

# The Combat EDGE



June 1999



# The Combat Edge

## Air Combat Command's Mishap Prevention Magazine

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
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**About the cover:** An F-16 Fighting Falcon pilot from the 78 FS, Shaw AFB SC, preflights his jet before flying a mission on Friday, April 23, 1999. The pilot is a reservist assigned to the 78 FS and deployed to Aviano Air Base, Italy, in support of NATO Operation Allied Force. U.S. Air Force photo by SrA Jeffrey Allen

**B-2 Background photo:** The flight crew of a B-2 Spirit Bomber from the 509th Bomb Wing performs an engine warm-up prior to departure from Whiteman AFB MO to perform combat sorties on day 31 of NATO Operation Allied Force. U.S. Air Force photo by SSgt Michael Gaddis

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# ACCent on Safety

**A COMMANDER'S FAREWELL** — On June 11, 1999, Gen Richard Hawley, Commander, Air Combat Command, will retire after 35 years of distinguished service to his country and the United States Air Force. THE COMBAT EDGE staff is particularly pleased that Gen Hawley requested this opportunity to address the men and women of Air Combat Command.

**A**s I approach the end of my tenure at Air Combat Command, I reflect back on the great progress that you, the professionals of ACC, have made in the face of unprecedented challenges. My heart fills with pride in the devotion to duty, the dedication to excellence, and the integrity that you have exhibited every step of the way.

Our time together these last 3 years has found ACC meeting and overcoming many challenges, from within and without, around the globe, and always with spectacular success. This truly exceptional record is a great tribute to the superb warriors who make up this command - from aircrew and maintainers to our too often overlooked expeditionary combat support specialists without whom no wheel would turn and no jet would roar. You have met hostile opposition head-on in far-flung corners of the world and never blinked once. You have arrested the debilitating "slippery slope" of declining mission capability rates and persevered even as declining retention increased the strain on the remaining few. At every turn and every new challenge, you have cheerfully moved to adapt, overcome, and achieve.

Of all the many wonderful things I remember from my visits to you throughout the command, I have been especially touched by your honesty. Whether we shared the same views or not, you have spoken with conviction and purpose. Even though our perspectives sometimes differed, it was always evident that we shared a common goal of making ACC a better place to work and live. No commander could have asked for more, and you will always carry my deepest admiration and respect.

As I leave, let me challenge you to sustain the growth of a culture of personal risk management. I have too often had the sorrowful duty of reviewing the circumstances of an accidental death. I believe that ORM is a potent tool you can use to prevent these tragedies. You have made great strides; but there is so much more to do. I charge you to press forward.

I have great confidence in your continued success. May God bless you, the men and women of Air Combat Command; you are what makes this country great. Mary Ellen and I will miss you.

*Dirk Hawley*



# Complacency

Lt Col Grant "Noz" Bruckmeier  
4 FS/SE  
Hill AFB UT

## Weak Students... Good Students

One of the sayings you hear throughout your flying career is "Complacency can kill you!" Unfortunately for me, I learned (almost) too late how to apply this while serving as an Instructor Pilot (IP) in Air Education and Training Command (AETC). Sure, everyone knows you really have to be on your guard while flying with the "weak" students. My hands were always just millimeters from the stick and throttles on those sorties. But being new to the IP profession, the one connection I had not yet made was that it could actually be more dangerous flying with "good" students. They lull you into a false sense of security and then try to kill you when you're not paying attention. Complacency is a factor when an individual experiences a state of reduced conscious attention due to an attitude of overconfidence (or even undermotivation). As a result, complacency can oftentimes lead to an unsafe, life-threatening situation. How do I know this to be true? Well, read on...

### Coffin Corner

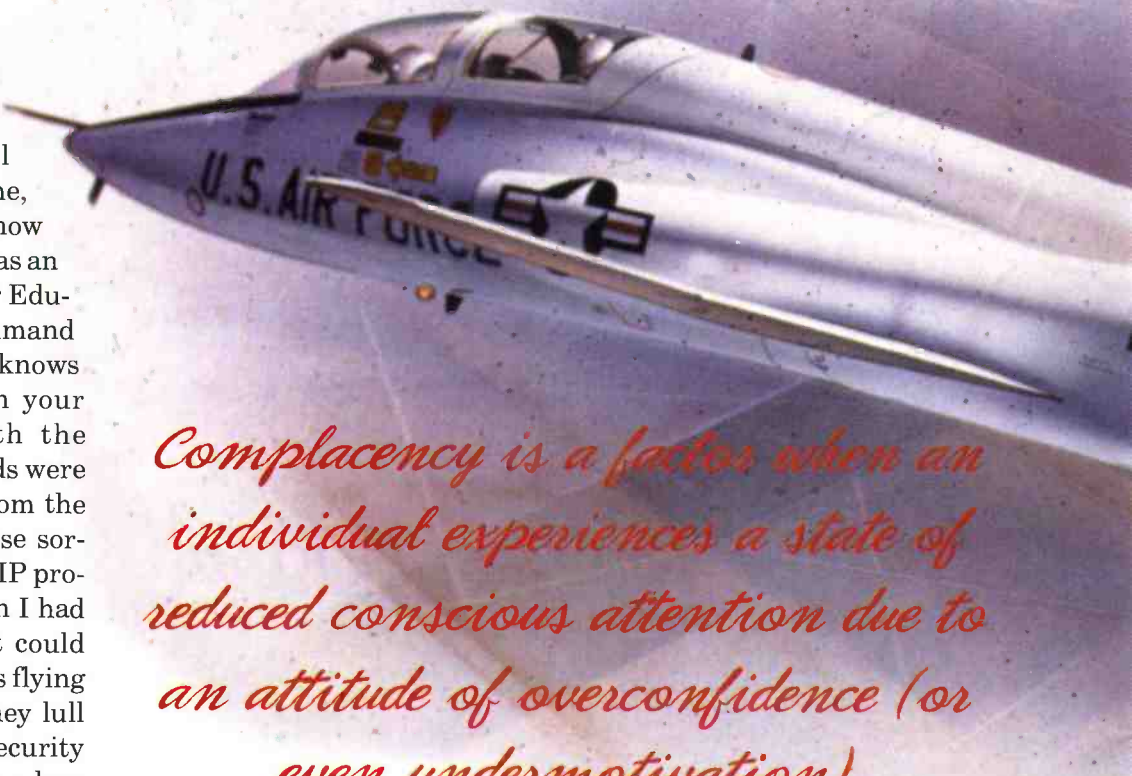
The nearest I have ever come to dying in an airplane (that I

know of anyway) was with a good student during my time as an AT-38 Talon IP. As part of AETC's introduction of student pilots to fighter fundamentals, this version of the T-38 is equipped with a gunsight as well as a practice bomb dispenser. The flight was supposed to be a normal, uneventful sortie to the bombing range (aren't they all).

We were #4 in a four-ship going in for 10, 20, and 30 degree conventional patterns. The

weather was CAVU (Ceiling and Visibility Unlimited). The first few passes were unremarkable. Stanley, our moniker for all our students (my apologies to those of you named Stanley) was doing rather well. I felt rather comfortable in the situation; consequently, I wasn't paying as much attention to him as I should. Yes, I was complacent.

A "coffin corner" occurs on a bombing range when one aircraft does a lazy safe-escape and flies



*Complacency is a factor when an individual experiences a state of reduced conscious attention due to an attitude of overconfidence (or even undermotivation).*



# Can Kill You!



Illustration courtesy Bob Engle Aviation Art

straight ahead before making his turn to crosswind while the following aircraft does an aggressive pull-off and immediate turn to crosswind. The conflict develops when the second aircraft makes his crosswind turn inside of (or into) the preceding jet. If they're fortunate, at least one will see the other before a conflict occurs. If no scuffle is encountered, then the

incident just turns into an item for the debrief. However, if a conflict does occur (like a midair), it gets ugly real quick.

### Within Walking Distance of Death

We were coming off our third pass. Things were going well — the safe-escape... mil power... turn to crosswind. Stanley even said,

"Tally on #3." I was busy writing down the parameters from his last attack. As we turned to downwind, I looked beneath us to check the ground references. Then all of a sudden, my vision was completely filled with the sight of another AT-38 directly below us. I'm not too sure of the distance, but I do remember (very distinctly that is) seeing the green line-up card on #3's right leg. It was 50 feet max in my estimation; we had flown within walking distance of death. Stanley had been watching #2 — not #3! In addition, I hadn't been watching either one because I had become complacent with my "good" student. The pilot of #3 was an IP, too. Sad to say (but true), he wasn't clearing away from us either; he knew nothing of this close pass until I told him about it "after" the flight.

### Remember to Count the Costs

Don't allow complacency to lull you into a state of well being, overconfidence, or undermotivation. Pilot complacency will always cause a diminished level of alertness and awareness as you fly your jet. So the next time you step into the cockpit, remember that the costs associated with weakening or reducing your vigilance as a pilot can be very, very high. In fact, *complacency can kill you!* ■



Powerful winds, flying debris, and damaging floods associated with these storms can destroy our precious military assets just as quickly as an enemy attack, necessitating vigilance in planning appropriate counteractions.

# HUREVAC!

*Lt Col Matt "Gorilla" Donovan  
19 FS  
Elmendorf AFB AK*

**N**ature can present challenges to the United States Air Force that are as significant as any hostile military action. Evacuating airplanes in the face of a hurricane or typhoon poses a formidable task in order to minimize the risk involved in what is frequently a short-notice, fast-moving ball game. Powerful winds, flying debris, and damaging floods associated with these storms can destroy our precious military assets just as quickly as an enemy attack, necessitating vigilance in planning appropriate counteractions. Because of the capricious nature of these powerful phenomena, flying unit leadership decisions must strike a fine balance between adequate preparation and minimal disruption to routine flying operations. While all affected units prepare operations plans to deal with this threat, the focus of this article is to highlight areas of concern (pos-

sibly outside the purview of these plans) to flying squadron leadership charged with safely executing an order to Hurricane Evacuate — or HUREVAC. To assist in addressing these areas, a HUREVAC operation can be broken down into three distinct phases: Preparation, Execution, and Reconstitution.

## **Preparation**

The preparation phase begins long before a tropical wave appears on a weather map. Flying units based in susceptible geographic locations must dust off their plans and procedures and conduct a thorough review of them before the start of the hurricane or typhoon seasons. Significant personnel turnover can occur between seasons or actual HUREVAC operations, draining the corporate memory of "how it really worked." Remember to seek out the crusty Lieutenant Colonel or Chief for their recollec-

tions from other HUREVAC operations at the current or previous locations. Thoroughly "giggle check" the current plan to ensure it is updated with respect to equipment changes and upgrades, evacuation location, personnel manning, and operations and maintenance flows. Keep in mind that any plan is merely a generic template that must be modified for any impending circumstance.

An important portion of the preparation phase must consider the human dimension. Spouses of deploying aircrew and maintenance people will experience a high level of anxiety as a severe tropical storm approaches their area. As a result, squadron leadership should attend a spouse's function before the start of the hurricane season to provide a detailed explanation of the reasons for the HUREVAC procedures and emphasize the importance of their husband or wife's participa-



tion in the operation. This session can go a long way toward calming the fears and jitters present at the outset of a HUREVAC notification by loved ones certain to be left behind.

