A man wearing a light blue polo shirt, a blue life vest, and a grey baseball cap is smiling on the deck of a boat. He is holding a blue and black device, possibly a remote control. The background shows a body of water and a distant shoreline with trees.

# The Combat EDGE

June 2001

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# The Combat EDGE

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## Air Combat Command's Mishap Prevention Magazine

GENERAL JOHN P. JUMPER, *COMMANDER*

COL. GREGORY A. ALSTON, *CHIEF OF SAFETY*



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# ACCent on Safety

## DISCIPLINE ... YOUR FINAL CHOICE

I have said on several occasions, and it is worth repeating, you live and die with the choices you make. In fact, I can go as far as saying that you are a product of the choices you have made in the past. The choices you make today will culminate in the "refined" product you will be tomorrow. This is true whether you are pursuing a college degree, investing money, getting physically fit or considering your safety options. On the safety front, it would be easy to say, "Yeah, yeah, I know ... be safe." However, it is more complicated than that and deserves a closer look. Safety is a series of choices. A good comparison is investing your hard earned money for your future. First, you must determine how much money you *truly* need to live on, then how much you want to be worth in 10 years, and finally, which investment opportunity you will choose. But there are two more steps. Both are important. You have to actually "put" the money in the investment and you must have the discipline to leave it there. The same pattern of choices is needed for a safe and healthy life, which should be everyone's goal. First, you must decide how physically healthy you want to be in 10 years, then choose the safety opportunities that will prevent injury or death. There are many risk management tools you can use. They include wearing a helmet while riding motorcycles, bicycles, ATVs, etc.; wearing life vests while boating; getting safety and proficiency training before engaging in an activity; using goggles, gloves, hearing protection and much more. Making these safety choices is the equivalent of actually putting your money into an investment. But as with investing, it does not stop there. You must have the personal discipline to continually reduce risk and be aware. It is only by taking these steps that you can achieve your goal of a safe and healthy life.



Col. Greg "Vader" Alston  
ACC Chief of Safety

# Judgment ... "UNSAT"

*By Maj. Bruce Benyshek  
43 FTS support to 50 FTS as T-38 Instructor Pilot  
Columbus AFB, Miss.*



Judgment. The ability to analyze a new situation, compare it to past similar experiences and make a decision.

Everyone is born with it; throughout our lives we cultivate it; and from the first day of flying training, you are graded on it. Early in your training, you find out that to supplement your lapses in judgment, the Air Force has come up with a nice little set of rules to help you.

“Follow the rules and you’ll stay out of trouble,” was what I heard over and over.

Nowhere was that more true than when I finished pilot training and went to fighter lead-in. Entering the arena of mock combat, I first encountered the Rules of Engagement or ROE. “Judgment” at this point largely meant following the ROE. The strictest compliance was expected and failure to comply meant harsh punishment.

But judgment is not static – it changes. In my career that followed, I observed that the “new guys” generally seemed to be the most faithful observers of the minutiae in our myriad rules and regulations. This is because they rely on the rules to guide their judgment. The heavy emphasis on this in our training makes it only natural. I know it worked that way for me. I also noticed that as pilots gain experience and confidence in their abilities, there may be occasions where they either accidentally – or deliberately – exceed the margins specified in the ROE. Personal judgment is now actively involved. “The Mission” and perhaps moments of fleeting personal glory take precedence over “following the rules.” Oh, the rules are still there and some are painstakingly followed, but some of them are selectively complied with or room for interpretation is allowed. “Don’t screw up” is the new motto.

From my perspective, by the time a guy has been around the block more than a few times, the rules become a dominant force in judgment again. For the old cranium, “been there; done that” is so patently obvious he does not need to bend the rules to bask in momentary fame. And, at this point, with leadership responsibilities and a couple of thousand “lessons learned,” he can really say to himself “I don’t push the ROE anymore.”

This preamble sets the stage for a four-ship flight of F-4Gs I led on Sept. 25, 1995. I was a fairly new major, had been flying the airplane for nearly 9 continuous years, had 3,000+ hours in the Rhino including 700+ as an Instructor Pilot

(IP) and had flown 239 sorties over Iraq. I felt on-top of my game. My judgment had followed the evolution I described above pretty consistently. I could quote chapter and verse of any regulation early in my career, and midway I had done some wild stuff (ask anybody who flew with me as a captain!), but by this point, I was satisfied with devising new tactics, employing within the ROE and seeing it work to our advantage.

It was a beautiful day for our flight, call sign Vegas 01. We planned to take off from Nellis, two-by-two formation takeoffs, and go 15 minutes out to a west Military Operations Area (MOA). The crews were overall very experienced. The lowest-time pilot had 900 hours, the other two had 1,500+ and the backseaters had 500 to 1,500+ hours. With an 8:40 a.m. takeoff and beautiful clear skies, it was a great day to go out and do air combat training – “the sport of kings.” With the efficiency I expected from the guys between sets, I hoped to get at least four engagements.

The brief was thorough and, as I always did, I looked each guy in the eyes to make sure no one had gone into a “briefing-room coma” as I went over the ROE. Takeoff and departure to the MOA were normal. After the obligatory “G” check and system checks, we split elements. The MOA was oriented north-south. I took my element to the south-point; number three went north.

Number three was the “low” time pilot. I had decided to be a nice guy for the first engagement. I took the south point to give number three the better axis for tallyho, as well as the better altitude blocks. Number two and I would be 15,000 to 19,000 feet. My element’s tactics would be non-conventional. Attacks would be prosecuted individually – wingman support not required. In the event we were targeted, we would defend individually to visual limits. If the defending maneuver worked, you could re-commit. Otherwise, drag. We would try to split the blocks to the maximum altitude differential.

At “Fight’s on,” we turned north. I was on the left or west side. With a 30-mile setup, I knew we should hear “10 miles” just over a minute out of our points. We had a weak radar that day and 30 seconds into the fight, number two called “Gadget bent,” which meant radar degraded. Lovely.

Moments later, he called “Defending Alamo.” He turned 90 degrees left to put them at his 3

o'clock. I was at the top of the block, so he passed under and behind me. I did not have any contacts, but we were not targeted yet either, so we continued.

Well, not so fast. Now we had two spikes on the nose, so number three's element had glommed onto me. I saw my wingman 2 miles west of me, going west, so I turned to follow him. I ended up in a 3-mile trail on him, going downhill, as we chaffed and tried to get rid of whoever in the other element was shooting an AIM-7 at us from our 3 o'clock.

Number two was approaching the western border of our MOA when he called out "Tallyho, two bandits, my 4 o'clock, 4 miles." Since he could not drag from this position because of the airspace, I saw him pitch back and up into the threat. I had lost my spike, but still did not have a tally, so we kept going west.

