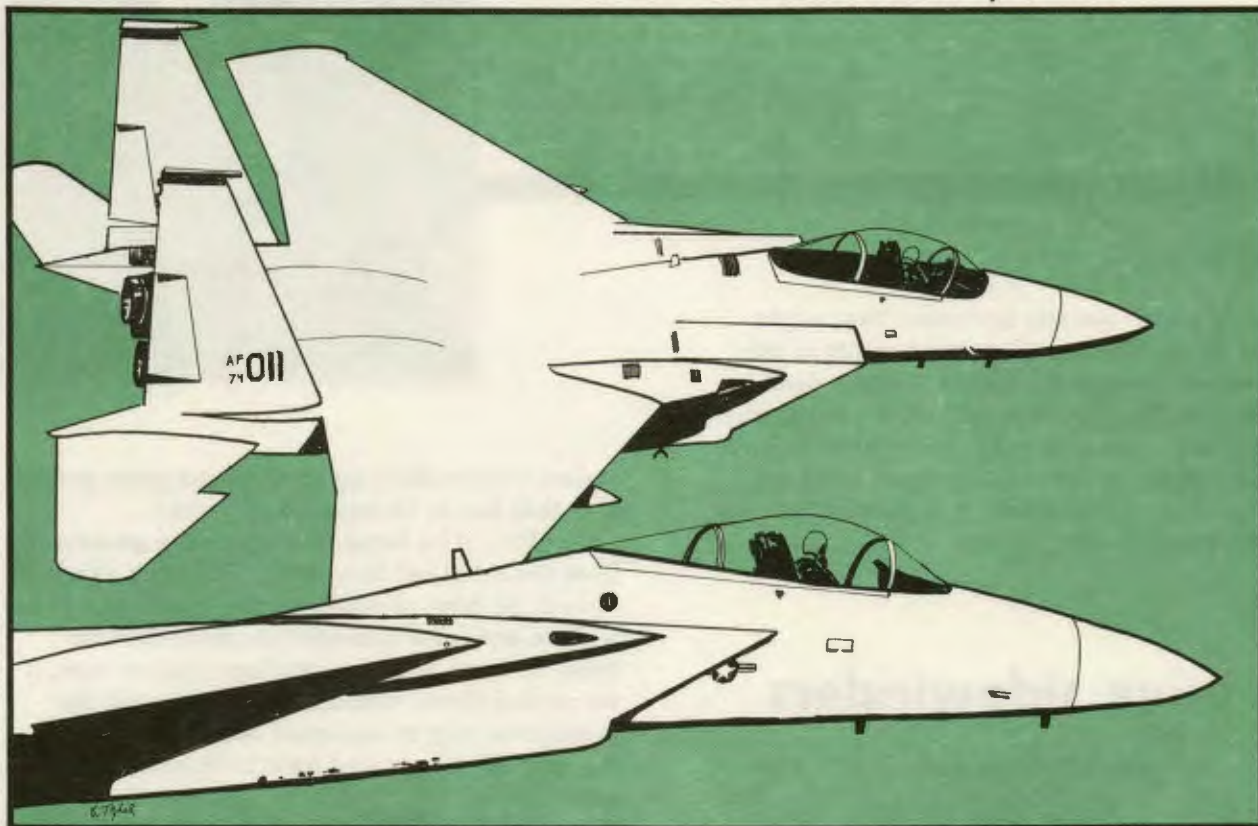
Wouldn't it be better to remove the generators from the missiles? Not really. The work would have to be done at depot, so the time required to remove and later reinstall the generators (to build up more live missiles from captive ones, if we needed them) would be excessive, and the generators may be damaged while they're waiting around to be mated back to their missiles. So what can we do?



Redundancy. The workers at munitions storage, who construct the missiles, are required to install adapters. Munition specialists are required to inspect each AIM-9 load when it is delivered to the flight line. The weapons load crew is required to verify adapter installation before uploading the missiles. And the pilot is required to check for adapter installation before he takes the aircraft. Would you believe, despite these safeguards, we continue to fire gas grain generators in flight?



# THE YEAR OF THE MIDAIR ,PART II



By Capt Thomas K. Mascot  
57 FWW  
Nellis AFB, Nevada

(Editor's note: Last month, in the first part of his article, Capt Mascot discussed mid-air potential within the same flight. He pointed out the necessity of flight leads considering not only the experience but also the formation *proficiency* of their wingmen. He wrote about *distraction* and how proper cockpit management requires not focusing on low priority items. And he addressed how *complacency* can insidiously overtake pilots flying basic formation

events during demanding tactical scenarios. This month he looks at midair potential of the multi-bogey air-to-air arena.)

As I said earlier, there are really no new lessons to learn from safety statistics, just a re-learning of old lessons. Of the ten midairs that occurred in the year of the midair, 1983, half involved air-to-air missions.

What can we relearn about midairs that happened during intercepts, basic fighter maneuvering, and multi-bogey dissimilar air combat maneuvering scenarios? Again, first and foremost, the big sky is not always big enough. Clearing

and reclearing your own flight path during engagements is essential.