Squadron leadership must also address policies concerning the availability of deploying personnel. Members subject to deployment at the outset of a weather emergency have a natural reluctance to abandon their families to the forces of nature. Emphasize that personal druthers must naturally come second to the mission of securing aircraft and other government assets from damage or destruction. Also underscore that thorough preparation of evacuation plans and education of families destined to be left behind can relieve the deploying members of anxiety, allowing them full concentration on the task at hand. Crew chiefs and pilots launching aircraft off in extreme weather conditions don't need any distractions whatsoever from safely preparing and flying their jets.

It is crucial to establish a personal rapport with the chiefs of the various support functions you'll need at your planned deployed location. Transportation, billeting, communications, and transient maintenance will provide critical support during your stay; find out their capabilities and limitations ahead of time. Be cognizant of the fact that these functions will likely be overwhelmed quickly with your deployment, in addition to aircraft and people arriving from other bases in the affected hurricane region. Establish what equipment and support they can provide in order to decide what you'll need to bring with you. Knowing the required names and telephone numbers ahead of a contingency can save valuable time as the operation develops. In addition, it may be possible to make prior arrangements with airlifters or tankers near your home base to stop by, pick

up a contingent of maintenance people and support equipment, and transport them to the deployed location. Consider sending along a Supervisor of Flying (SOF)-qualified aircrew and SOF kit to assist in aircraft arrival.

As the evacuation H-hour approaches, make sure the squadron leans far enough forward in order to absorb sometimes confusing or conflicting guidance trickling down from higher headquarters. Conduct a mass briefing that allows for liberal mix and match of aircrew positions, formations, and other contingencies. As the "fog of war" thickens during worsening weather conditions, aircrew replacements and maintenance problems will in-

*Tropical storms are capricious animals. They can develop and track very quickly, or they can develop slowly and meander aimlessly.*

variably change the initial plan. A briefing that is generic and comprehensive enough to allow for these eventualities stands the best chance of success with minimal risk to your people and equipment.

Finally, get out from behind the warm and dry ops desk, grab a rain slicker, and head out on the flight line. Don't get in the way of the maintenance professionals prepping aircraft for departure or securing buildings and equipment; however, use your wider perspective to evaluate the progress of the operation. As with any combat aircraft generation and deployment, bottlenecks will occur to hamper the preparations. Find these and

assist your people in correcting them, using your leadership position as a conduit to the rest of the base. Watch carefully for corner-cutting or hurried operations that raise the flag of safety concern. Nothing is gained by your people hurting themselves or their equipment before the storm even gets a crack at them.

## Execution

Tropical storms are capricious animals. They can develop and track very quickly, or they can develop slowly and meander aimlessly. As weather forecasting technology has developed over the years, accuracy in storm track prediction has increased. However, even the high level of technology present today has been tricked numerous times, with storms taking surprising directions and building in intensity in very short periods. Hurricane Opal in 1995 and Hurricane Earl in 1998, both originating in the southwestern Gulf of Mexico, made surprising turns to the east when originally forecast to strike northeast Texas and Louisiana. These unanticipated moves had the effect of compressing the launch windows of unit evacuations from the Florida panhandle and southeastern United States. As shown in Figure 1, the launch window for a HUREVAC must fall between the forecasted strike warning and before the weather conditions deteriorate to a level precluding aircraft takeoffs. Logic dictates that launches occur close to the beginning of the launch window, allowing takeoffs to occur in as normal conditions as possible. Any delay pushes closer to the weather conditions going below takeoff minimums for crosswinds, ceiling, or visibility, subsequently trapping aircraft at the base and requiring the less desirable protection of hanging and tie-downs.

This sequence illustrates the necessity of prompt preparation to



allow the execution to occur as early as possible in the launch window. Launches occurring later in this window can cause a myriad of complicating factors. Working conditions on the flight line can deteriorate quickly to dangerous levels with wind, rain, and lightning occurring more frequently and at higher levels. Expect unusual aircraft maintenance problems to occur; heavy rain driven by higher than normal wind can permeate aircraft electrical systems, causing subsystems to behave strangely. Also, consider placing younger pilots earlier in the launch sequence to preclude

aircraft have safely arrived at the planned or divert locations.

### Reconstitution

Once the storm has subsided, realize that your deployed folks will be clamoring to get home again to look after their own families and property. However, don't be in too large a hurry to begin the redeployment. Allow the base support functions time to reconnoiter, assess the local damage, and begin cleanup operations. Personally check on the welfare of all your cadre and their families, and provide assistance where needed. The deployed personnel must be reassured that their

Work quickly to implement updated procedures and changes to operations within the squadron's purview, and expeditiously forward recommendations to outside organizations. Time is of the essence, as while you are recovering and looking back, another tropical depression may be forming somewhere in your area.

There have been lessons learned and relearned for each and every of the many storm evacuations that have occurred throughout the history of the United States Air Force. While HUREVAC operations plans are continuously updated and re-

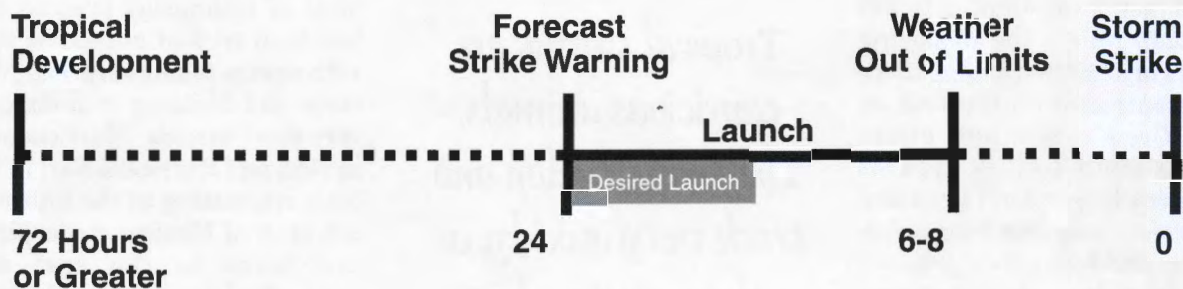


Figure 1. Notional Storm Sequence

having to secure waivers to individual Pilot Weather Categories to enable takeoffs below personal weather minimums. Avoid these problems by being ready to launch quickly when the word comes down.

Once all the aircraft are safely en route to the deployed location, work to establish communications quickly with the deployed detachment commander to begin dealing with pop-up problems. Once the aircraft are gone, your attention will be consumed by local requirements to button up the facilities and get the remaining people and their families sheltered or evacuated. Designate a bellybutton to represent you in dealings with the off-site force. Stay aware of aircraft and personnel status and when all

families are safe; a constant flow of information to the deployed site will help in this endeavor.

After the aircraft have recovered to home base, allow the returning people liberal time off to get their affairs back in order. If the storm was severe, an additional down day may be required to allow them time to make temporary repairs to their homes while waiting for insurance company representatives to arrive and process damage claims.

Finally, and perhaps most importantly, the period immediately following the reconstitution phase is the most opportune time to conduct a "hot wash" debriefing of the HUREVAC operation for lessons learned. Record all observations and suggestions and distill them into usable recommendations.

viewed, the capricious nature of these situations seems to repeatedly drive decisions close to the ragged edge of safe execution. Tropical disturbances that develop near your area of responsibility should be regarded with caution. Remember that plans are just proposals for tentative courses of action; they must be tailored for specific situations as they arise. Don't blindly follow a plan if it doesn't make sense or fit the impending circumstances. Change it if that is within your capacity, or make educated recommendations up the chain of command. In summary, "be prepared" to evacuate your aircraft and people to safety; and above all, ensure they have "sufficient time" to do it safely. ■



# Road Rage

*SMSgt Gary Reniker, USAFR, 442 FW/SE, Whiteman AFB MO*

**I**t was the most beautiful summer morning I had seen in a long time. There was a cool, refreshing breeze in the air, and you could see for miles — it was as clear as could be. As I stepped into my car, I could even hear the birds singing around my house. Needless to say, I was looking forward to a great day ... that is “on the green.” As I began to drive to my weekly golf game, two aggressive drivers rudely expressed their displeasure at me for traveling at the posted 35 MPH speed limit. One female driver tried to taunt me by tailgating my vehicle for several blocks. After that, another male driver honked his horn several times at me while displaying an obscene gesture as he zoomed by. Unfortunately, this type of arrogant behavior is becoming the norm for many drivers on our nation’s highways. Up to two-thirds of fatal auto crashes result from aggressive driving. This unacceptable conduct is known as “Road Rage.”

In July of 1997, Richard Martinez (head of the National Highway Safety Administration) told the House of Representatives Transportation Subcommittee that aggressive driving is taking a toll on American highways. He shared that the danger of being killed by angry drivers is increasing as congestion worsens on roads in the United States. According to Martinez, road rage (or stress-induced aggression behind the steering

wheel) is a factor in nearly 28,000 highway deaths a year. In 1996, one-third of the total crashes and about two-thirds of auto deaths were attributed to aggressive driving. “The more serious the crash, the more likely that aggressive driving was involved,” he said.

Martinez went on to say that aggressive drivers are more likely to speed, fail to yield, pass on the right lane, scream, make gestures, and tailgate. They also tend to weave in and out of traffic, make improper lane changes, run stop signs and stoplights, as well as flash their headlights at other motorists. Because traffic jams are the predominate cause of road rage, Martinez said that worsening congestion on American roads is likely to lead to more trouble. According to the Department of Transportation, the number of miles logged by drivers since 1987 has increased by 35 percent... while the number of new road construction miles has increased only 1 percent.

Most aggressive drivers are ordinary people who undergo a change of mind when they get behind the wheel and experience stress. According to David Snyder (a lawyer for the American Insurance Association), “The anonymity that a car provides shields these drivers from having their identities revealed. Consequently, when behind the wheel, these drivers disregard the level of civility expected by members of our

society and drive with reckless abandon.”

Almost everyone is susceptible to road rage. However, according to Dave Willis (President of the American Automobile Association Foundation for Traffic Safety), young men are the overwhelming offenders involving violent aggressive incidents on the road. As a result of studying thousands of accidents from 1990 to 1996, Willis said his group found a 7 percent growth rate in “violent aggressive driving.”

Willis offered some ways to avoid conflict on the road; these include:

- not blocking traffic lanes,
- not changing lanes without signaling,
- not tailgating, and
- avoiding use of the horn and high beams.

Willis warns, “You are playing Russian roulette if you use obscene gestures. Obscene gestures have gotten people shot, stabbed, and beaten in every state.”

Don’t yield yourself to hateful fits of rage while driving on the highway. It is always a good practice to avoid the challenges or confrontations of an aggressive driver. And remember this, if you lose your temper, you’ve now become part of the problem. Stay “cool” and never allow “road rage” to ruin your day — it’s simply not worth it. ■



# FY 98 USAF

## **CHIEF OF STAFF SPECIAL ACHIEVEMENT AWARD**

This award is given solely to recognize special achievements above and beyond other safety awards program elements. This award has not been given since 1993 and has never been given to an individual since it was established in 1980.

*Capt Nathan G. Lyden, 9th Air Force, Shaw AFB SC*

## **AIR FORCE NUCLEAR SURETY OUTSTANDING ACHIEVEMENT AWARD**

The USAF Directorate of Nuclear Surety created this award in 1981 to acknowledge the significant achievements of individuals in the nuclear weapons career field. In 1989, the eligibility criteria were amended to include the contributions of personnel engaged in nuclear power system activities. Effective with the FY 93 cycle, the approval level was elevated to the Air Force Chief of Safety, and the award is presented to one recipient only.