Number two was doing a great job of trying to talk my eyes onto the bandits. Right after number two got a radar shot on the leader (at close to minimum range), I saw his target. He was just over 3 miles from me at my 4 o'clock, about 2,000 feet above us. I did not think he saw me. I figured he must be concentrating on number two, who was at his 12 o'clock for 3 miles. If I snapped back into him, I would be at his 10 o'clock. I hoped to get two unobserved shots on him and remove him from the game. I still had only tally-one. However, this one was in our block, so I did a pitchback into him, figuring to fight him within our block.

Unfortunately for me, as I rolled out from the pitch, I saw him switch his nose from number two to me. He was inside of 2 miles and I always practiced disciplined InfraRed CounterMeasures (IRCM). I yanked the throttles to idle and tried to set up for a quick heat shot, knowing I would be slow at the merge.

It seemed the planets just were not in alignment for me that day. Just as I got the piper on him (yes, in the good old days you had to point your jet at the bad guy to get a heat shot – we did not have luxuries like off-boresight AIM-9s), I felt like we were inside 10,000 feet slant-range and I would be pushing it to try to get the shot and be off by 9,000 feet. I decided to forego the shot and concentrated on denying him the opportunity. I maintained my IRCM, knowing that it would take a miracle for him to get a valid tone, as he looked down at the desert floor with my jet in idle.

And I was right. I did not hear "Fox-2," so my IRCM worked. Now I just needed to clear the 500-foot bubble, blow out northeast and try it again. Since we were beak-to-beak and I was going about 10 degrees uphill, I figured "Nose high, goes high, clear to the right, and never cross flight paths" – standard ROE.

So that is what I did. I eased the jet slightly to the right. However, to my amazement, his nose followed me. Well, he goofed. I thought, "I'll debrief whoever this is between engagements. No time to ponder that now." I shifted my nose to the left. He followed me again!! I was getting a little concerned. I threw the throttles in blower, not really caring about IRCM at this point. It looked like the path of least conflict was up and right, so that is what I went for. As I pulled up with the little amount of "G" I had left (we were down to 220 knots, which in a Rhino is nothing), I saw with absolute horror and astonishment he was following me again!! "Fox-2 on the F-4 climbing through 17,000, headed northeast!" number three proudly transmitted over the radio.

The next words out of me were a pleading utterance of profanity. I had the nose jacked up and I was max performing the jet; pulling darn near the stall. We were out of airspeed – we were below 180 knots. What else could I do? He had disappeared under my nose when I made the last pull up. Then it became all too clear why we kept accidentally crossing flight paths – number three was bound and determined he was going to get a shot on me!!

For the next 8 seconds, I struggled with the jet, *absolutely* convinced that the next – and last – thing I would ever see would be the nose of number three's jet, just left of my canopy, before the rest of his jet slammed into us. My backseater could not see what I could see. He was shouting "Unload, unload!!" because he knew I was pulling too hard and the Phantom would depart in the blink of an eye. I did not have the presence of mind – or the heart – to tell him in a few moments we would be dead, and I could not stop number three from doing it.

To my relief and disbelief, what I saw instead was number three blitzing past us, about 100-120 feet left of us; level. "**Knock-it-off, knock-it-off, knock-it-off!!**" Vegas 01, knock-it-off!!" Anyone who heard that transmission had no doubt about the rage in my voice. The flight went through the standard knock-it-off drill,

then I said "That was about 100 feet!" The final straw was when number three replied with "We're OK - we're good to go." Well, maybe *he* was, but I had had enough of him for one day, and I did not care to try it again. I thought about sending him home alone, but I did not want to find out if someone else would pull a similar stunt. I decided he should stay so I could keep an eye on him. We flew limited engagements for the rest of the day.

No one spoke in maintenance debrief, which is usually a great place to tell jokes. No one spoke when we piled into our briefing room. Once I closed and locked the door, the ensuing debrief lasted for 2 hours - which is pretty amazing, considering we only flew one full-up engagement. Two things I will never forget from that debrief: from the time of my horrific realization (marked on the tape by my profanity) until my angry knock-it-off call, was 8 seconds. Eight seconds I was convinced I was going to die. The other is that number three pulled off from his boresight heat shot at 4,500 feet.

I dominated the conversation that followed, but I had a lot of mutual support. It was effectively seven against one in that room. We hammered home, and I mean hammered, the point to number three that he had almost killed four people that morning. We wanted to make sure he never pulled a bonehead stunt like that again. I tackled it from two axes. The first was the personal pride standpoint. We made him feel about as low as you can and guaranteed he would get that and worse if he tried something like that again. Going from "Hero" to "Zero" and getting the opposite result from what he intended would hopefully prevent a repeat performance. We also covered the technical aspects. We reviewed the cues and techniques he could have used to recognize the situation so if he were presented with it again, he could avoid it.

So who gets the "UNSAT" in judgment? Well obviously, number three. He violated the 9,000-foot head-on rule twice: once for not coming off at 9,000, the other for taking a shot well inside 9,000; he violated the 500-foot bubble; and finally, he never even recognized there was a problem and even defended his actions when it was pointed out to him.

But it was not until much later that I realized that there were a few more "UNSATs" to be handed out - to me. While my judgment had matured, I had not considered that num-

ber three or the others might be at some other stage. I knew number three was a new flight lead, so I gave him a few bones, but I had not imagined that the psychobabble qweep we usually call "human factors" might actually exist in reality. I had not considered how his self-esteem, which had been bruised by a slow upgrade and a non-promotion, would make him desperate for a chance to make his mark. What greater opportunity for him to get his fangs through the floorboards than to shoot down a squadron IP who had been "down-town"; a guy who had shot him on more occasions than he cared to remember? I earned my "UNSAT" because I did not recognize fundamental human motivations. Oh, there are other things. I wish I had unloaded rather than pulled. I could have kept him in sight and more than doubled my nose rate. I wish I had called "knock-it-off" sooner. And I wish I could have controlled my anger - it did not help any.

And while I believe we took care of the problem (number three never did anything this stupid again), I failed in judgment a second time when I kept it all within the flight. I should have talked to the Director of Operations (DO) or Assistant DO at a minimum. While those of us in Vegas flight knew what had happened, no one else outside of our flight was given the opportunity to learn from our mistakes. I should not have been satisfied that I had fixed number three's problem. After all, he obviously had not been impressed by my briefing or coverage of the ROE before the flight. The squadron leadership could have put him on "super double-secret probation" until they became convinced he was redeemed. It would have been safer for everyone, including number three.