Our rules of engagement (ROE) place a great deal of emphasis on adherence to block altitudes. But block altitudes only provide separation of aircraft during the ingress until the actual visual engagement begins. Most participants' SA (situational awareness) is relatively high prior to the merge because of radar and GCI information about the opponents' range, altitude, and maneuvers. The big threat, however, is when a turning visual fight starts and new bandits, or friendlies, enter the arena. Blocks do absolutely no good then, and that is when most



midairs occur. That's not the place to be complacent. Get your head out and clear your flight path. Belly checks are tactically sound as well as conducive to survival in training.

If I could live by one rule in air combat, it would be to always do the tactically sound thing. I am convinced that the tactically sound move is also the safe move. What does it take to do that? Not much more than a little common sense, training, and experience to recognize the correct move, and the discipline to train like you want to fight.

Nobody flying fighters likes to lose. We all have egos, but sometimes they get in the way

of accomplishing the mission safely. Have you never pressed just a little too far to complete a gun shot and violated the 500-foot bubble, or stuck your nose in a fight without clearing your bellysides because you thought you could get a quick kill on the guy that gunned you the last time? Most of us have done it, and I would venture to say we have all scared ourselves with close passes more than once.

Air-to-air training is a mature game. It has to be, because the evaluation criteria are usually much more subjective than air-to-surface where TOTs and bomb scores provide a clear and objective measure of

efficiency.

Besides special operating instructions, the ROE contain a whole laundry list of reasons to knock off an engagement. In my opinion, the "knock-it-off" rules boil down to two criteria: *Situation awareness is lost; dangerous situation is developing.* If you are engaged in a multi-bogey fight, and you become confused and don't have a clue (lost your SA), then you are creating a dangerous situation for yourself and the others in the engagement with you. Do you have the courage to knock off the fight and set it up again? Sure, you will take some heat in the debrief, but wouldn't you rather do that, and learn something, than have a midair that kills your best friend?

What is the point of this discussion of midairs? Common sense, attention to what you are doing, and awareness of the hazards that wait for each of us. None of this is new, and it certainly is not any great earth-shattering revelation. I know that most fighter pilots have had close calls and have probably had these very same thoughts. It is difficult to write an article like this one and not sound like you are preaching, but let me say, "Except for the grace of God, there go I." I know that I have been as guilty as the next man. The difference is that I have been a little luckier than some others.

So what new lessons have I learned? None. I have re-learned the same old lessons that they first taught me in pilot training, lead in, and RTU. If I am smart, I'll keep them in mind *every time* I strap on my Eagle jet and go gunning for MiGs.



#### USAF MIDAIRS DURING 1983, YEAR OF THE MIDAIR

AIRCRAFT:	EVENT OR MISSION:	SITUATION:
F-4/Light twin	Active intercept	Interceptor hit target
2 F-15s	Air Combat Maneuvering	Wingman hit lead during positioning maneuver
2 T-38s	Formation takeoff and departure	Former lead hit wingman during lead change in IMC
2 A-10s	Basic Fighter Maneuvering	opponents collided during low energy maneuvering
2 F-4s	Night transition	Wingman hit lead during lead change
F-5/F-15	Air Combat Maneuvering	F-5 failed to clear flight path
2 F-4s	Rejoin on takeoff	Wingman hit lead after overshooting
2 F-111s	Rejoin following range work	Wingman hit lead after overshooting
E-3/KC-135	Post air refueling maneuvering	Receiver hit tanker
2 A-10s	Dissimilar Air Combat Training	Wingman hit lead during crossturn



# DOWN TO EARTH

## Those who have and those who will

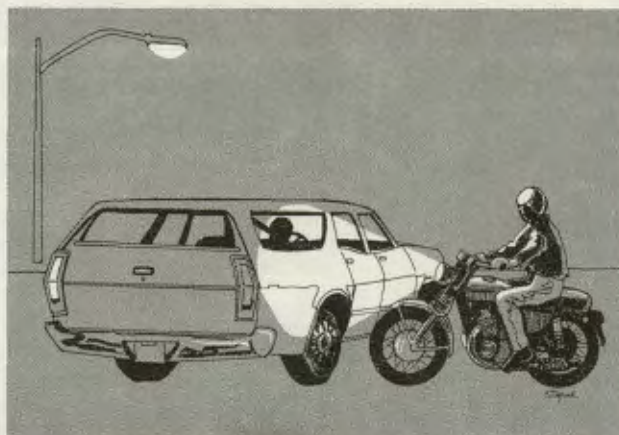
By SSgt Leonard Masengale  
388 TFW/SE  
Hill AFB, UT

It's been said that there are only two types of motorcyclists: those who have had their accident and those who will. I thought that I was the exception—I had never had an accident, and didn't think I ever would. After all I'm a motorcycle safety foundation instructor, trained to train others how to ride safely, spot potential accidents, and maneuver into safe positions to avoid accidents. I had been riding for about ten years and always wore full protective gear (full face helmet, long sleeves, gloves, long pants, and boots).