*Capt Kirk L. Kehrley, 8th Air Force, Barksdale AFB LA*

## **FLIGHT SAFETY PLAQUES**

Awarded to the following organizations for outstanding mishap prevention:

*33 FW, Eglin AFB FL  
366 WG, Mountain Home AFB ID  
55 WG, Offutt AFB NE*



# Safety Awards

## **EXPLOSIVES SAFETY PLAQUES (CATEGORY I)**

Awarded to the following organizations for their outstanding achievement and contribution to explosives safety:

*9 MUNS, Beale AFB CA  
99 CES, Nellis AFB NV*

## **MISSILE SAFETY PLAQUES (CATEGORY I)**

Awarded to the following organizations for their outstanding achievement and contribution to missile safety:

*57 EMS, Nellis AFB NV  
366 WG, Mountain Home AFB ID*

## **NUCLEAR SURETY PLAQUES (CATEGORY II)**

Awarded to the following organization for their outstanding achievement and contribution to nuclear surety:

*55 WG, Offutt AFB NE*

## **AERO CLUB SAFETY CERTIFICATES**

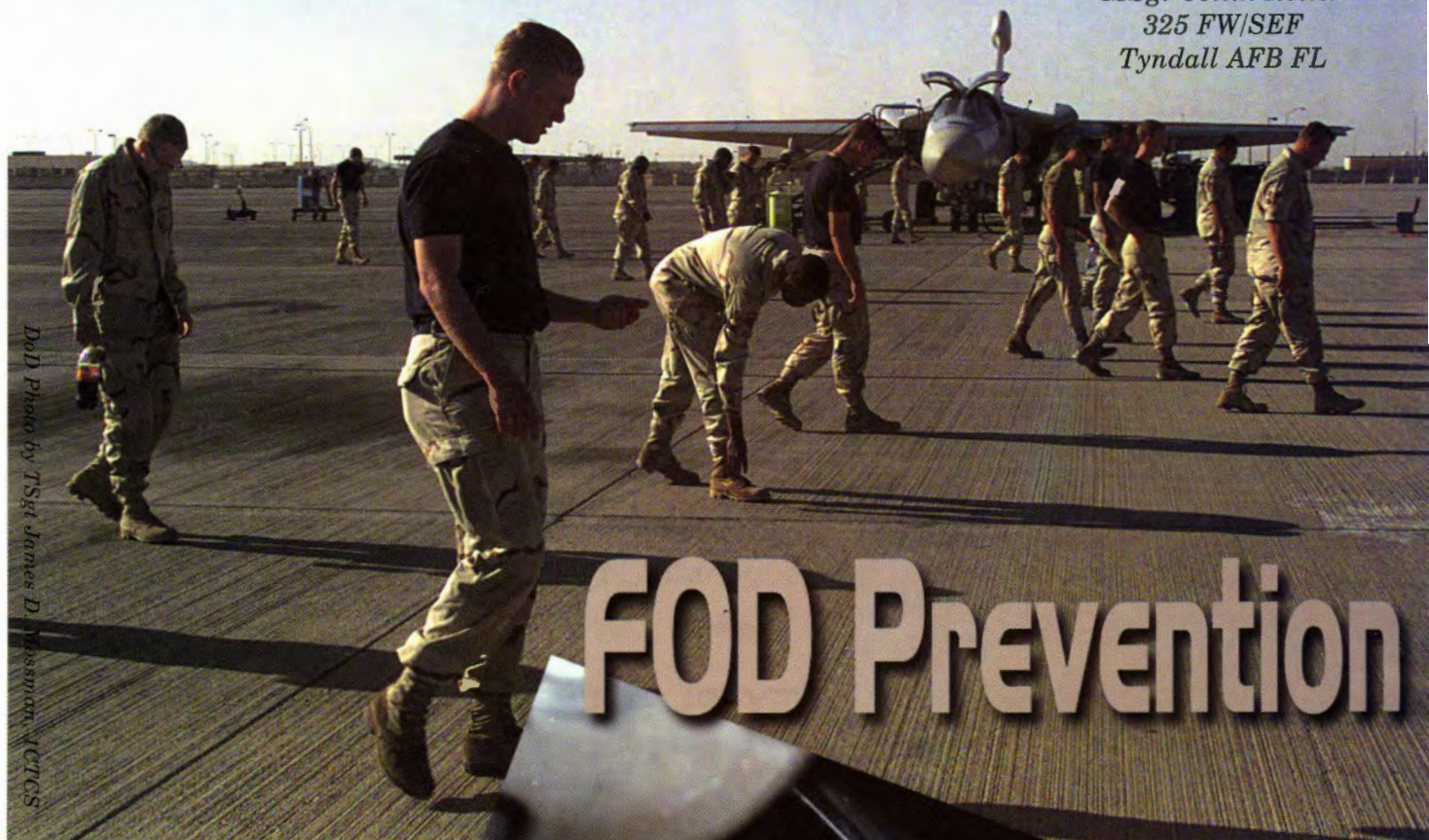
Awarded to the following bases for flight safety achievements:

*Barksdale AFB LA  
Beale AFB CA  
Holloman AFB NM  
Shaw AFB SC  
Offutt AFB NE*



# Human Factors and

MSgt Collin Roller  
325 FW/SEF  
Tyndall AFB FL



DoD Photo by TSgt James D. Musson, JCRCIS

## FOD Prevention

Anyone who has been in the Air Force for any length of time knows about safety and how “human factors” (i.e., the human elements involved with the mission) can be a major contributor to an accident. They are ingrained into our brains from day one, especially for those of us in aircraft maintenance. Mishap prevention efforts dedicated to reducing human factors related Foreign Object Damage (FOD) are no exception.

Having been assigned as the 325th Fighter Wing FOD Manager at Tyndall AFB for the past several years, I have investigated some pretty interesting FOD incidents.



Foreign Object Damage occurred to left engine of an F-15 aircraft due to ingestion of secondary heat exchanger inlet cover.



The incidents I remember the most are the ones caused by inappropriate human factors behavior — such as not following written guidance, complacency, and preoccupation.

I've come to realize that human factors play a big role in FOD prevention. Why do I say this? Because we're all supposed to be trained to identify potential hazards and eliminate them before they become a link in the "chain of events" that often leads to injury, damage, or mission degradation.

A flight line incident involving FOD impacts aircraft operations where it hurts the most... the checkbook. Today, a single engine FOD incident on an F-15 can cost anywhere from \$200,000 to over \$1 million, depending on the extent of the damage. (How would you like to see your name listed as causal in that kind of mishap report?)

To give you an idea of the potential magnitude a FOD incident can have, let me tell you about one where human error cost the Air Force more than \$370,000. It was my very first incident to investigate as the new Wing FOD Manager; and as fate would have it, it occurred during my first week. Here's the scenario: It was the end of the flying day, and swing shift was running full force. It was dark outside, and flight line lighting did little to offset it. An F-15D had just completed maintenance on its environmental control system and required a double engine run for operational checkout. The engine run was to be performed by an experienced staff sergeant with several years of engine run experience. The aircraft's assigned crew chief, not knowing the jet needed an engine run, had begun putting his aircraft to bed by installing the

aircraft covers. He only had the chance to install the left secondary heat exchanger inlet cover before he was called away to assist with a defuel on another aircraft. The run man arrived at the aircraft moments later to review the forms and to start his pre-run checks. As he walked up to the aircraft, he noticed the aircraft covers on the ground and assumed all the covers were removed. He performed his pre-run intake inspection; then he and the crew chief (now finished assisting on the defuel task) performed a walk-around inspection of the air-

... all four air/oil  
coolers were found to  
be clogged with the  
melted "Remove Before  
Flight" streamer that  
was previously  
attached to the cover.

craft... without either noticing and/or removing the one cover previously installed. A 30-minute double engine run was accomplished with no defects noted. After engine shutdown, a post-run intake inspection of both engines was performed, which resulted in the discovery of foreign object damage to the left engine.

Guess what that engine had ingested? That's right, the secondary heat exchanger inlet cover! In fact, half of it was still sticking out of the first stage fan blades with approximately 6 inches of the cover

cut away by the engine's fan and ingested. There was damage to all three stages of the fan as well as the first five stages of the core module. In addition, all four air/oil coolers were found to be clogged with the melted "Remove Before Flight" streamer that was previously attached to the cover.

Further investigation revealed the training records of those involved with the engine run were all in order and the aircraft forms were properly documented. However, a number of events helped make this incident possible.

- First of all, the flight line lighting provided by stadium style lights played a part in this incident due to the backlighting effect on the aircraft. The front of the aircraft was very dark, and the "Remove Before Flight" streamer could not be seen without the aid of a flashlight.

- Second, the expeditor pulled the crew chief away in the middle of the task of putting on his covers.

- Third, the run man incorrectly assumed all the covers were removed; and the crew chief incorrectly assumed the run man had removed the one cover.

- Fourth, during their walkaround, neither the run man nor the crew chief discovered the cover installed or removed it.

- Lastly, the run man failed to follow the engine run Technical Order (T.O.) which specifically directs the removal of the secondary heat exchanger inlet covers. So there you have it, human factors strike again. Okay, flight line lighting is a non-human factor, but it was only one link in a long chain of human factors events. Besides, a flashlight pointed in the right direction may have compensated for the backlight effect of the stadium lights.

As you can see, this engine run



was doomed from the start. Some of you saw what was coming as soon as the crew chief was pulled away. However, no one on the flight line gives mid-task interruptions a second thought because it's an everyday occurrence for someone to be pulled in the middle of a task, especially in the fast-paced flight line environment.

In order to minimize human factors associated causes from mishaps, especially those associated with FOD, supervisors need to identify potential sources of danger which cause risk. In this case, the expeditor should have let the crew chief finish installing his covers before moving him to another location. So what if the covers would have to come right back off? At least "all" the covers would have come off. In addition, the expeditor should have notified the crew chief of the pending engine run which might have resulted in the crew chief removing the one installed cover. Either way, this incident could have been prevented.

Our wing hasn't had an incident of this nature since that night 2 years ago. Through a combined effort between our wing's FOD and Flight Safety programs, we have strived to educate our maintenance folks not to hurry themselves in accomplishing their tasks. Mistakes can be made; and on the flight line, they can be very costly.

A lot was learned from this experience. The bottom line is that human factors involved with a FOD mishap not only involve the last person who touched the object, it can be anyone in the process — without regard to rank or position. We all need to work hard at seeing the big picture to eliminate the human factors that cause incidents, because only then can we eliminate the potential mishap. ■

# Foreign Object Damage

*TSgt Donald E. Felch, ANG, 115 AGS/LGG, Madison WI*

Foreign Object Damage or "FOD" as we call it in the aircraft maintenance world is a danger to all of us — every day. Whether your job is maintenance, operations, or base support, if you work in, around, or drive through operational areas, you have a responsibility to keep a FOD prevention mindset ALL of the time. Positive answers to the following questions will help prevent FOD:

- Do you practice good housekeeping at ALL times in ALL areas?
- Do you account for ALL tools, equipment, and hardware at the end of each task you accomplish?
- Do you use X-ray, borescope, and other state-of-the-art equipment to locate ALL foreign objects in an inaccessible area?
- Do you avoid wearing loose clothing and ALL other articles (such as hats, hair fasteners, earrings, badges with metal clips, or metal grade insignia) that could be drawn into an engine intake or otherwise prevent the normal operation of equipment or systems?
- Do you use vacuum or magnetic sweepers (or sweep by hand) — as well as personnel sweeps or FOD walks — to remove foreign objects from ramps, runways, and access roads?
- Do you perform ALL operations and maintenance tasks according to technical data?