Finally, I concluded that even though I had matured and now followed the ROE to the letter, my smug self-assurance should not have given me a false sense of security. In my more reckless youth, any danger to myself was generally self-induced. Now I felt that since I had mended my ways, my adherence to the ROE would keep me out of trouble. I realized - almost too late - that blind compliance with the ROE and being a good stick is not enough. The other guy can still hurt you. No matter how long you have been around or how mature your judgment is, your judgment can still be "UNSAT." ■

# What **EVERYONE** Should Know About **NUCLEAR SURETY**

*By Tech. Sgt. Matthew A. Sauer  
AWFC Chief of Nuclear Surety  
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**N**ot me! I don't need to know about nuclear surety. We don't have nuclear weapons at my base!" Does this sound like you? Have you even heard of the program before? If you are assigned to a unit with a nuclear commitment, then nuclear surety is part of your daily activities and hopefully on your mind all the time. You should be well aware of such exciting topics like Nuclear Surety Inspections (NSIs), the Personnel Reliability Program (PRP), nuclear certification, the "two person" concept and countless other programs. But why would anyone else need to know about it? The truth is, there are portions of the nuclear surety program that apply to every base, regardless of mission, and to almost any individual. What is nuclear surety? It is a combination of safety and security applied to nuclear weapons, weapons systems, equipment and personnel. AFI 91-101, *Air Force Nuclear Weapons Surety Program*, defines nuclear weapons surety as: "Material, personnel and procedures which contribute to the security, safety and reliability of

nuclear weapons and to the assurance that there will be no nuclear weapons accidents, incidents, unauthorized weapons detonations or degradation in performance at the target.”

To people outside the nuclear community, this means some of the strictest, all-encompassing and most rigidly enforced safety and security standards imaginable. These standards are set forth by the Secretary of Defense and are the “law of the land” for “nuke troops.”

So why would nuclear surety apply to your organization? How could a program you might never have even heard of impact you at all? Well, how about your Government Owned Vehicles (GOVs)? Many general and special purpose vehicles are nuclear certified. This can include pick-ups, 40-foot tractor-trailers, forklifts, some cargo trucks, jammers and many others. But why should you be concerned? Well, AFI 91-204, *Safety Investigations and Reports*, usually requires nuclear certified vehicles that experience damage, malfunction, failure or an anomaly involving non-combat delivery vehicles to be reported through Dull Sword channels. (Refer to AFI 91-204 and your major command’s supplement for specific requirements.) Since these vehicles are certified simply by having the right national stock number, any or all of your GOVs could be nuclear certified, and they must be reported as such! Specific areas of concern with certified vehicles include: stability; steering or brake problems that affect safe steering, stopping, towing or holding in park a tow or transport vehicle; defects or failures of vehicle structural members that support the load or transmit towing force; inadequate load restraints; or unsafe condition or improper operation of hydraulic, mechanical and structural components of lift equipment. So how does this apply to you?

If any of these conditions apply to your vehicle and it is listed as “Nuclear Certified” in Technical Order (T.O.) 00-110N-16, *USAF Nuclear-Certified Equipment and Software*, then a Dull Sword report may need to be submitted. This is regardless of whether the vehicle is used for a nuclear mission or not. The importance of this reporting becomes evident if you consider the use of these reports for trend analysis. For example, if several non-nuclear units around the Air Force experience similar failures of a specific vehicle and do not report it, then a severe mishap could occur when a nuclear unit uses that same ve-

hicle. By completing a Dull Sword, the mishap could have easily been prevented. Your transportation squadron should be aware of what vehicles on your installation are nuclear certified or you could check your vehicles against T.O. 00-110N-16. Knowing this information in advance can help you should a Dull Sword ever need to be submitted. Additionally, any modifications to a nuclear-certified vehicle must be approved in writing in order for the vehicle to retain its certification.

This requirement goes further than just vehicles. T.O. 00-110N-16 also applies to various pieces of equipment and software. For example, many conventional explosive units utilize the H1004 lifting beam for lifting munitions. The H1004 is a nuclear certified piece of equipment and the Dull Sword requirements of AFI 91-204 apply to it. This is true of many other pieces of equipment such as jammers, munitions handling unit and material handling equipment and cargo aircraft and their equipment.

OK, so you need to keep an eye on your vehicles and equipment, but wait that is not all. Does your base have a Safe Haven Plan? Do you have any duties in that plan? Does your base have a Major Accident Response Plan (MARP)? What does it encompass? The term “safe haven” applies to temporary storage provided to Department of Energy classified shipment transporters at Department of Defense facilities in order to ensure safety and security of nuclear material and non-nuclear classified material. Any installation could be called upon to provide a “safe haven” at any time. Organizations that would be required to support such a plan could include munitions squadrons, security police, transportation, billeting, legal, finance, command post or almost any base agency. It all depends on the details of your installation’s plan. A review of your local plan could prevent delays and security issues.

While the nuclear community has one of the best safety records around, mishaps sometimes are unavoidable. A nuclear transportation mishap, while highly unlikely, could potentially occur at or near your installation. While the possibility of a nuclear detonation as a result of such an accident is *designed* to be better than one in one million, the impact of such a disaster would be far reaching. Concerns, ranging from injuries, to contamination, property damage and political issues, would need to be addressed

quickly and appropriately. AFI 91-204 directs that the commander of the nearest Air Force installation respond to the mishap and initiate the numerous mishap procedures necessary until the appropriate agencies arrive. Almost any agency on the installation could be tasked to support such a mishap. You should occasionally review the role you play in your base's MARP since it addresses the possibility of a nuclear or radiological mishap. The odds are strongly against a nuclear mishap occurring even at a base with a nuclear commitment, but a little preparation or an occasional exercise is always beneficial.

At this point, you might say, "OK, some

people might need to be concerned, but why should I be concerned? I work in the family practice clinic or the legal office or the chapel or the leadership school as an instructor." Good question.

Ever heard of the PRP program? If you have ever worked around nuclear weapons or have worked at an installation with a nuclear commitment, you should be intimately familiar with this one, but what about the rest of us? Think about the people that might be TDY to your base? Are they PRP certified? What is PRP and why should you be concerned?

PRP is implemented by AFI 36-2104, *Nuclear Weapons Personnel Reliability Program*. This program is designed to ensure that only the most stable and reliable personnel work on or around nuclear weapons. These individuals are documented and monitored for reliability constantly. They are removed from nuclear duties, without prejudice for any reason that can affect their reliability. This can include anything from medications, to family problems, to inappropriate conduct, to mental instability. Individuals certified under PRP undergo an in-depth screening process and are expected to monitor themselves. But if an individual is TDY and receives ANY medica-

tion from any source, experiences any emotional or family problems, is involved in an accident, receives counseling or even participates in any form of hypnosis, then the individual's reliability comes into question and their commander must be notified.