It was Friday morning, and like any other morning, I fought getting up as long as I could, then had to rush to take my shower and eat. I put on all my protective gear, completed my normal preride checks—light on high beam, gas on, and mirrors adjusted—and then I set off for work.

It was still dark. Road conditions were good—an almost perfect morning. The road I traveled to work on was four lanes with two stop lights between home and work. As I approached the first light, I was in the left-hand lane heading north; the light was green, and my speed was approximately 40 to 45 miles an hour. A station wagon heading south in his left-hand lane made what

appeared to be a last-minute decision to turn left in front of me. I had about 50 feet to react. I locked my rear wheel and put as much pressure as I dared on the front brake, but it wasn't enough. I hit the car's right rear quarter panel doing about 40 miles an hour. As soon as my



front tire hit his car, it turned all the way to the right, pulling me forward and to my left. At this point, holding on to the bike was not a good idea. So, I tried to dive away from the mixing metal. The only area clear of objects was to my left; so, that's where I dove. After a short flight, it was me and my protective equipment against the pavement. I landed on my head and then rolled and tumbled down the asphalt.

I was taken to the hospital where I was treated and released with minor injuries—no road rash and no head injuries, just an injured leg. My motorcycle was totaled, and my helmet was a mess; but I was alive.

Now, three months later, as I look back at my accident, something still bothers me. You see, I





didn't do a thing to cause this accident. You can be the best-trained, safest motorcycle rider in the world, and you may never be the cause of an accident; but once the other guy starts the accident sequence, you're locked in to it with no way out. How would you come out of it? Could you minimize your injuries? You can if you get the proper training, and always take the time to put on your protective gear.

## Cover that sneeze

By Col Rich Pilmer (BSC)  
ARRS/SG  
Scott AFB, Illinois

A professional crew chief would never shine his flashlight into the dark-adapted eyes of his aircraft's pilot. And crew discipline would suffer if one member began hogging rations, or gulping down all the water in a desert survival situation. Many other examples of discipline, courtesy, and good manners could be given to illustrate how *Homo sapiens*—both fliers and nonfliers, think of the health and welfare of their friends. To list just a few, we hold doors open, stop our cars for pedestrians, and help children.

Yet in this busy Air Force, there is still one practice that is potentially as dangerous as smoking in a required no smoke area, or driving while under the influence. It's sneezing and coughing into the open air. That's right. To cover one's nose and mouth when sneezing

is an act that is supposedly mastered before passing to the first grade. But Americans oftentimes are forgetful.

People in Oriental societies are generally better about covering up, and even voluntarily wear masks when they are afflicted with respiratory infections.

Why is it important to cover a sneeze? (Some would say if colds are in the air, you will catch one sooner or later anyway.) Because more than just an uncomfortable cold can be transmitted by an uncovered sneeze or cough. Many bacteria and viruses gain admission through the nose and throat. Microorganisms generally flourish in moisture; and coughing and sneezing keep them circulating. A sneeze, as motion pictures show, consists of tiny droplets expelled several feet carrying with them large numbers of microorganisms. Such diseases as the common cold, pneumonia, tuberculosis, whooping cough, scarlet fever, diphtheria, influenza, and meningitis are sometimes spread in this way. They are circulated not only by the outrightly sick, but by people who are just "coming down" with the disease, and by still others who harbor or "carry" germs without themselves becoming sick.

It is not etiquette alone that demands that you cover nose and mouth when coughing or sneezing. Germs in your nose and throat relish the free ride and opportunity to spread and multiply.

One of the most serious diseases sometimes spread by germ inhalation is tuberculosis. Currently there is about one death per 125,000 in the United States each year due to tuberculosis. Of course this is not terribly alarming—



## DOWN TO EARTH

unless its you.

So cover up. Better still, become a sneeze and cough cover activist. If someone sprays your cockpit, office, or desk with a sneeze or cough and acts like its cool to be nonchalant, correct them on the spot, or if absolutely necessary, rip off your TAC T-shirt and politely provide them something to cover up with.

## Eye injury advice

More eye injuries occur around the home than anywhere else, says the National Society to Prevent Blindness (NSPB). Ammonia, lye, and other caustic chemicals contained in household cleaners are among the big offenders that have damaged the eyes of some one million Americans.

Before using any household or garden chemical, be sure to read the package instructions carefully, the NSPB warns. Many give specific steps

to take in case of eye contact. Generally, the NSPB recommends immediately flooding the eye gently with water for at least 15 minutes. Put the victim's face directly under a cool water faucet, or pour water into the eye from any clean container. Keep the eye open as wide as possible



during the rinsing, holding it gently open with fingers.