Preventing FOD is an individual responsibility. You can do your part to eliminate potential sources of FOD through good housekeeping practices and good work habits. Preventing FOD requires a focused attention on our part — alertness and attention to detail — but the results will always be worth it in the end. So, whether it's a screw about to be ingested into an aircraft engine or a rag binding a landing gear, FOD is a danger. Do your part in FOD prevention each and every day. If you see an article that shouldn't be there, fulfill your responsibility and "Pick It Up!" ■






# Ground Safety Stats

## ACC Losses for FY 99

(1 Oct 98 - 31 Mar 99)

*Practice the principles of Risk Management both on and off duty.*

### Ground Mishap Fatalities

<b>8 AF</b>	
<b>9 AF</b>	
<b>12 AF</b>	
<b>DRU</b>	

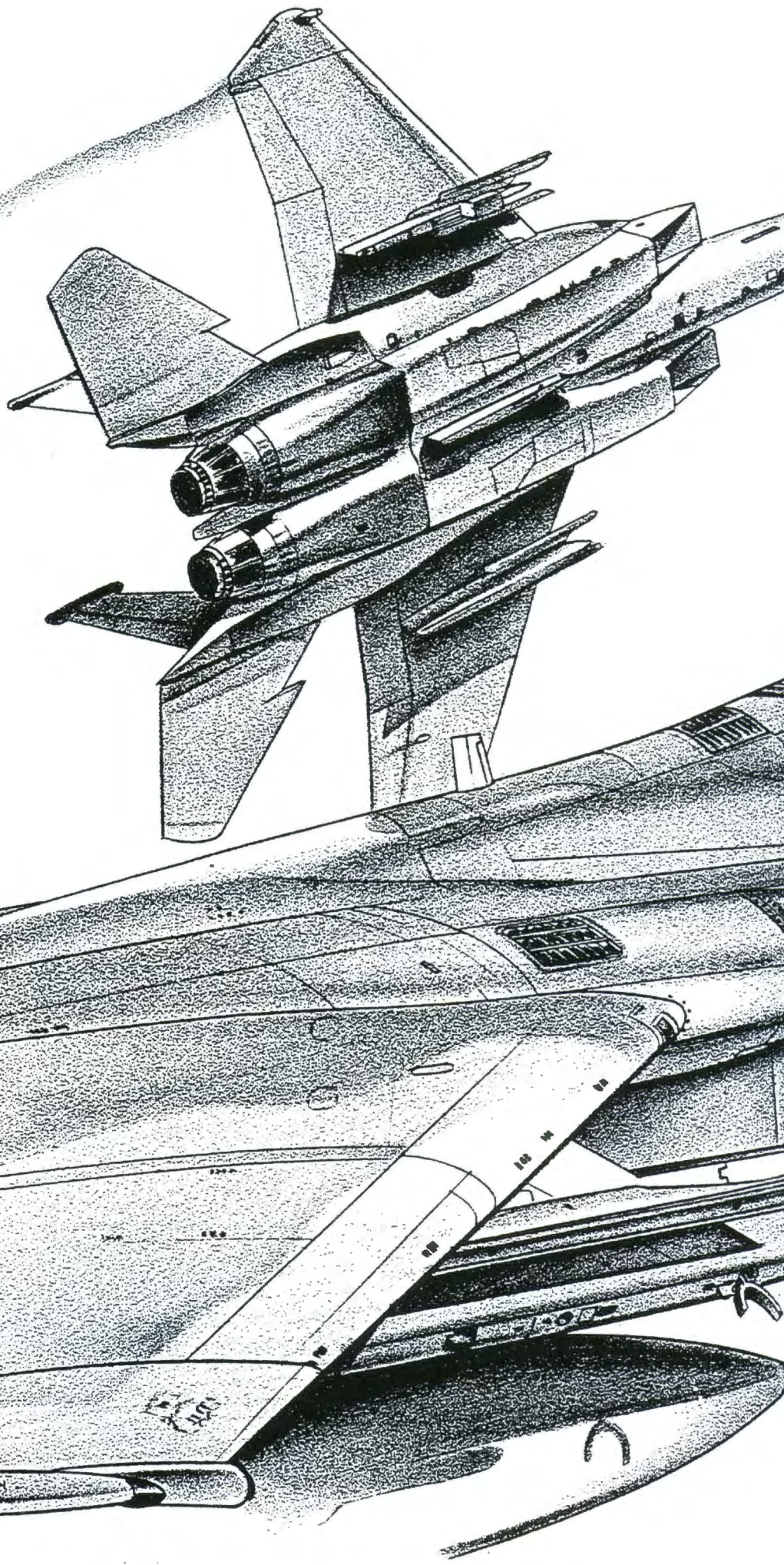
### Number of Ground Mishaps/Dollar Losses

	<b>Class A</b>	<b>Class B</b>	<b>Class C</b>
<b>8 AF</b>	3/\$802,240	0/0	69/\$518,309
<b>9 AF</b>	1/\$125,000	0/0	67/\$425,323
<b>12 AF</b>	3/\$1,183,330	1/\$115,120	122/\$597,750
<b>DRU</b>	0/0	1/\$894,548	40/\$72,109
<b>FY 99 Totals</b>	7/\$2,110,570	2/\$1,009,668	298/\$1,613,491
<b>FY 98 Totals</b> (for comparison)	7/\$2,340,000	0/0	359/\$1,478,421

Class A - Fatality; Permanent Total Disability; Property Damage \$1,000,000 or more  
 Class B - Permanent Partial Disability; Property Damage between \$200,000 and \$1,000,000  
 Class C - Lost Workday; Property Damage between \$10,000 and \$200,000



# F-15 Eagle





**T**he F-15 Eagle is an all-weather, extremely maneuverable, tactical fighter designed to permit the Air Force to gain and maintain air superiority in aerial combat.

The Eagle's air superiority is achieved through a mixture of unprecedented maneuverability and acceleration, range, weapons, and avionics. It can penetrate enemy defenses and outperform and outfight any current enemy aircraft. The F-15 has electronic systems and weaponry to detect, acquire, track, and attack enemy aircraft while operating in friendly or enemy-controlled airspace. The weapons and flight control systems are designed so that one person can safely and effectively perform air-to-air combat.

## General Characteristics

**Primary Function:** Tactical fighter

**Wingspan:** 42.8 feet (13.0 meters)

**Length:** 63.8 feet (19.4 meters)

**Height:** 18.5 feet (5.6 meters)

**Speed:** 1,875 mph (Mach 2.5 plus)

**Maximum Takeoff Weight:** (C/D Models)

68,000 pounds (30,844 kilograms)

**Ceiling:** 65,000 feet (19,812 meters)

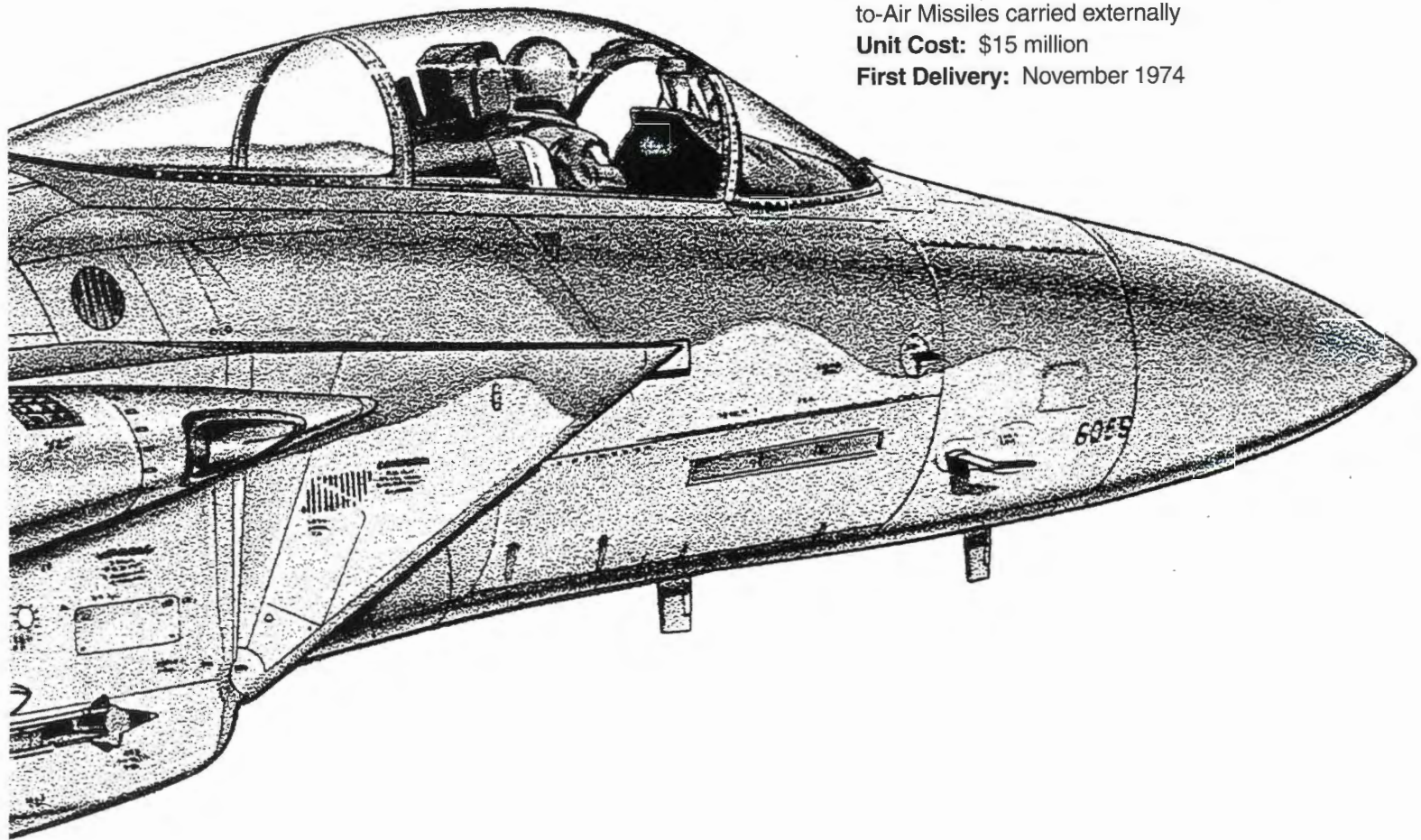
**Range:** 3,450 miles (3,000 nautical miles)

ferry range with conformal fuel tanks and three external fuel tanks

**Armament:** One internally mounted M-61A1 20-mm, six-barrel cannon with 940 rounds of ammunition; four AIM-9L/M Sidewinder and four AIM-7F/M Sparrow air-to-air missiles, or eight AIM-120 Advanced Medium-Range Air-to-Air Missiles carried externally

**Unit Cost:** \$15 million

**First Delivery:** November 1974





# Saturday Track Meat!

*SSgt Gerald Davis  
372 TRS/Det 15  
Kadena AB, Japan*



## **Why Did I Do That?**

Have you ever looked back on something you did in the past and say to yourself, "Why did I do that? What was I thinking?" Or maybe you said, "How did that happen? I could have been killed." Everyone at sometime in their life has done something they knew was not the smartest thing to do.