The PRP program is not, however, a tool for punishment. Individuals covered by the program will not be reprimanded as a result of suspension actions, but the home unit must be notified. If the individual cannot perform the notifications, then someone with knowledge of the facts should notify the individual's commander or immediate supervisor. The individual will usually be listed as "Suspended

from PRP duties" at his or her home unit for the duration of the medication or event and will be assigned other duties in the interim. However, if not reported, serious issues arise. Safety and security issues aside, a unit could fail a NSI because a PRP issue simply was not reported.

Think about this. Would you want someone on heavy medication or with thoughts of suicide in contact with a nuclear weapon? If you are aware that an individual is PRP certified and feel their reliability could be in question, it is your duty to report it to the individual's commander or supervisor regardless of circumstances. The individual's commander will then make an informed decision about the individual's reliability.

So there are in fact nuclear surety issues that can affect anyone. While some airmen have to adhere to these standards in every aspect of their daily duties, most will only have to consider them occasionally. Regardless of where you work or what your daily duties are, you can have a role in the nuclear surety program. Nuclear surety can reach far beyond the bomb dump, silo or bomber pad. It can affect hospitals, schoolhouses, chapels, administration areas and - yes - it can affect you! ■





# Weather or Not to Boat

**A**s the sun rises high in the sky, the tropical oceans and atmospheres become more and more active by absorbing heat energy. This starts the recipe for thunderstorm and hurricane production. Knowing what signs to look for and where to find weather advisories could make your time spent on the water much more enjoyable.

When spring and summer roll around and outside boating activities increase, the frequency of severe thunderstorms and hurricanes increase as well. Boaters are caught off guard too frequently when storms roll over the horizon. Usually when you observe dark, fast moving clouds headed your way, it is too late to head for a safe location if you are out in the open water. Having knowledge of the larger weather picture and knowing exactly what to do when these sudden storms appear could help you enjoy a safer and more pleasant journey.

Fortunately, boats equipped with National Oceanic and Atmospheric Administration (NOAA) weather radios will be able to tune into the Special Marine Warnings and Special Weather Statements being issued by the local National Weather Service office. These statements will give you instructions on where the storms are heading and how severe they are expected to be. If your vessel is not equipped with NOAA weather radios, get to know the weather story from local television stations and the National Weather Service briefings.

The following information is an explanation of the type of warnings you can expect to hear from the National Weather Service:

\* **SMALL CRAFT ADVISORY:** To alert

mariners to sustained weather or sea conditions, either present or forecast, that might be hazardous to small boats. The threshold conditions for this advisory are usually 18 knots of wind or hazardous wave conditions.

\* **GALE WARNING:** To indicate winds within the range 34 to 47 knots; or tropical cyclones 34 to 63 knots.

\* **STORM WARNING:** To indicate that winds 48 knots and above, no matter how high the speed.

\* **HURRICANE WARNING:** Issued only in connection with a tropical hurricane to indicate that winds 64 knots and above are expected.

\* **HURRICANE WATCH:** This announcement is not a warning, rather it indicates that the hurricane is near enough that everyone in the area covered by the "Watch" should listen to their radios for subsequent advisories and be ready to take precautionary action in case hurricane warnings are issued.

\* **SPECIAL MARINE WARNING:** Issued whenever a severe local storm or strong wind of brief duration is imminent and is not covered by existing warnings or advisories. Boaters will be able to receive these special warnings by keeping tuned to a NOAA Weather Station or to Coast Guard and commercial radio stations that transmit marine weather information.

Knowing the larger weather picture before venturing out into the open waters could save not only aggravation, but your life as well. Get to know the weather related services provided to you in your area and chart a course toward boating safety. ■

*From the National Safe Boating Council*



# Gone in an Insta

*By the National Safe Boating Council and the U.S. Coast Guard, Office of Boating Safety*

**T**he U.S. Coast Guard advises owners and operators of boats to turn off gasoline-powered generators with transom exhaust ports when boats are at anchor or moored and passengers are on or near the stern swim platform, or swimmers are in the water. The Coast Guard further advises that swimmers should not enter the cavity between the swim platform and the transom of a vessel if the generator is emitting exhaust into this cavity.

The Coast Guard was made aware of the deadly combination of generator exhaust and swim platforms through a September 2000 National Institute for Occupational Safety and Health (NIOSH) study of houseboat carbon monoxide deaths on Lake Powell in Arizona. In August, two brothers ages 8 and 11 were swimming at the rear of a houseboat

on Lake Powell. Both were overcome by carbon monoxide and disappeared beneath the water in front of their friends and family. This incident caused the Glen Canyon Recreational Area to examine the number of carbon monoxide-related incidents on the lake. They found that nine people have died over the last 6 years from carbon monoxide on Lake Powell alone. Seven of the nine fatalities were either on or under the back deck, or in the water near the back of the houseboats. Since 1990 there have been over 111 emergency transports of known boat-related carbon monoxide poisonings. Seventy-one of these cases involved houseboats. Thirty-eight of the houseboat-related poisonings occurred outside the boat, near the rear of or under the houseboat. Twelve of these people were found unconscious in the water and rescued. They were either at the bottom



of the lake, face down in the water or face up if there was a personal floatation device. Twenty-seven of the emergency transports were related to exposures in runabout boats (i.e., ski boats, cabin cruisers, etc.), and two people died from carbon monoxide poisoning in these types of boats.

Carbon monoxide is a lethal poison that is produced when fuels such as gasoline are burned. According to the National Center for Health Statistics, over 2,500

people in the U.S. will die per year of carbon monoxide poisoning and over 10,000 will be

hospitalized. This makes it the most common cause of death from poisonings in the U.S. It can rapidly accumulate even in areas that might appear to be well ventilated such as being topside on a boat. Because carbon monoxide is colorless, tasteless, odorless and nonirritating, it can overcome the exposed person without warning. It produces weakness and confusion, depriving the person of the ability to seek safety. The cause of death for these carbon monoxide poisonings is reported as “drowning” because carbon monoxide is not routinely tested by medical examiners unless specifically indicated. This coupled with the fact that the poisoning symptoms mirror those of heat stress, seasickness, flu or even a hangover may contribute to the under-reporting of these instances. For people enjoying the boating experience, exposure to deadly airborne pollutants is the furthest thing from their mind.