You may be interested in this free pamphlet from the NSPB. "Eye Safety Is No Accident" can provide a handy, at-home guide to eye hazards. Send a stamped, self-addressed business-sized envelope to the National Society to Prevent Blindness, 70 Madison Ave., New York, NY 10016.

short shots



**Kitchen Grease Fires.** The best tactic for a kitchen grease fire is to smother it. Remain calm and quickly decide if you can put the fire out; if not, call the fire department. (Is the number posted?) 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. Grease fires in a pan are contained; moving the pan spreads the fire. Don't use water, flour, or cereal; baking soda might not be effective. Don't turn on the exhaust fan.

**Aerosol Cans May Explode.** Most aerosol cans carry this warning, "Keep at room temperature: exposure to heat or prolonged exposure to direct sun may cause bursting." Think about the summer heat. Are there any aerosol cans in the trunk of your car? inside your car? on the dashboard? How about your closed up camper or boat? On the beach, where's the bug spray? When you're on the job, where do you put that spray can of lubricant, paint, cleaner, or solvent?

**Scuba Diving?** If you are planning to have your scuba tank repainted, be sure that no heat is applied to the tank. If you are in doubt about the paint process you intend to use, discuss the matter with your local dive shop owner or contact the manufacturer. Heating the aluminum alloy reduces its tensile strength; when the tank is filled with air, it may explode.

**Don't Flick Your Bic.** If you flick your butane lighter on the dashboard of your car or truck, you could be asking for trouble. Heat from the sun expands the fuel and could cause the lighter to explode. Be careful where you flick your Bic.



# Major General Benjamin D. Foulois Memorial Award

Tactical Air Command has won the Major General Benjamin D. Foulois Memorial Award for 1983. This award is presented each year to the major command with the most effective flight safety program. The honor was established as the Daedalian Flight Safety Award by the Order of the Daedalians, an organization founded by World War I pilots. Following the death of General Foulois in 1967, the Daedalians renamed the award to commemorate his contribution to aviation and flight safety.

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General Foulois enlisted in the Army in 1898 and graduated from the Army Signal School in 1908. In 1909 he was Orville Wright's passenger on the Army's final acceptance test of the *Wright Flyer*. General Foulois explained that Orville offered him this unique opportunity, not because of his "intellectual and technical ability," but because of his "short stature, light weight, and map-reading experience." In 1910 he became the Army's one-man air force when the War Department ordered him to take the *Wright Flyer* to Texas and teach himself to fly. He earned his wings by a "correspondence course," writing to the Wright Brothers after each crackup asking for their advice on pilot technique.

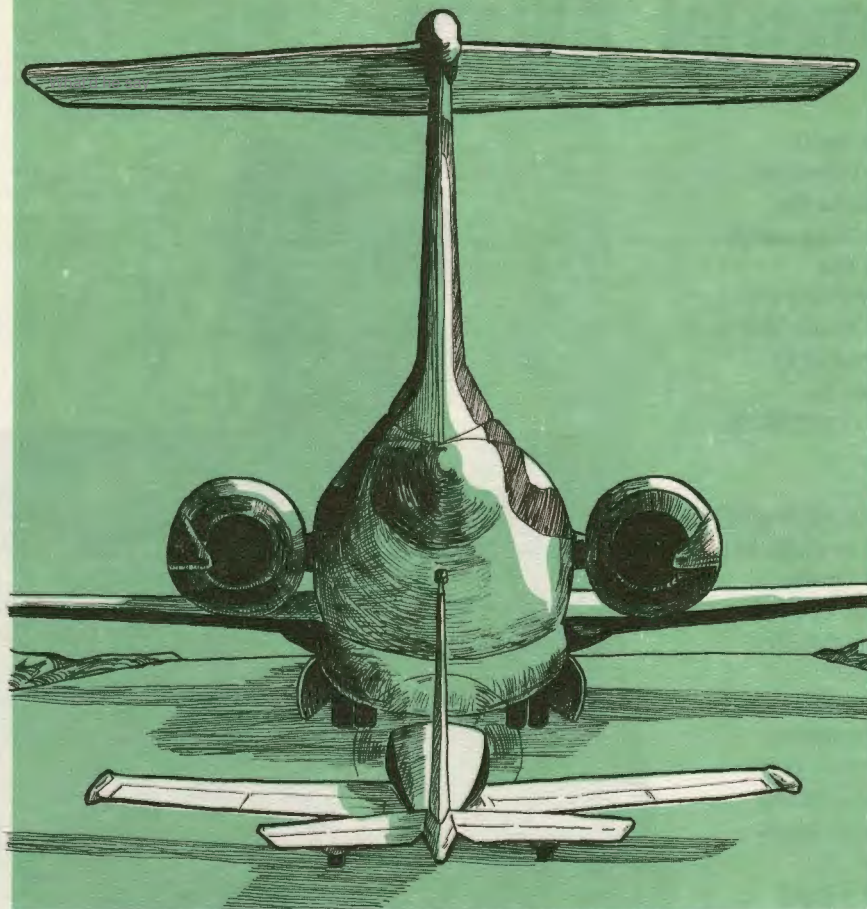
In 1911 Foulois designed the first airplane radio receiver and carried out the first airplane reconnaissance flights. In 1913 he was assigned to the Signal Corps Aviation School, where in 1916 he commanded the First Aero Squadron at Fort Sill, Oklahoma. In 1917 Foulois became Chief of the Air Service, American Expeditionary Force (AEF), then filled a variety of jobs before he became the Assistant Chief of the Air Corps in 1927. In 1931 the Secretary of War appointed him Chief of the Air Corps, the position he held until he retired in 1935.