For some, it was the carelessly wielded knife used to cut up some vegetables for a party that was scheduled for 7:00 in the evening, and it was already 6:30 p.m. For others, it may have been an aircraft maintenance technical order that wasn't followed correctly because the production superintendent wanted the aircraft ready in 10 minutes... when you needed at least 30 minutes to get the job done according to established procedures.

## **Learning the "Rules of the Road"**

Each and every one of us can reflect back in time and remember

a wrong decision we made that ended up with an unwanted outcome. If we're honest with ourselves, when we don't follow the "rules of the road," we can make some pretty costly mistakes. And when it comes to making a series of errors relative to mishap prevention, I can speak from first-hand experience. An area of safety that comes to mind first is something we all hear about from time to time in the Air Force today — motorcycle safety.

Being a recently married senior airman and having a 1-year-old daughter, I was in the market for some economical transportation. In my rational mind, there was no better solution to my dilemma than purchasing one of those two-wheeled devices — a motorcycle. After all, how could I go wrong? Motorcycles don't use much gas, are relatively inexpensive, and cheap to insure. After an extended discussion with my wife about the pros and cons of a motorcycle, I made

the decision. I was to be the proud, new owner of a 1994 Honda CBR Sports Motorcycle.

There were a few things I needed to get familiar with before riding a motorcycle on the highways. The first and foremost consideration was "safety." There was no better way to become familiar with the basics of safe motorcycle riding than to take the Motorcycle Safety Course offered on base. The course was primarily intended for beginners, and it was a full week long. It consisted of classroom discussions, bookwork, and motorcycle riding. This was a great course. There was an abundance of good information for beginners as well as veteran riders. Several people in my class had been riding for years. They shared stories about their accidents and how they handled dangerous situations they had been in. In general, most of us feel that accidents will never happen to us; the common belief is that accidents will only happen to someone else. That kind



of mindset can get a person (especially a motorcycle rider) into deep trouble real fast. Don't let your guard down. The "rules of the road" teach us that mishaps can happen to you, too!

### One Saturday Morning

About 4 months after attending the safety course, my friends and I planned a road trip for the upcoming Saturday. We were to meet at the local mall around 8:00 a.m. and head out shortly thereafter. Where were we going? I didn't exactly know. My friends were more experienced riders, and they said they knew of a place — shall I say — "where you could go a little faster than normal." That was fine with me (Mistake #1), since my thoughts were simply focused on being able to spend the day riding my Honda!

Saturday morning finally came and it was a nice, refreshing 30-minute ride up to our destination. Once we arrived at the so-called "track," we were all anxious to take the first lap. This was a place with new asphalt streets surrounded by woods where a housing subdivision was to be built. At the present time, however, there were no houses in sight.

As I rode around and around the track, I found myself gaining more and more confidence... going a little faster each lap I took. I found myself trying to keep up with the more experienced riders (Mistake #2). What was supposed to be a leisurely Saturday ride had turned into something completely different. It was something I should never have been involved in... and experienced or not, it was a high risk, illegal activity!

### An Expert Rider?

At this point in time, the motorcycle safety course I had attended was the farthest thing from my mind (Mistake #3). All the stories and the real life expe-

riences that were told in that class were just a small, insignificant memory to me. After 4 months, I felt like an "expert" rider (Mistake #4), that is... right up until the time that I tried to pass a friend of mine on a tight (and really quite dangerous) hairpin turn.

I knew I was in trouble; I didn't take a wide enough angle to safely make the turn (Mistake #5). As I noticed the side of the road coming closer and closer, I panicked while applying the brakes. I realized I was not going to stop, because I was going too fast. My motorcycle ran off the road into

*My entire body was wracked with pain. I felt like a slab of meat that had just finished making its first pass through the meat grinder.*

sand that had been laid out in preparation for future home construction. As the front wheel hit the sand, the motorcycle started to flip which, in turn, threw me about 50 feet into a stand of trees.

As I laid there half-conscious, I remember wondering if I was all right, if I was hurt bad, and even wondering if this was just a bad dream. I started feeling a severe pain in my lower back; I couldn't move my left arm. My friends arrived at the scene to find me shouting with pain. They were faced with the decision to move me or call an ambulance. We never had a plan if something like

this should occur (Mistake #6). Fortunately, a friend of mine had arrived with his car that day to watch the action. Little did I know his vehicle would later provide my ambulance ride to the emergency room at the local hospital.

Being in the excruciating pain I was, the trip to the emergency room felt like hours compared to the actual 30-minute drive. I had never felt so much pain in my life, and I have never been so regretful for my actions. I could have widowed and orphaned a family that had only been together for a short period of time. In the emergency room, the doctors discovered that I had a severely bruised kidney and a broken right collarbone. My entire body was wracked with pain. I felt like a slab of meat that had just finished making its first pass through the meat grinder.

### Looking Back

Looking back on that day, I realize that I had put all safety considerations aside; I was speeding on my motorcycle and driving in a manner far beyond my capabilities and experience. Why did I choose to be so reckless that day? The risk I incurred was totally unnecessary and had no benefit to me — it was a risk that was not worth taking.

Don't be fooled into thinking that mishaps always happen to someone else — it's simply not true. I'm a "living" example of that (by the way, I'm thankful I didn't become a "dead" example). As you live your life each and every new day, get yourself into the habit of making smart risk management decisions. Why be reckless when you can be safety conscious and probably prevent a mishap from happening in the first place. Sure, it takes a focused effort, but the results can last a lifetime! ■



# Monthly Awards

## WEAPONS SAFETY AWARD OF DISTINCTION

*TSgt Richard A. Haggan, SSgt Charles R. Liberty  
SSgt Todd M. McNellis, SrA Lucky R. Funderburg  
SrA Jason C. Nardi, SrA Joshua D. King  
28 BW, Ellsworth AFB SD*

As the entire 28th Air Expeditionary Group camp was anxiously awaiting the return of a B-1B two-ship returning from their historic first combat strike of enemy combat targets, an announcement was made that the lead aircraft was not able to release all their weapons and was bringing a few home. The unique design configuration of the B-1B 28-carry, 500-lb class MK-82 rack has made bringing a few home not all that unusual of an occurrence. If everything does not meet exacting conditions, bombing computers prevent further releases, leaving crews to deal with "retained" rather than an actual "hung" weapon condition. Except for that day.

Responding to what was anticipated to be a standard retained weapon condition, the load crew team was taken by complete surprise when they arrived to find an actual hung MK-82 trapped between swing arms of the B-1B release module in the forward weapons bay. Reacting immediately, the team evacuated the aircrew and worked through the on-scene fire chief to establish a safety cordon area. With the area now

safely secured, the team joined forces with explosive Ordnance Disposal (EOD) personnel to safely remove the weapon. EOD first verified the FZU-48 timer-actuator had not been pulled and both fuses were unarmed. In the absence of T.O. procedures addressing this first-ever event, the load crew team quickly devised a plan to secure the bomb to the swing arm and bomb module using five cargo tie-down straps. Once secured, maintenance personnel moved the aircraft off the active runway onto the hammerhead area, where EOD completed removal of arming and detonation fuses. Load teams were then able to safely remove the weapon and turn the aircraft over to maintenance that towed the aircraft to parking.

The rapid, clear thinking in an extremely critical situation displayed by the expeditionary team of loaders, maintainers, and EOD personnel was commendable. Their selfless actions prevented a potentially disastrous situation in a deployed location and ensured our combat arm remained a strong response to situations in southwest Asia.





## FLIGHT LINE SAFETY AWARD OF DISTINCTION

*SSgt Michael J. Alpaugh, 4 FS, 388 FW, Hill AFB UT*



While performing on maintenance for the environmental control system on an F-16 aircraft, SSgt Alpaugh discovered improper operation of the high stage valve. Troubleshooting was performed in accordance with the appropriate fault isolation guide. After exhausting all possible contributing line replaceable units, he accomplished wire verification checks and dis-

covered an open wire. Unable to isolate the location of the broken connection, Sgt Alpaugh proceeded to inspect the harness for signs of damage. In an extremely remote area of the aircraft avionics bay, he identified extensive damage to the insulation as well as the center conductor of several wires within the harness. Had the damage been overlooked, catastrophic consequences would have resulted. His attention to detail prevented eventual shorting of the wires and possible fire and loss of aircraft. Sgt Alpaugh's actions towards mishap prevention and attention to detail are a reflection of his workmanship and high regard for maintaining safety.

## AIRCREW SAFETY AWARD OF DISTINCTION

*Capt Joseph P. Pace, Capt David M. Nix, Capt Frank M. Theer  
Capt Charles A. Tomko, Capt Sandra B. Cummings, MSgt Jeffrey J. Ingram  
SSgt Donald W. Fetty, SSgt Michael D. Trim  
71 RQS, 347 WG  
Moody AFB GA*

Crown 95, an HC-130P combat rescue aircraft, was flying en route to Kuwait for an aircraft swap in support of Combat Search and Rescue (CSAR) for Operation Southern Watch. While flying at FL 200, the aircraft was approximately 60 miles west of Souda Bay NSF, Crete, at night. The extra pilot and loadmaster noticed fumes in the forward section of the cargo compartment, and the flight engineer went to the back to investigate. Fumes steadily increased, and the pilot ordered everyone on oxygen and implementation of the smoke and fumes elimination checklist. With the back of the aircraft split in two by a fuselage fuel tank and a spare aircraft engine, the crew chiefs and loadmaster assisted the rest of the personnel on board with oxygen while attempting to isolate the cause of the fumes. All indications were normal, and the problem could not be isolated even



after repeated attempts by the crew and crew chiefs. The pilot elected not to continue with the electrical fire checklist in order to expedite landing at Souda Bay, which was nearby. All emergency checklists were accomplished, and everyone was up on oxygen. The radio operator and copilot coordinated with the emergency services at Souda Bay, and the pilot made an emergency visual approach into the field. The aircraft was evacuated with no injuries after stopping at Souda Bay.

The resultant cause was the essential AC bus relay burning up; and, in fact, it had arc welded six of the twelve 125 amp current limiters and was near to causing complete failure of the essential AC electrical system. The decision to expedite landing gave the crew the chance to get on the ground before complete failure of the essential AC system, resulting in a loss of almost all vital systems.



## PILOT SAFETY AWARD OF DISTINCTION

*Capt Tal H. Harris, 28 BW, Ellsworth AFB SD*

During a B-1 training sortie, Capt Harris suffered a #2 hydraulic system failure. Adhering to Dash-1 guidance, the crew elected to return to base and land as soon as practical. This malfunction causes a loss of nosewheel steering and reduction in braking capability. On landing roll, the aircraft experienced a momentary uncommanded brake application at 9000' remaining runway and 150 knots. At 7500' remaining and 140 knots, Capt Harris did a brake check, and the aircraft experienced asymmetric braking hard to the right, turning 25 degrees right of centerline. Capt Harris immediately applied full left braking and full left rudder to correct the aircraft back to centerline, but the aircraft continued to turn to the right. This is a highly unusual situation that is not specifically covered in the B-1 flight manual. With the jet rapidly diverging toward the side of the runway at 130 knots, and with ejection looming as an option, Capt Harris tried something he had seen work in other aircraft. He kicked the right brake as hard as possible in an attempt to release it, and the aircraft responded by allowing him to start to recover left back to centerline.