Automobiles are now equipped with catalytic converters that remove up to 90% of the carbon monoxide. This may be the reason for the decline in automobile-related poisonings and a lowering of awareness in the general public. However, gasoline engines and generators on boats have no emission controls and can emit carbon monoxide in huge amounts. Carbon monoxide is measured in parts per million (ppm). The following table describes relative carbon monoxide concentrations:

Carbon Monoxide in ppm	Limits / Symptoms
35 ppm	Maximum exposure allowed by EPA in outside air for a 1-hour period
35 ppm	Maximum exposure allowed by OSHA in the workplace over an 8 hour period
200 ppm	Mild headache, fatigue, nausea, dizziness and confusion
400 ppm	Serious headache—other symptoms intensify within 1 to 2 hours; collapse after 2.5 to 3.5 hours
800 ppm	Headache, dizziness, nausea and convulsions in 45 minutes; death in 2 hours
1,200 ppm	Exposure considered to be Immediately Dangerous to Life and Health (IDLH)
In excess of 1,200 ppm	Amount measured in open air on stern deck of several boats
3,200 ppm	Death in 30 minutes
6,400 ppm	Death in 10 to 15 minutes
As high as 10,000 ppm	Amount measured in open air on or near swim platform of several boats
12,000 ppm	Immediate Death
7,000 to 30,000 ppm	Amount measured on houseboats on Lake Powell in airspace under swim platforms

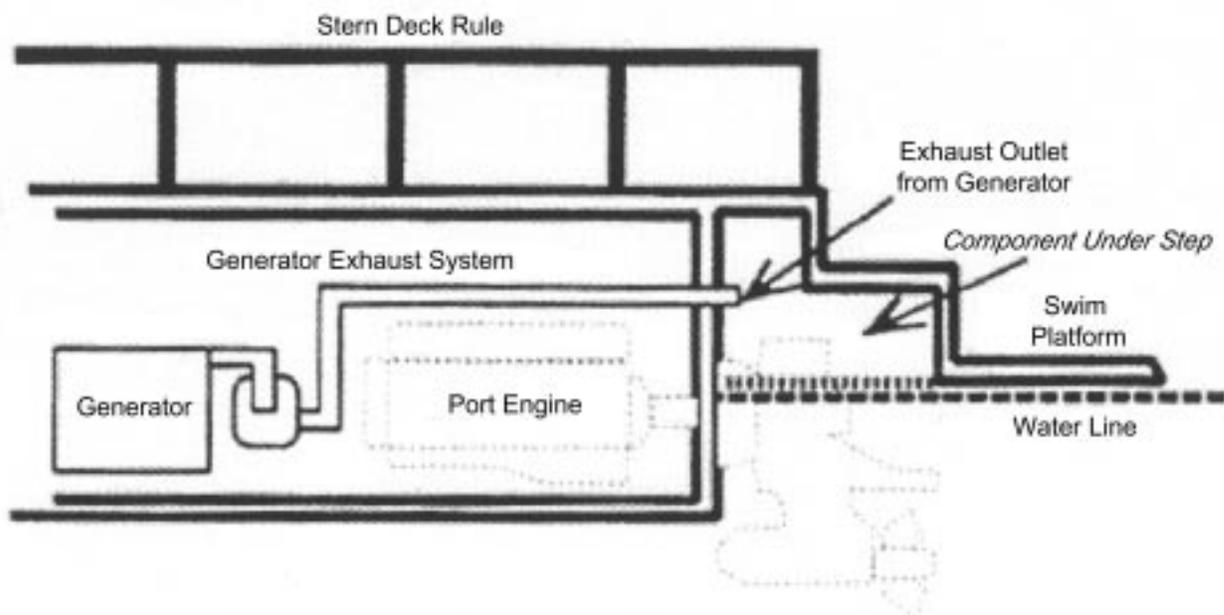
The design of the houseboats involved in the fatalities at Lake Powell all had rear-mounted generator exhaust systems that direct the exhaust fumes underneath the back deck and swim platform. The NIOSH study showed that this particular design created a cavity between the hull of the vessel and the swim platform where the gasoline-powered generator exhaust port is located. This problem may not be confined to houseboats since any boat with the generator exhaust located between the transom and a swim platform could present the same lethal hazard. In some designs, there is a cavity underneath the back deck created by the back step. When the generator is running the exhaust gets trapped in this cavity. Airborne concentrations in this space were measured to be up to 30,000 ppm. Air measurements showed concentrations of carbon monoxide on the rear deck of several houseboats exceeded 1,200 ppm, and carbon monoxide concentration as high as 10,000 ppm near the swim platform. Monitoring results from an employee performing engine maintenance work also showed concentrations near 1,200 ppm. These concentrations are so high that it creates an imminent danger of death for anyone who enters the cavity even for a very short period of time. The common practice of keeping generators running to power air conditioning, entertain-

ment centers and electronic suites while moored or anchored has exacerbated the problem.

Preliminary results below illustrate carbon monoxide concentrations can be deadly in the following boating situations:

- \* Under and near the swim platform when the generator is operating (boats with stern generator exhaust);
- \* Between the houseboat hulls when they are tied side-by-side (boats with side generator exhaust);
- \* On the rear deck under varying weather conditions; and
- \* For employees working on marine engines without adequate air movement.

Pamphlets such as the National Marine Manufacturers Association's "Carbon Monoxide Poisoning - Know More About It," as well as other boater educational materials, have historically concentrated on carbon monoxide hazards created by the exhaust of the main engines while underway. These hazards still exist (i.e., exhaust entering the cabin compartment or being pulled into the occupied areas on the boat from the "station wagon" effect) and need continued exposure; however, boat owners need to be aware of this additional carbon monoxide hazard and take the appropriate measures so that loved ones and friends are not overcome and "gone in an instant." ■





# F-117A NIGHT

The F-117A is a single-seat, twin-engine, air refuelable fighter-attack aircraft with quadruple redundant fly-by-wire flight controls. It is the world's first operational aircraft designed to exploit low-observable stealth technology.

## General Characteristics

**Length:** 65 feet, 11 inches (20.3 meters)

**Height:** 12 feet, 5 inches (3.8 meters)

**Wingspan:** 43 feet, 4 inches (13.3 meters)

**Max Speed:** High subsonic

**Range:** Unlimited with air refueling

**Armament:** Internal weapons carriage



# FIGHTHAWK



# MONTHLY AWARDS

## AIRCREW SAFETY AWARD OF DISTINCTION

*Cpts. Kelly Buck and Todd A. Arvidson  
1st Lts. Dave R. Peck and James C. Pinnix  
Staff Sgt. Raymond S. Hillhouse  
966th Airborne Air Control Squadron, 552nd Air Control Wing  
Tinker AFB, Okla.*