General Foulois played a valuable role in American aviation history. As chief of the Air Corps, General Foulois finally convinced the War Department to grant the air arm a semi-dependent organization, to recognize the legitimacy of strategic bombardment, and to begin to develop aircraft capable of carrying out the mission.





# WHAT'D HE SAY



By Maj H.V. (Scott) Sutton  
TAFIG/IIPJ

Oil and fuel pressures were both solidly "in the green" as the aero club Cherokee Arrow reached rotation speed on takeoff roll. The pilot, in the left seat and under the hood for a practice instrument takeoff, was ready to leave the runway when the instructor beside him called, "Abort."

"What?" the pilot queried as he saw all indications normal.

"Abort!" came the command again. Throttle to idle, hard

braking with yoke back, and flaps confirmed up for maximum weight on the main gear quickly slowed the loaded Arrow.

When the left seater peeled back his hood, he saw that a continued takeoff would have buried the prop spinner into the tail of an errant commercial DC-9. For reasons unknown, the crew of the airliner failed to hold short of the Cherokee's runway, even though they had acknowledged the tower's instruction to do so.

Why the conflict? Why the delayed abort? Several factors influenced the Cherokee's crew.

The F-4 driver in the left seat was on his first light aircraft instrument refresher lesson with a KC-135 IP instructing him. A few special but marginally consenting passengers were in the back. The left seater was anxious to impress his wife and mother-in-law with the utility of flying and really wanted an on-time takeoff. He was excited about showing off his 3-month-old daughter to the relatives in another city. And better weather at the destination motivated everyone.

Alert action by the instructor saved the lives of the folks in the Cherokee and possibly many others in the airliner. And the crew involved in that particular incident relearned a few important lessons. For one, the pilot was takeoff oriented; he didn't even consider the possibility of not flying. Second, because he was also playing baggage handler, steward, and public relations officer for some pretty special passengers, the pilot wasn't fully concentrating on all his flying duties—like the details of the takeoff. Finally, the pilot's attitude wasn't right; he wasn't ready to immediately accept direction (that was contrary to what he wanted to do) from a somewhat unfamiliar instructor in a new airplane.

We would probably all agree that practice instrument takeoffs are not inherently dangerous whether passengers are along for the flight or not. But a pilot who has his attention divided between flying duties and passengers, who is takeoff oriented from brake release, and who isn't attentive to his safety observer can make it risky.



# SAFETY AWARDS

## CREW CHIEF SAFETY AWARD

A1C DAVID D. BAILEY was the acting crew chief on an A-10A from another aircraft maintenance unit during a locally generated wing readiness exercise when he looked across the ramp to an opposite row and observed smoke coming from the right engine of an aircraft which was starting. Airman Bailey immediately ran to the aircraft and motioned for the pilot to shut down the engines and leave the aircraft. He then grabbed the fire bottle and extinguished the engine fire which had started when an air turbine starter failed. Because of other distractions on the flight line and the fire's location, the pilot and crew chief of the mishap aircraft had not initially seen the fire.

Airman Bailey's quick reaction and knowledge of what to do in this potentially dangerous situation prevented serious aircraft damage and possible loss of life.



**A1C David D. Bailey**  
**23 AGS, 23 TFW**  
**England AFB, Louisiana**

## INDIVIDUAL SAFETY AWARD

SGT MICHAEL J. BUTALA is an A-10 electrical system technician. He has designed and built three test devices which test the aircraft generators, trim, and fire protection systems. These devices reduce the number of panels that must be opened on the aircraft which lowers maintenance troubleshooting time from approximately one hour to 10-15 minutes. Some engine runs are also eliminated. Sergeant Butala is currently working on similar devices which will test the controls for the nosewheel steering, auxiliary power unit (APU), antiskid, and the landing gear control and indicating systems.

Sergeant Butala also found the solution to a recurring A-10 APU fire loop problem which has caused several inflight emergencies and ground aborts. He suggested a very simple routing change to the fire loop which has been approved and incorporated in TO 1A-2-71JC-1.



**SSgt Michael J. Butala**  
**23 AGS, 23 TFW**  
**England AFB, Louisiana**



routine up for more than two years.

After about a year of this, my civilian employer, "Old Mac," decided to expand. He rented a bigger shop on the other end of town. He asked me if I could take some leave to get the new shop in order.

My wife wanted a new electric range so I thought the chance for some extra hours would work out fine. I could pay cash for the range, beat the finance company out of some money, and eliminate an extra bill to pay.