Another uncommanded (symmetric) brake applica-

tion occurred shortly thereafter. Capt Harris reacted quickly and again applied asymmetric braking to stop the aircraft on the runway near centerline with 6000' remaining. Normal operation is for hydraulic systems #2 and #3 to supply 2600 psi to both right and left braking systems. With one side inoperative, the remaining system will provide 4000 psi to both sides via a metering valve.

An exhaustive maintenance checkout discovered a failed brake metering valve, which induced full brake pressure to the right main landing gear and no brake pressure to the left. By kicking the locked right brake, Capt Harris freed the metering valve and allowed symmetric braking to return. This incident prompted a fleet-wide notification and a change to B-1B braking system phase inspections. Since metering valve inspections were not included in previous phase inspections, its undetected failure, combined with loss of right or left side braking hydraulics, placed aircrews in a very dangerous braking condition. The quick response on the part of Capt Harris prevented an almost certain departure from the prepared surface and possible loss of a \$280 million combat aircraft.



## CREW CHIEF SAFETY AWARD OF DISTINCTION

*TSgt Thomas V. Horton, 524 FS, 27 FW, Cannon AFB NM*

TSgt Horton demonstrated superior maintenance practice when he discovered a leak in the B-system hydraulic case drain line on an F-16C. Sgt Horton had the pilot abort the aircraft and promptly began repairing the leak. While removing the case drain line, he discovered that the hydraulic fluid was leaking from underneath the phenolic cushion clamp that holds the line in place and was caused by chafing. While cannibalizing another jet for a replacement line, Sgt Horton discovered the same problem—the clamp was causing chaffing of the line. He immediately notified wing Quality Assur-

ance inspectors. The discovery prompted a wing-wide stand down and inspection of all the aircraft, which revealed that over 90% of the wing's F-16s had the same problem. Furthermore, several other wings discovered the same problem after Sgt Horton's discovery was passed through the safety crosstell channel. Had the hydraulic problem gone undetected, the results could have been catastrophic, including possible loss of a \$15 million aircraft and possible loss of life. Sgt Horton's dedication, professionalism, and attention to detail epitomize the ACC Crew Chief Excellence Award.





## GROUND SAFETY AWARD OF DISTINCTION

*SSgt Danny A. Sheridan, 93 AGS, 93 ACW, Robins AFB GA*

SSgt Sheridan was attempting to perform pre-engine run fuel leak checks on the #2 and #3 engines following a fuel pump change on #2 engine and an engine change on #3 engine. With fuel tank boost pumps operating and engine fuel shutoff valves opened, a large leak was discovered on #3 engine. Sgt Sheridan quickly resolved the dangerous situation by shutting off the fuel tank boost pumps and fuel shutoff valves to #2 and #3 engines, stopping the flow of fuel to the engines from the aircraft fuel tanks. He quickly saved the aircraft by shutting off the Auxiliary Power Unit (APU) generator, shutting down the APU, and turning off the aircraft battery. These actions completely removed electrical power from the aircraft. Once aircraft power was removed and the leak stopped, Sgt Sheridan immediately notified the flight line expeditor of the major fuel spill and the need for the fire department and assistance in cleaning up the fuel spill.

After assisting with containing the fuel spill, Sgt Sheridan isolated the cause of the leak to a main fuel supply line ripped out of its tube nut. This supply line is just above the strut bulkhead where the supply line is disconnected during engine removal. Further investigation revealed that due to the amount of force needed to remove the fuel line b-nut, the attaching elbow and tube nut rotated, ripping the tube nut from the attaching fuel line. The problem was

traced to a Technical Order (T.O.) step that points to a jamnut underneath the strut bulkhead, but calls the jamnut a fitting. This led the engine mechanics to believe that they were holding the fitting with a backup wrench; but, in fact, they were holding the jamnut in an attempt to prevent the elbow from turning. To further complicate things, the T.O. did not require the mechanic to access the area just above the strut bulkhead. Therefore, the mechanics had no

way of knowing they had damaged the fuel supply line. The emergency T.O. change request Sgt Sheridan submitted that day requested a warning and a step be added to instruct the mechanic to open the strut access panel for access to the elbow that rotated. This allows a backup wrench to be used directly on the fitting during removal



and installation of the main fuel line, thereby preventing a repeat of this incident. In addition, the misleading reference to the jamnut as a fitting will be removed from the task. He followed up the next day with representatives from Northrop Grumman at Melbourne, Florida, to further explain and confirm the details of the publication change request, ensuring quick resolution to this problem.

The overall actions of Sgt Sheridan during this possibly volatile incident prevented a potential disaster. His quick thinking, sound judgment, and technical knowledge should serve as a shining example to all!



4th Fighter Wing Safety Office  
Seymour Johnson AFB NC

# Countdown

## Murphy's Law

Have you ever watched a safety investigation team at work? No stone is left unturned. In fact, when an investigation is complete, a very thorough and intensive effort is made to assure the wreckage is cleared of all potential hazardous material. But sometimes, no matter how careful and thorough people are in support of a mishap investigation, there is always the possibility that something can still get overlooked.

In July 1997, an F-15E Strike Eagle belonging to the 4th Fighter Wing crashed into a river in North Carolina. After a thorough search and investigation, all recovered parts were cleared of explosives, packaged, and stacked. We thought the recovery job was all over. But as I said, no matter how thorough a recovery job an investigation team does, Murphy's Law (*If something can go wrong — it will*) still has a way of rearing its ugly head.

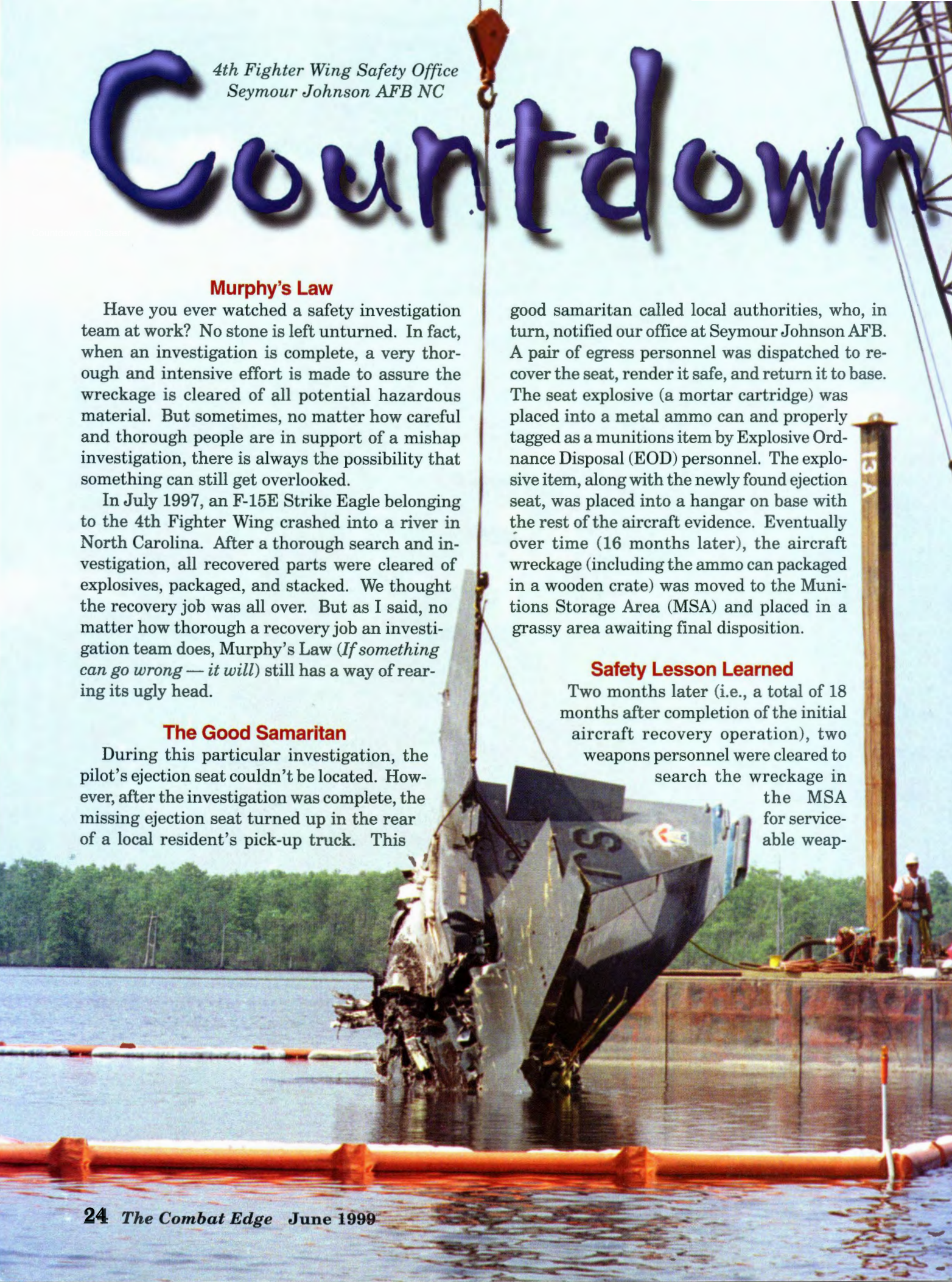
## The Good Samaritan

During this particular investigation, the pilot's ejection seat couldn't be located. However, after the investigation was complete, the missing ejection seat turned up in the rear of a local resident's pick-up truck. This

good samaritan called local authorities, who, in turn, notified our office at Seymour Johnson AFB. A pair of egress personnel was dispatched to recover the seat, render it safe, and return it to base. The seat explosive (a mortar cartridge) was placed into a metal ammo can and properly tagged as a munitions item by Explosive Ordnance Disposal (EOD) personnel. The explosive item, along with the newly found ejection seat, was placed into a hangar on base with the rest of the aircraft evidence. Eventually over time (16 months later), the aircraft wreckage (including the ammo can packaged in a wooden crate) was moved to the Munitions Storage Area (MSA) and placed in a grassy area awaiting final disposition.