The crew of an E-3 Sentry-65 planned a 7.3-hour AWACS training sortie from Tinker AFB to the U.S. southeastern coast. The weather at the time of departure was scattered at 1,500 feet, overcast at 4,700 feet, 5 miles with mist and temperatures below freezing. Due to these weather conditions, the crew de-iced the aircraft prior to takeoff. Engine start, taxi, and takeoff were uneventful. On climb-out and on course through 6,000 feet, the co-pilot engaged the autopilot and simultaneously felt an onset of positive "G" forces. The aircraft commander, Capt. Buck, took immediate control of the aircraft. Both

pilots noticed that the pilot's attitude deviation indicator was reading 20 degrees nose down and in the inverted position, but the co-pilot's and stand-by attitude indicators indicated 20 degrees nose up and wings level. Capt. Buck performed the unusual attitude recovery in accordance with the checklist. Upon further examination of their flight instruments, the flight crew noticed their airspeed indicators were frozen at 220 knots indicated airspeed. The instructor navigator on board verified the airspeed indicators were indeed erroneous when compared to Global Positioning System (GPS) groundspeed and true airspeed converted to indicate airspeed. Capt. Buck further verified their airspeed indicators were incorrect when he coordinated with Air Traffic Control (ATC) to give him groundspeed checks. The aircrew leveled off clear of the weather at 10,000 feet then declared an emergency with ATC. Once the flight crew was confident that the situation was stable, the co-pilot took control of the aircraft and flew known pitch and power settings since the airspeed indicators were unreliable. The aircraft commander, navigator, and flight engineer began to troubleshoot the system. The navigator was able to isolate the two GPS navigation systems and bring the previously failed inertial navigation unit on line. During this period, the co-pilot noticed that the airspeed indicators were no longer stagnant and appeared to be working properly. The crew then entered holding to dump fuel and continue verifying that the airspeed indicators were properly functioning. When the crew was comfortable with the situation, they commenced the instrument landing system approach to Tinker. Not completely trusting their instruments, the navigator continually computed and monitored groundspeeds all the way until touchdown. The crew landed safely at Tinker AFB. The professional airmanship, attention to detail, and flawless crew coordination were an absolute necessity for the safe recovery of 20 crewmembers and a \$300 million national asset.

## PILOT SAFETY AWARD OF DISTINCTION

*Lt. Col. Bradford P. Young  
60th Fighter Squadron, 33rd Fighter Wing  
Eglin AFB, Fla.*



Lt. Col. Young was scheduled to fly on a Night Vision Goggle instructional sortie as number two of a five-ship of F-15Cs. On takeoff roll during a 20-second instrument trail departure and approaching 140 knots, Col. Young heard a violent bang from the left side of the aircraft. Col. Young's actions over the next few seconds prevented serious damage to both him and the aircraft. Passing through 145 knots, Col. Young performed a high-speed abort and simultaneously announced his intentions on the radio, preventing the aircraft behind him from continuing their takeoff roll. Col. Young perceived the intensity of the "bang" as a catastrophic failure and he initially applied the Dash-1 guidance for the abort procedure, with a computed maximum abort speed of 151 knots. He simultaneously retarded the throttles to idle, applied brakes, and lowered the tail hook for a potential departure-end cable engagement. After initiating brake actuation, the aircraft yawed to the right, and he ceased braking action to analyze the situation. As the aircraft slowed down, and with no further brake actuation, the jet yawed to the left. At this moment, he realized that he had blown the left main tire and must keep the aircraft on the pavement to prevent serious damage. During the nighttime takeoff roll, Col. Young successfully kept the aircraft on the runway using a combination of rudder and nose-wheel steering inputs and the aircraft came to rest with 1,000' of runway remaining, 500' short of the departure-end cable. He successfully shut down the engines after fire-fighting equipment was in place and egressed the aircraft with no injuries. Col. Young's rapid decision-making, in-depth system knowledge and deft demeanor averted catastrophic damage to the aircraft.

## GROUND SAFETY AWARD OF DISTINCTION

*Airmen 1st Class William B. Green, Kristopher N. Helton, Melissa M. Navarro  
Tech. Sgt. Jeffery A. Martin  
20th Security Forces Squadron, 20th Fighter Wing  
Shaw AFB, S.C.*



While performing security duties within the restricted area where the 77 FS, 78 FS and 79 FS aircraft are parked, Airmen Green and Helton observed an aircraft on parking spot Foxtrot 4 roll out approximately 200 feet. Both individuals responded and stopped the aircraft, immediately re-chocking the aircraft while notifying maintenance control, who in turn, dispatched personnel to the scene. While awaiting maintenance arrival, Airmen Green and Helton continued patrolling the area to verify that all aircraft were chocked. Investigation later revealed that the wrong type of chocks were used to chock a number of aircraft that could have started rolling at any given time due to the high winds on that date. The quick actions by Airmen Green and Helton and immediate notifications to maintenance control prevented possible damage to a number of aircraft valued at over \$2.6 million each within the restricted area.

## CREW CHIEF SAFETY AWARD OF DISTINCTION

*Senior Airman Guy W. Arndt, Jr., and Airman 1st Class William D. Timmons  
393rd Bomb Squadron, 509th Bomb Wing  
Whiteman AFB, Mo.*



Just after engine shutdown during recovery operations on a B-2A aircraft, Airman Timmons was retrieving equipment from the crew entry way when he noticed a bright blue flash from within the aircraft's crew compartment. He immediately proceeded up the ladder into the crew compartment. Airman Arndt was positioning an aircraft tow vehicle and simultaneously noticed the blue flash coming from inside the cockpit so he proceeded into the aircraft. Upon entry, the two airmen noticed sparks and smoke billowing from a wire bundle located above the



sustenance container. They notified the aircrew to immediately evacuate the aircraft while they remained on board to find the cause. Realizing it was an electrical problem, they battled through smoke to turn off the aircraft's power systems and pull all related circuit breakers. Despite these actions, the wire bundle once again re-ignited. With only seconds to react, Airman Arndt exited the aircraft and positioned the fire bottle while Airman Timmons grabbed the fire hose and returned to the crew compartment and extinguished the fire. The cause of the fire was later determined to be a chaffed wire bundle positioned only inches from the aircraft's oxygen generation and distribution system (OGADS). Ignition of the OGADS would have created a catastrophic explosion and probable loss of the aircraft. A one-time inspection was initiated on the entire B-2 fleet and the wire bundle was modified to eliminate the possibility of recurrence. The actions of Airmen Arndt and Timmons saved the lives of two aircrew members and a \$2.2 billion weapons platform.