I took the leave and went to work in the new shop. I was averaging 12 to 15 hours a day; and after a couple of weeks of this, I was getting pretty tired. I lived in the lower valley and the new shop was in the upper valley, over 20 miles away. The trip back and forth added to my long days.

Early one morning I was running a little late and was pushing the speed limit as I headed for work. I topped a little rise on US 80 and there it was—the biggest dump truck I had ever seen, sitting in my lane. I got on the binders and started looking for a place to go, but there wasn't any. There was a guard rail on the right and a solid string of traffic in the left lane. I could smell the burning rubber as I stopped less than six feet from the rear of the truck. As I sat there watching the blue smoke clear away, I thought about how close I had come to being wiped out. How could I have missed all those warning signs? Oh, they were there; I could see them in my rearview mirror. Now I knew why all the traffic had been switching lanes, all but me, that is.

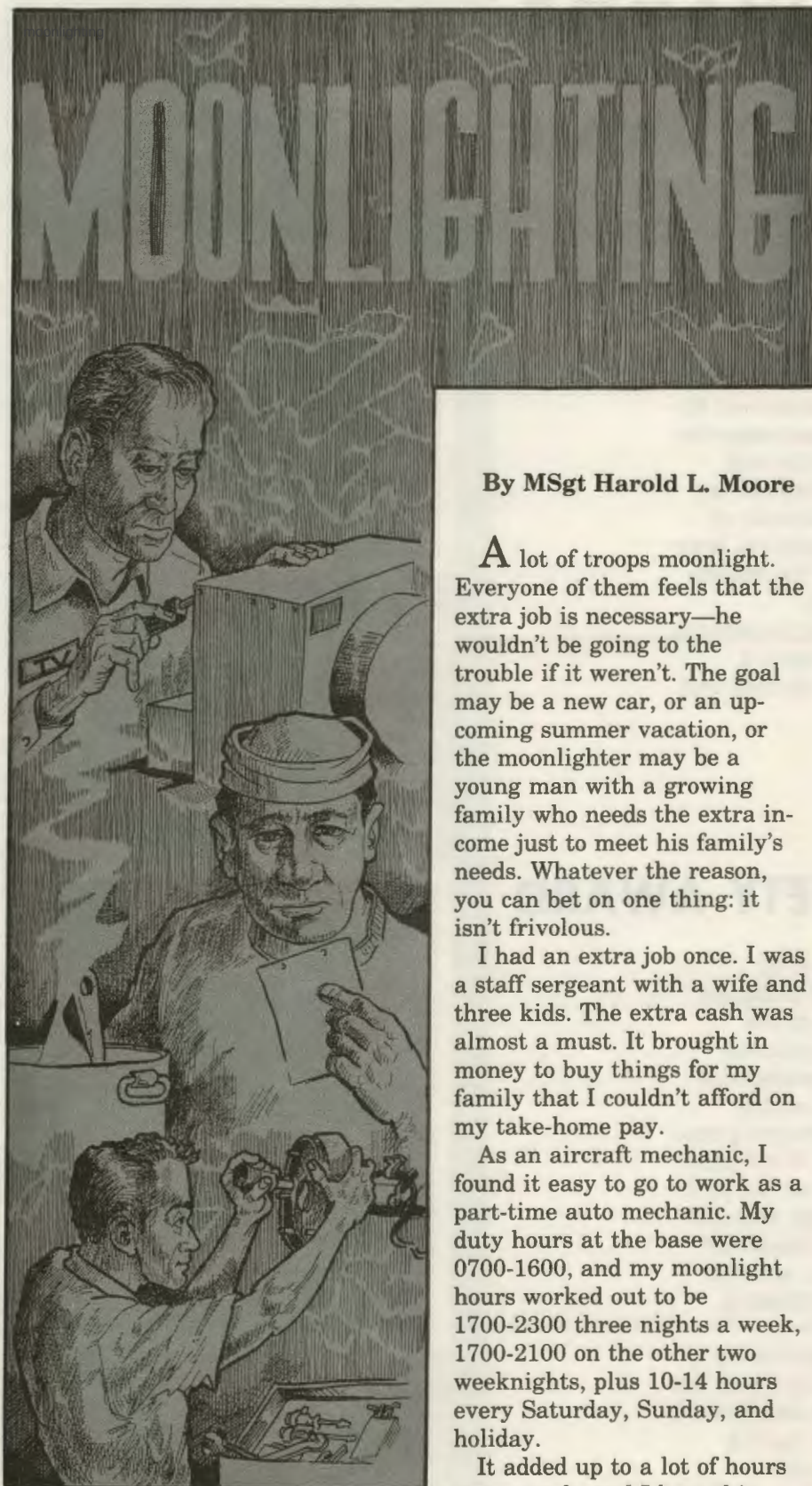
By MSgt Harold L. Moore

A lot of troops moonlight. Everyone of them feels that the extra job is necessary—he wouldn't be going to the trouble if it weren't. The goal may be a new car, or an upcoming summer vacation, or the moonlighter may be a young man with a growing family who needs the extra income just to meet his family's needs. Whatever the reason, you can bet on one thing: it isn't frivolous.