## Safety Lesson Learned

Two months later (i.e., a total of 18 months after completion of the initial aircraft recovery operation), two weapons personnel were cleared to search the wreckage in the MSA for serviceable weapon-





# to Disaster

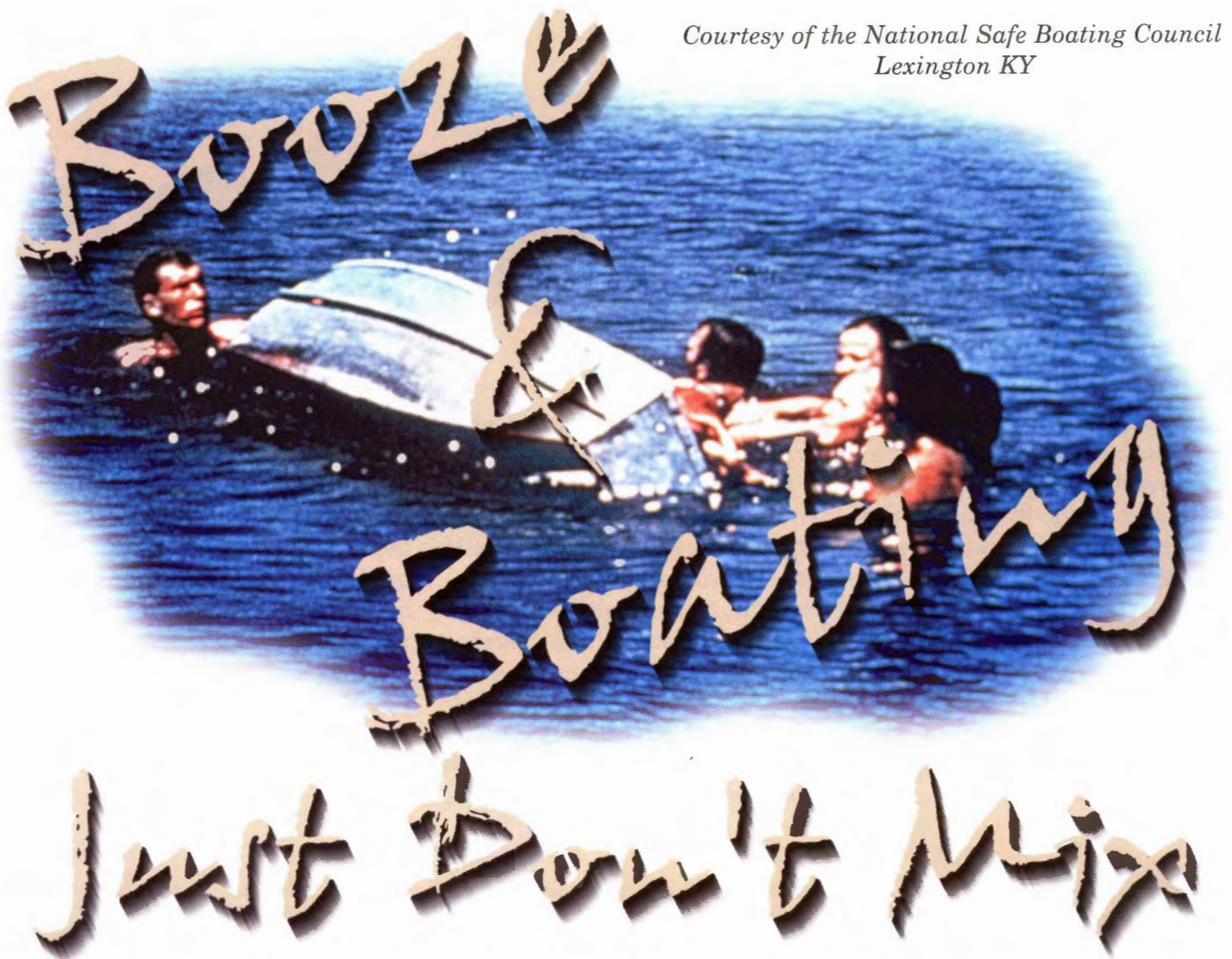
ons system parts. While searching through the wreckage, they discovered the ammo can tagged with the words "Explosive, Secondary Cartridge." Their escort immediately notified EOD who verified it was a live cart from one of the ejection seats. EOD rendered the cartridge safe, and the aircraft was again placed "Off Limits" until egress personnel verified that the aircraft evidence was explosive free.

How did this happen, and what should have been done to prevent it from happening? There was a lapse in procedures that put people at risk. The explosive item should have been immediately turned in to the Munitions Flight for storage instead of placing it as evidence with the rest of the aircraft wreckage. Fortunately, nobody was hurt! The aircraft wreckage (including the live explosive) was moved several times during that period.

Therefore, the cartridge could have exploded at any time if the handling conditions had become too rough. So... what's the safety lesson learned from this mishap recovery operation? It's simple. Don't deviate from established procedures, not even to facilitate access to mishap evidence. And never leave your safety up to "Lady Luck" or "Father Time." You could find yourself in a deadly countdown to disaster! ■







**B**oaters need to remember that booze and boating do not mix. Alcohol impairs your ability to operate a vessel safely in the same way that it impairs your ability to drive a car safely. However, there are other factors that add to the intensity of your impairment when on the water — the motion of the boat and dehydration.

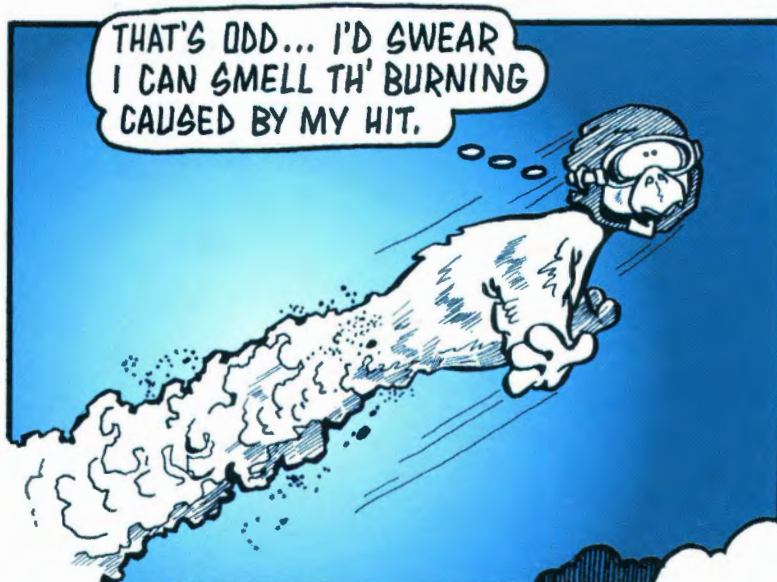
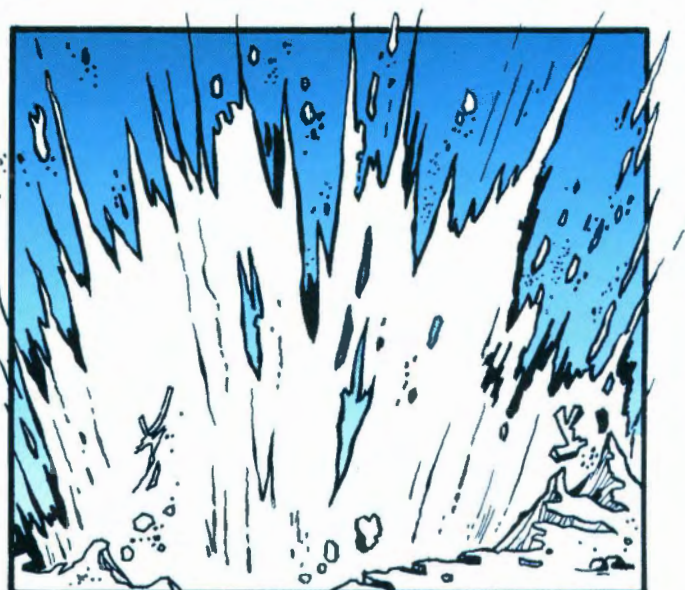
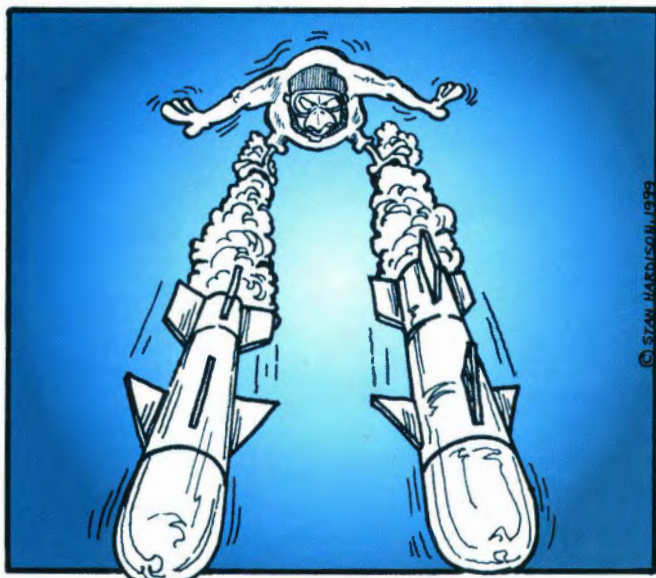
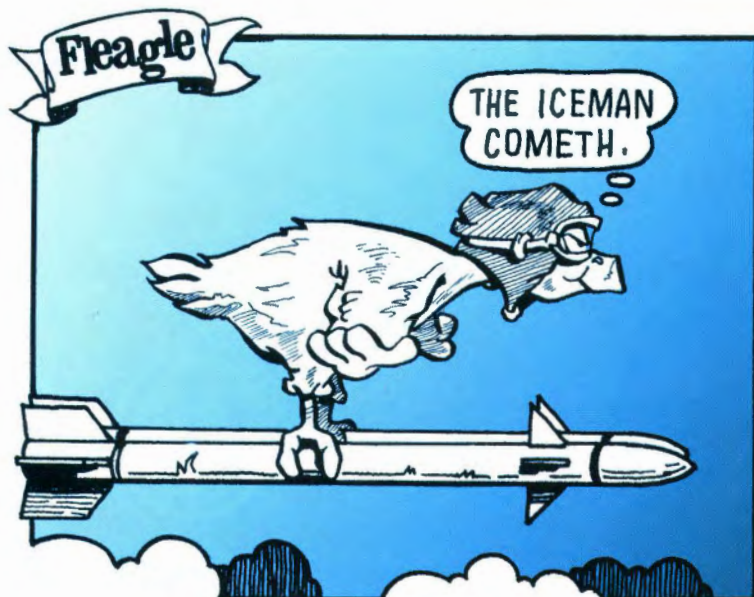
- Balance is one of the first things you lose when you consume alcohol; and when you combine this with the rocking of a boat, the chance of falling overboard increases.
- The sun causes you to perspire, which removes the water from your body but leaves the alcohol in. This can cause impairment to happen quicker. In a study of boating fatalities in four states, 51 percent of the people who died had a blood alcohol content of .04 or greater. A blood alcohol of .10 or greater was found in 30 percent of the fatalities.

There are several myths concerning alcohol that boaters should know the truth about. Contrary to some of the popular beliefs that still exist today:

- Beer is *not* less intoxicating than any other alcoholic beverage.
- Only time will sober a person, *not* black coffee or a cold shower.
- It is *not* easy to tell if someone is impaired. Many experienced drinkers can hide their impairment.
- You are *not* the best person to judge if you are fit to drive or operate a boat. Judgment is one of the first things you lose when you drink.