## UNIT SAFETY AWARD OF DISTINCTION

*33rd Combat Communications Squadron  
3rd Combat Communications Group  
Tinker AFB, Okla.*



The 33 CCS mobilized and executed a local training exercise in February, which deployed 40 vehicles, 128 personnel and over \$48 million worth of equipment over 180 miles to and from Fort Sill, Okla. Careful planning resulted in safe convoys sustaining no injuries or loss of equipment. Once on site, the equipment was set up and operated for the duration of the 72-hour sustainment period without significant injury or incident. During the mobilization phase, squadron personnel worked day and night for 55 hours; despite fatigue and an environment full of heavy objects, large vehicles and active forklifts, its airmen remained alert and safety conscious. On the morning of the scheduled departure to return to home station, squadron personnel awoke to find a half-inch of ice covering the vehicles and roadways. Over an hour was spent preparing the convoys for the trip back to minimize the effects of the inclement weather. Operational risk management processes were used to evaluate the road conditions and the decision to return was delayed until the roads were better suited for travel. Prior to making the decision to mobilize, squadron leadership checked with both military and civilian authorities to make sure the roads were safe for travel. All four convoys returned that evening with no damage, loss of equipment or personal injury.

## WEAPONS SAFETY AWARD OF DISTINCTION

*Tech. Sgts. Gary H. White and Anthony Koberstein  
33rd Maintenance Squadron, 33rd Fighter Wing  
Eglin AFB, Fla.*



Tech. Sgts. White and Koberstein's quick and unfaltering reaction to prevent an arcing electric conduit from developing into a more dangerous situation was exemplary. Sgts. White and Koberstein were restoring live AIM-9 missiles after completing scheduled periodic inspections. Upon completion of the storage operation, they gathered their crew book and technical orders and proceeded to exit the building. As Sgt. White turned the light switch off, there was a severe electrical arc from the conduit, immediately followed by sparks and flames. Sgt. White ran to



the opposite end of the building where the circuit breaker was located. He tripped the circuit breaker while Sgt. Koberstein manned a fire extinguisher at the site of the arcing. Once the circuit breaker was tripped, all sparks, flames and arcing ceased. Sgt. White immediately notified Munitions Control to initiate Emergency Action Checklist procedures. Sgt. White and Koberstein's quick thinking, knowledge of munitions mishap procedures and deft actions prevented further damage to the building and averted the potential loss of human life and the wing's live missile stockpile.

## FLIGHT LINE SAFETY AWARD OF DISTINCTION

*Airman 1st Class Raymond J. Impastato  
509th Maintenance Squadron, 509th Bomb Wing  
Whiteman AFB, Mo.*



Airmen Impastato distinguished himself by fighting and extinguishing a fire involving a portable ground heater inside the aerospace ground equipment maintenance facility. While a co-worker was troubleshooting the heating unit, Airman Impastato noticed uncontrolled burning inside the combustion chamber. He informed the technician about the fire who immediately began emergency shutdown procedures. At that instant, the overhead exhaust gas vent hose attached to the heating unit burst into flames. The fire engulfed the ductwork and began working back down towards the heating unit. Reacting quickly and calmly to the situation, Airman Impastato began combating the fire with a portable fire extinguisher. While performing this function, he instructed nearby personnel to activate the fire alarm and call the Fire Department. All personnel were safely evacuated while Airman

Impastato continued fighting. He successfully extinguished the fire prior to the Fire Department arriving on scene. Due to his quick and decisive actions, Airman Impastato saved over 50 personnel from serious risk of injury or possible loss of life. In addition, he prevented the loss of a \$60 million facility while minimizing total equipment damage to less than \$200.

# Staying on Top Where

By Richard J. Rodman  
5th Bomb Wing Safety Office  
Minot AFB, N.D.

**N**ow that summer is here, it is time to dust off the gear, rinse off the boat, and head for your favorite fishing spot. You do not even have to tell the kids twice; away you go. **STOP!!** Have you checked your safety gear yet this year? Probably not, if you are like most of us. Safety equipment is the most important thing you need to verify that you have on your boat each year. It is called safety gear because your life, or that of a loved one, may depend on having it on board and in proper working condition. At the top of every U.S. Coast Guard (USCG) minimum safety equipment list are personal flotation devices (PFDs). Basically, you need to have one approved Type I, II, III, or V PFD for every person on board or on the water ski behind you. If your boat is over 16 feet, you must also have a Type IV throw cushion or life ring.

I know the dealer sold you a USCG package when you bought the boat 3 or 4 years ago. It is probably still under the V-Berth seat where you put them. Well, that was then, this is now! Has your family grown any since then, in number and/or size? Is your son taking along his best friend? Did you lose a fender last year, causing someone to use a life jacket between the boats instead? When it ripped, did you throw it away, making you short one? Do you have children under 6 who are required to wear a life jacket at all times in a boat, unless in a cabin of one over 26 feet? Does your family dog or cat come along with you? I think you can see where I am heading. The only constant we have in life is that things change.

To increase your awareness I would like to point out a couple of common misconceptions. The first one is that the "USCG-Approved" label on your PFD guarantees that it will save

your life. Not true. The stamp only indicates that it has been constructed and tested to minimum standards of construction and flotation. The second misconception is that less expensive Type II or III vests meet the requirement and are adequate. After all everyone in your family can swim. Wrong! Most people are not strong enough swimmers to survive an extended period of time in the water. What if you are injured? You need a PFD that will keep you afloat even when exhausted or incapacitated. Did you know that Type II, near-shore devices, are only considered effective for keeping your head above water in calm, protected waters? Type III flotation aid devices are designed to help you float during wet boating activities like water-skiing or kayaking. In those cases, rescue is expected to be immediately available. In case you have not heard yet, Type IV throwable devices are no longer allowed as a substitute for life jackets.

When evaluating your PFD requirements, I recommend you first look at your boating habits. If you go offshore, buy Type I offshore devices to meet your "minimum equipment requirements." They are the *only* life jackets recommended for rough water, and are capable of turning an unconscious person face up. Always have enough PFDs on board to provide protection for the maximum number of persons allowed on the manufacturer's plate. Please do not store life jackets under the V-Berth where they may not be accessible during an emergency. The best place for them is in the cockpit under a seat cushion where they can float free if the boat sinks. Also, carry a variety of sizes based on your family configuration, even if it means carrying a couple of extras.

# n Your Boat Does Not

This is what I call the emergency set of PFDs.

Now that you have covered your “minimum requirements,” let us talk about your “working set” of PFDs. The number of boaters who die in boating accidents due to lack of a life jacket is still four out of five.

There is only one way to change this statistic – wear your PFD more often. Are you one of those people who thinks PFDs are too bulky or ugly to be worn? Think again! Take a look at the life jacket display at your favorite marine store or sporting goods store. Style and function are in. If you have to put on a jacket because of weather conditions,

put on a “float coat.” If you are racing and need to move around the fore deck quickly, try some of the new inflatable PFDs. If you are working or fishing, buy some of the very functional work or fishing vests produced by Stearns, Mustang, or other safety-conscious manufacturers. Have enough throw cushions (Type IV) to go around the sunbathing crowd. If you are into water-skiing, carry a variety of sizes and styles of Type III floatation aids. A good rule of thumb is to have enough stylish, functional, life vests on board for the maximum number of persons allowed.