I had an extra job once. I was a staff sergeant with a wife and three kids. The extra cash was almost a must. It brought in money to buy things for my family that I couldn't afford on my take-home pay.

As an aircraft mechanic, I found it easy to go to work as a part-time auto mechanic. My duty hours at the base were 0700-1600, and my moonlight hours worked out to be 1700-2300 three nights a week, 1700-2100 on the other two weeknights, plus 10-14 hours every Saturday, Sunday, and holiday.

It added up to a lot of hours every week, and I kept this





All of a sudden I noticed five sets of eyes looking at me. It was the road repair crew. Since they didn't look too friendly, I eased the old Pontiac into reverse and backed away. It seemed like it took ten minutes to back up to where the "CAUTION ROAD WORK" signs started.

I realized right then how tired I was. I was just about exhausted and had come mighty close to proving it by tail-ending a dump truck. Who would have been at fault had I rammed that truck? I don't know what the accident report would have said, but I do know that my state of exhaustion had reached the point where I

had lost my ability to judge, to detect, and to react to a hazard. No one knew that but me, and I didn't know it until I had a mighty close call.

I don't mean to discourage any present-day moonlighters. I know people have reasons for the extra job, as I did. I felt they were valid at the time and still do. But I didn't use sound judgment. I didn't make sure that I got proper rest. Thankfully, I didn't bash the truck or contribute to an aircraft accident, but I could have.

That's why I'm asking you guys to take a good look at yourself and your job(s), both AF and after duty hours. Make sure you get enough rest and

don't let that extra job wear you down like mine did. My error could easily have spelled the end for me or could have caused an aircraft accident.

A word to you immediate supervisors. I'm talking about the ones who have daily contact with the moonlighter. You see the guy every day and should be able to detect a deterioration in a man's ability to do his job. If he appears tired when reporting for duty, have a talk with him. I don't mean for you to tell him to get rid of his extra job, but sit down and talk with him about it. Suggest that he ease off a little. I'll bet if you do this, you'll get results and also be doing him a favor. He may not realize that his fatigue shows. If someone had talked to me that way, I could have eased off on the extra job, because I knew my Air Force job came first. The trouble was I just didn't realize the state I was in until it was almost too late.

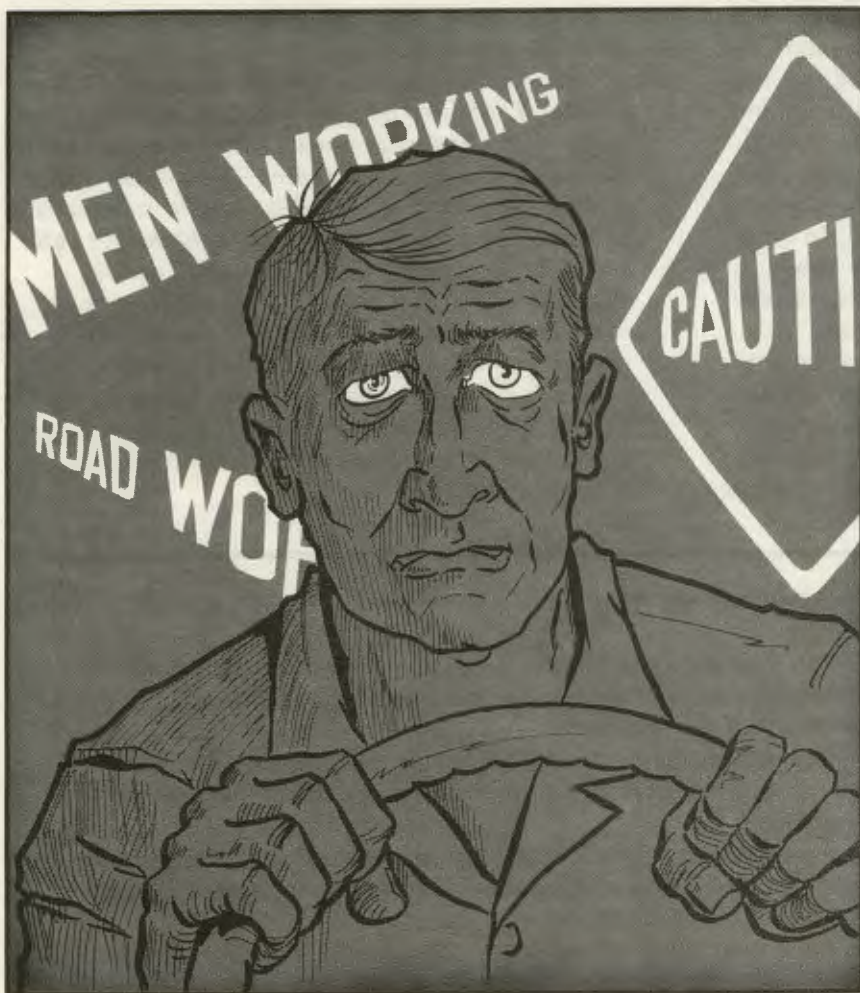
Both physical and psychological fatigue are reduced if the AF and off-duty jobs are somewhat different.