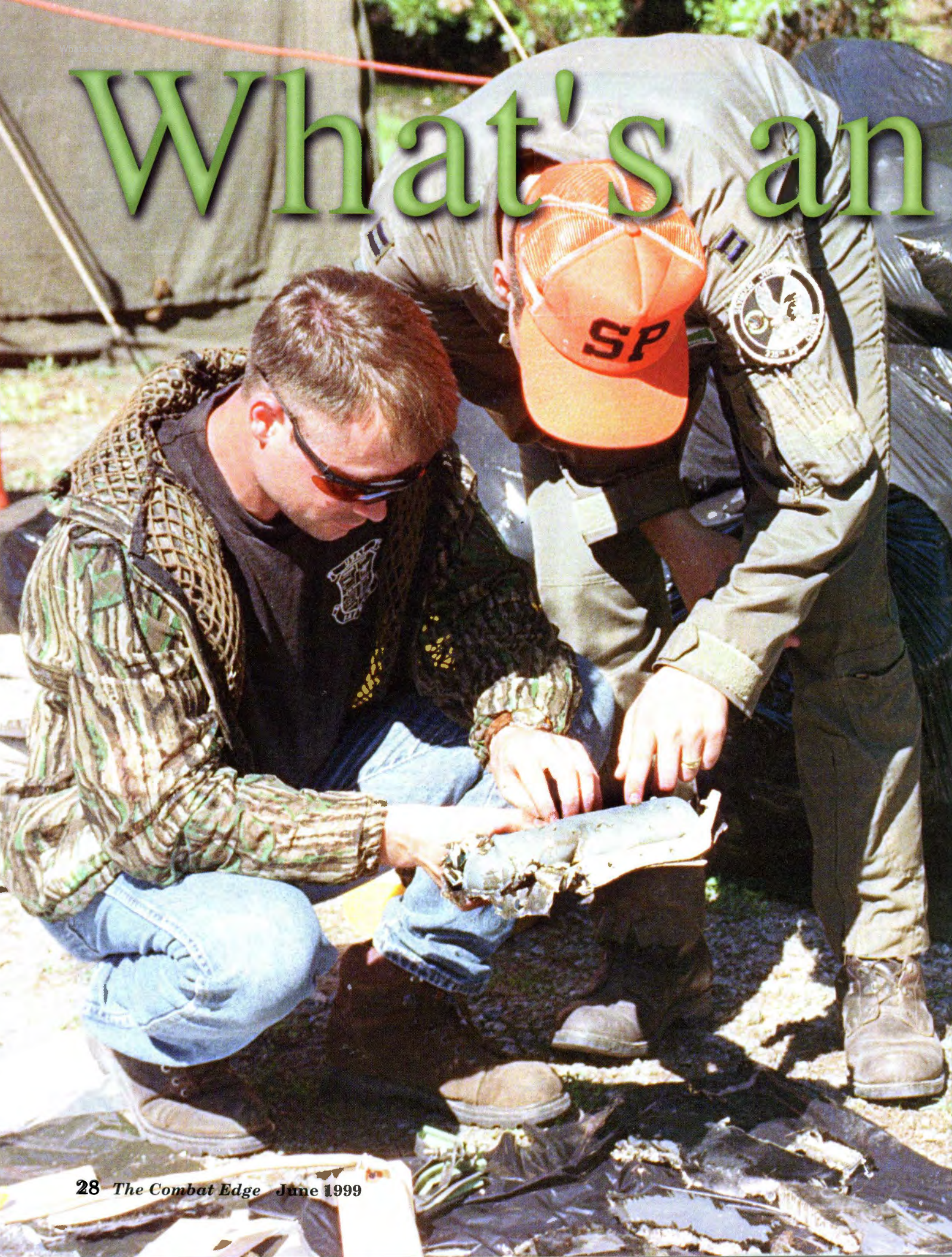
Remember, safe boating starts before your first trip out on the water. Do not wait until an accident happens to educate yourself, as well as your family, on the rules of safe boating. ■







# What's an





# IO to Do?

So you just found out you've been selected to serve as the Investigating Officer (IO) to examine a Class A mishap... and you ask yourself, "What's an IO to do?" The following information will hopefully make your job a bit easier.

**B**efore you depart the fix, ensure your admin folks properly annotate your travel orders to include "Variations Authorized and a Rental Car." This will save you valuable time when you return. Also, plan to bring proper clothing based on where the mishap occurred — and remember, more is always better. (Note: An extra set of boots and leather gloves is a must!) AFI 91-204, "Safety Investigations and Reports," and ACC's "Bear Traps 98" [a synopsis of lessons learned from Safety Investigation Boards (SIBs)] will be highly beneficial to read during the plane trip to the site. Access to the Bear Traps lessons learned document is available through the following ACC Safety Website address: <http://www.mil.acc.af.mil/se/training.htm>. You'll benefit greatly if you take the time to read it before embarking on this adventure.

Upon arrival at the site, meet privately with the Board President (BP). The BP should understand you're the investigating officer, and as such, are primarily responsible for managing and organizing the investigation. As the BP, he or she holds the hammer. The BP's role is to be the final point of release of all information and of the Findings, Causes, and Recommendations (FCR). However, you're the school trained, aircraft proficient

crewdog who'll help determine why the mishap occurred. As SIB members arrive, stress the importance of security to the group. Brief the team on safety privilege policy and ensure information is stored properly. Change the locks to the SIB room, and provide a key to each member of the SIB. The Interim Board (IB) should already have secured the site and preserved evidence. After conducting a handoff briefing with the IB, begin the process of developing a unified team. Success in determining the reason(s) the mishap occurred is dependent upon how well members communicate and function cohesively as a group.

Think of ways to develop *esprit de corps*. One way to break the ice is to ask each member what his or her "call sign" is. If they don't have one, assign them one accordingly; and include each member, officers, civilian contractors, and enlisted personnel. Consider purchasing "Friday name tags" for each member, and don't forget to meet one of Maslov's hierarchies of needs by getting a snack bar into operation. Most importantly, remember that one of the greatest motivators in team performance is for each member to feel they have a significant role in determining the success or failure of the group.

To help maximize the team's effectiveness, utilize each member ef-

fectively. A key member on the team is the assigned Air Force Safety Center (AFSC) representative. Keep in mind, he or she is there to help the team, not lead it. Ask the AFSC rep to conduct 30-minute training sessions during the first couple of weeks to teach topics such as interviewing techniques, definition of terms, review of Tab's A through Z, etc. As time progresses, you'll develop a sense of the strengths and weaknesses of each individual. Find ways for team members to complement each other. If you think a particular board member isn't quite up to par, get an additional subject matter expert to help out. Be decisive! Take into account that the team only has 30 days to figure this puzzle out, write a couple hundred-page report, write safety messages, and develop a briefing for a four-star general. Be creative and think of ways to mold a balanced team that communicates effectively.

To improve communication among the group members, facilitate the implementation of regularly scheduled team meetings on a daily basis and ensure ALL members of the SIB attend. To lighten the atmosphere, ask a different person to start the meeting with a joke. To help organize the team's efforts, post a "to do" list that specifically defines required tasks, Office of Primary Re-



sponsibility (OPR), and required completion dates. During round table discussions, ask the Recorder to document what each member has accomplished and update the "to do" list. Whatever you do, ensure the meetings don't drag on unnecessarily — limit them to 1.5 hours max. Help foster an atmosphere that encourages open discussion, free from retribution. Always encourage the team to uncover every rock during the investigation and to constantly ask the "why" question. Remember there are no dumb questions, except the ones not asked. It's easy for the team to fall into "group-think" scenarios (i.e., keep in mind the quiet ones oftentimes have the answer you're searching for).

As you continue your fact-finding efforts during the first couple of weeks, never do something you can't undo! As the sage — Mr. Mike Hannah from the Southern California Safety Institute — would say, "The truth is in the wreckage." Before you permanently alter evidence, think it through. Whatever you do, don't lose any evidence. Maintain a log on where the evidence is, who's analyzing it, and what the team learned. The evidence will be sent to various agencies across the country. The BP will provide guidance on how it gets there, by what method, and how it returns. It's important to have positive control of each piece of evidence. As the results return, the facts of what is known will become clearer.

To help organize the team, determine a management tool to guide the investigation. You'll discover that everyone's got a "technique" on how to do this. A simple, yet effective tool is to list three columns on a dry erase board: 1. What we know., 2. What we think we know., and 3. What we need to know. During daily meetings, update the lists. Eventually, the facts will present themselves. There are other tools available, such as root cause analysis, engineering flow diagrams, etc. The key is to find

one tool that works for the team, and then stick with it. Throughout the investigation process, it will also be necessary to pace the team.

One technique of pacing the team is to ask each member to write Tabs A through S early in the investigation (i.e., during the first 2 weeks). It's beneficial to utilize a file cabinet to organize the tabs with three sets of Tabs A through Z. Place the working copies of the tabs on the top cabinet and use the middle cabinet for refined working copies. The bottom cabinet is reserved for finished products. Ask the BP and AFSC rep to QC each tab to ensure compliance with AFI 91-204. It's also beneficial to compare the finished tabs with a previously published SIB "white elephant" report. The AFSC rep will provide a sample copy of the report for your review. Use the previous report as an "example only" and not as a source for plagiarism. Always ask the BP to QC all final products. The BP's aren't colonels for nothing. They're good writers and will help you clean up the final product. Another area to get ahead on is the formal briefing.

Ask the AFSC rep to secure sample-briefing slides and ensure the BP is working on his briefing. Complete filler slides early by assigning team members to help with the appropriate slides. Remember that each member of the team is focused on his or her own specialty. Together with the BP, attempt to become intimately familiar with what each team member is accomplishing.

There will come a time in the investigation when the cause of the mishap will hit you in the forehead like a two-by-four. When that time comes, usually by the third week, attempt to achieve consensus on the FCRs. A technique for writing FCRs is to exclude the BP from heated discussions. Ask the BP to develop his own FCRs, then compare the two. Chances are they'll

mirror each other. If not, the FCRs will be a more refined product. Correctly defining and wordsmithing the FCRs is critical because it provides the foundation of the dreaded "Tab T."

Without question, writing a quality Tab T will be the toughest thing to accomplish. Tab T consolidates all of the team's efforts and summarizes the SIB's FCRs. As you type the information in your computer's word processor, remember to SAVE, SAVE, SAVE it often... and on various sources. This document will take a lot of time and go through many revisions. Use a footer that shows the date and time last revised. After developing a semi-finished Tab T, make a hard copy and ask each SIB member to review it. A great idea is to list each member's position with different color ink on the top right hand corner of the document. Ask each to modify it with their specified ink color. By doing so, you'll know who's giving you the input. This technique facilitates keeping the editing process organized. The bottom line is... "you" write tab T. If someone has a major heartburn with a particular issue, attempt to work it out. However, you and the BP decide on the final product. If an agreement still cannot be reached, inform the dissenting team member(s) that they can write a minority report.

Lastly, take some time off occasionally, go to the gym, and never lose your sense of humor. Most of all, remember this is important stuff. The accomplishments of the SIB may save a valuable jet — or more importantly, the lives of your fellow ACC crew members. I guarantee you, it will be a rewarding experience. If you have any questions regarding this article, give me a call at DSN 975-6928 or e-mail [tony.monetti@whiteman.af.mil](mailto:tony.monetti@whiteman.af.mil).

*Cheers...*

*"Mayor" of Whiteman AFB*



# Did You Know...

**...that more than 12,600 Americans (half of them children) are treated in emergency rooms every year for injuries caused by fireworks — mostly around the Fourth of July?**

In a study conducted at Children's Mercy Hospital in Kansas City, researchers looked at admissions of children to Children's Mercy emergency rooms over a 22-year period.

Researchers found that 54 percent of children injured by fireworks were under adult supervision at the time; that 10 percent of children suffered permanent damage from fireworks; that 72 percent suffered burns as the most common injury from fireworks, and the leading culprits were firecrackers (42%), bottle rockets (12%), Roman candles (11%), other rockets (7%), and sparklers (7%).

The study found that an average 120 amputations a year were performed nationally on children, mostly on fingers and hands, due to injuries from fireworks.

**Celebrate -- Don't Mutilate!**





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