People who rush between jobs seldom eat properly. Arrange for enough time to take out the panic factor.

Physical symptoms of overwork include high blood pressure, weight loss, constant tiredness, and ulcers.

When working two jobs, scheduling leisure time is a must.

Don't expect the same emphasis on safety in an off-base job. Take your safety habits with you. An injury off base is just as painful. ➤



—Reprinted from *Aerospace Safety*, September 1974



# LETTERS

Dear Editor

Reference the February 1984 issue of *TAC ATTACK*, page 9, "The Wrong Stuff". Over the years, I've read many informative crossfeed articles in your magazine. However, I feel compelled to make some corrections to this particular article.

You made a correct statement saying "In the air refueling business, assuming a disconnect is always risky." Then you made a statement that could very well lull a lot of fighter jocks (and heavy types too) into a false sense of security. You say that "most receiver aircraft have lights that indicate when the nozzle is free of the receptacle. The tanker's receiver-director lights also advertise the event." That is a false and misleading statement. The light that the receiver has only indicates a disconnect in the electrical signal system—not a physical disconnect. The tanker's receiver-director lights do not indicate anything more to a receiver pilot than his position in the air refueling envelope. I quote from TO 1-IC-1-3, "The receiver pilot director lights will remain illuminated and follow boom movements in both the contact made and disconnect conditions." In other words, the *only* way the receiver pilot or boom operator has to confirm a disconnect is by visually observing the nozzle clear of the receptacle.

This quote from TO 1-IC-1-3 may clear up any misunderstanding between boomers and receivers: "The receiver pilot will remain stabilized in the contact position until the boom operator or receiver crew member has visually confirmed that the nozzle has cleared the receiver. Disconnect will be



acknowledged by both the boom operator and the receiver pilot. This information is important to prevent damage to the boom and receptacle."

Jack G. Bracken, MSgt, USAF  
1 CEVG/STT  
Barksdale AFB, Louisiana

*Dear Sergeant Bracken*

*Looks like we slipped a little of the wrong stuff into our TAC Tip. Our (receiver) TOs, just like yours, tell us to remain in the contact position until visually confirming a disconnect. There are no substitutes. The point was that there may be some early signs of trouble. If the Disengaged light doesn't light and if the Receiver-Director lights don't rapidly change (like they normally do when the boomer raises and retracts the boom after a disconnect), chances are the two aircraft are still connected.*

*There's a similar analogy: the Fire light officially tells me it's hot in the engine bay. If I'm alert, the exhaust gas temperature gauge may give me an earlier warning.*

*Ed*

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You may not have a story to tell that's as exciting as some of mine, but your contribution could place you in the ultra-elite circle of Fleagle T-Shirt owners.

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# TAC TALLY



CLASS A MISHAPS
AIRCREW FATALITIES
TOTAL EJECTIONS
SUCCESSFUL EJECTIONS

TAC		
MAY	THRU MAY	
	1984	1983
3	8	12
1	8	4
2	3	8
2	2	7

ANG		
MAY	THRU MAY	
	1984	1983
1	3	4
1	2	3
1	2	4
1	2	1

AFR		
MAY	THRU MAY	
	1984	1983
0	0	0
0	0	0
0	0	0
0	0	0

## TAC'S TOP 5 thru MAY 84



TAC FTR/RECCE	
class A mishap-free months	
54	355 TTW
33	58 TTW
26	4 TFW
23	37 TFW
22	405 TTW

TAC AIR DEFENSE	
class A mishap-free months	
136	57 FIS
89	5 FIS
86	48 FIS
45	318 FIS
36	87 FIS

TAC-GAINED FTR/RECCE	
class A mishap-free months	
145	188 TFG (ANG)
137	138 TFG (ANG)
136	917 TFG (AFR)
114	114 TFG & 174 TFW (ANG)
109	112 TFG (ANG)

TAC-GAINED AIR DEFENSE	
class A mishap-free months	
119	177 FIG
85	125 FIG
68	119 FIG
52	107 FIG
43	147 FIG

TAC/GAINED Other Units	
class A mishap-free months	
178	182 TASG (ANG)
162	110 TASG (ANG)
158	USAF TAWC
150	84 FITS
146	105 TASG (ANG)

## CLASS A MISHAP COMPARISON RATE

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

TAC	1984	3.4	3.4	2.8	2.0	2.6							
	1983	6.9	5.3	3.4	3.8	4.0							
ANG	1984	0.0	2.3	1.5	2.2	2.6							
	1983	9.1	7.0	4.4	4.3	3.4							
AFR	1984	0.0	0.0	0.0	0.0	0.0							
	1983	0.0	0.0	0.0	0.0	0.0							

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





FRUMP!