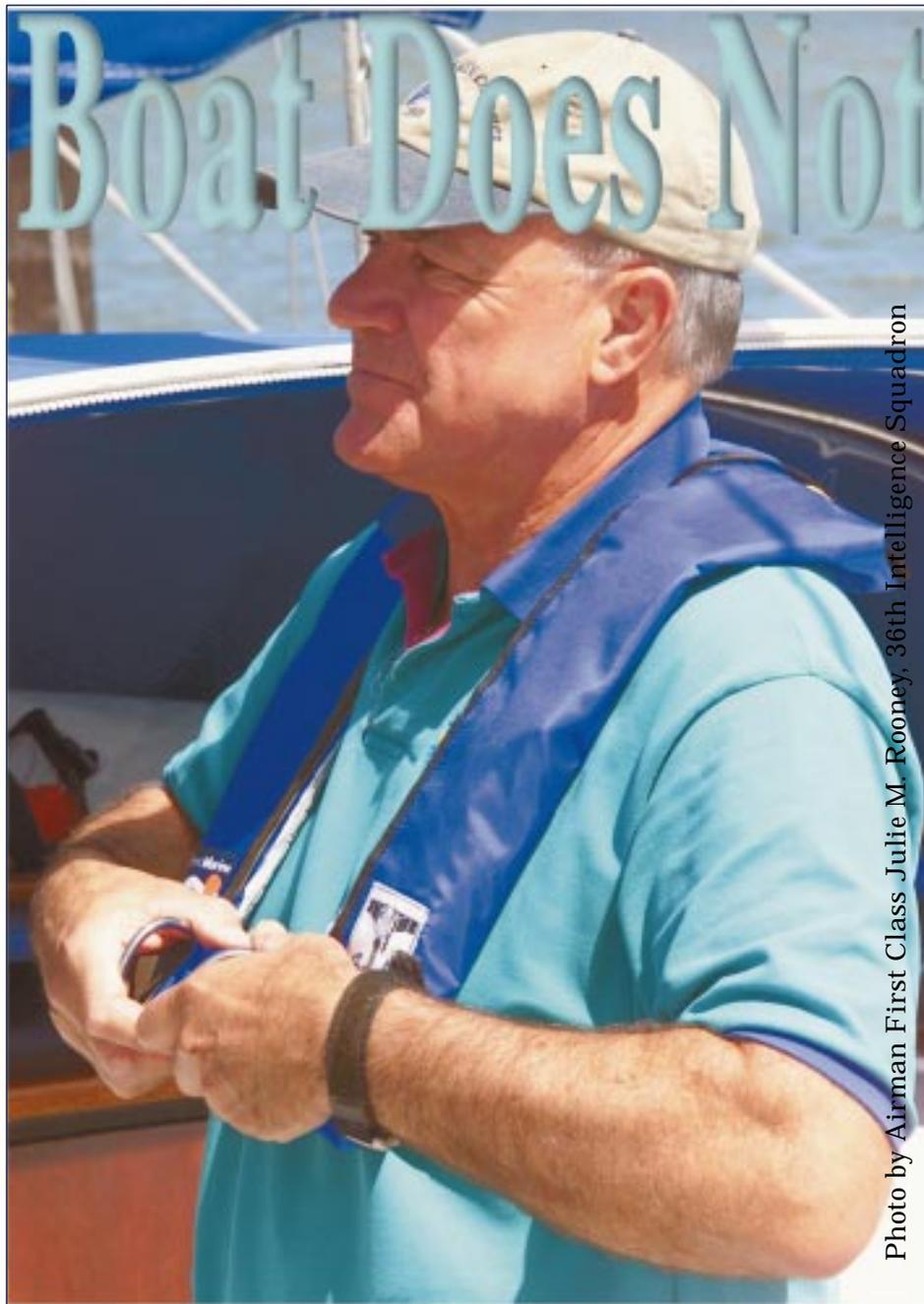


Photo by Airman First Class Julie M. Rooney, 36th Intelligence Squadron

Get your children in the habit of wearing comfortable life vests all of the time, and encourage others to wear them when they are at risk. Should you encounter severe weather conditions, or are disabled and awaiting assistance, we highly recommend you break out and don your emergency set of PFDs until conditions improve, or help arrives. A second set of PFDs is well worth the cost to protect your loved ones, and provides a valuable, extra level of security in case of an accident. Please make all of your boating adventures safe ones. ■

# CAUTION:

*8 AF/SE, Barksdale AFB, La.*

“Do Not Use Lawn Mower as Hedge Trimmer”

“Do Not Insert Utensil in Blender While Blender is Operating”

“Do Not Use Hair Dryer in Bathtub or Sink Filled with Water”

“Do Not Drop, Roll, Drag, Tumble or Throw Live Munitions”

These CAUTIONS seem pretty ridiculous, don't they? I used to think these statements were made up until I reflected on the last caution. Our younger generation of airmen and officers probably look at that same caution and think, “Who in their right frame of mind would attempt such a thing?” During my first years in the munitions field, I have seen more than enough live and practice bombs dropped, rolled, tumbled and **thrown** ... than one would care to remember. Since working in the Safety profession, I have realized that most cautions are written because at one point or another, someone tested a theory and failed miserably.

**Point #1:** At one of my bases, it was not uncommon to see a BDU-33 practice bomb go whizzing by in the air! Either right after a massive build-up for stockpile or from the load trailer on the flight line. If you were working Maintenance or Line Delivery, you got used to having your head on a swivel, quick! My first experience occurred on the flight line. Being new to the Air Force and on an actual combat base, I was caught up in the surrounding sights and sounds. Munitions sortie loads were part of my training so I was often tasked with carrying the BDU-33s from the trailer to the jets and so forth. During one load, my trainer was trying to loosen the next stack of bombs so I turned my attention to a jet taking off with full afterburner. What a sight! However, to this day, the sight of that jet with twin 10-foot blue flames blazing behind it cannot come close to what my peripheral vision caught! The sudden movement and hint of blue caused me to turn and focus on a BDU-33 arc through

the air straight towards me. Instinctively, I braced to catch it and the full 25 lbs. caught me square in the chest! I only weighed 180 lbs. back then, so you can imagine the “lack of air, replaced with pain” feeling I had. “That’ll get your attention,” was what my trainer snorted and he was right! At that time, I do not believe the caution existed that eventually prevented such feats. Apparently, someone was not able to catch one of these BDU-33s and verbal communication simply was not enough to change this practice.

**Point #2:** I read an earlier safety article describing how someone was injured from a dropped BDU-33. It seems another individual was carrying a practice bomb in each hand, instead of one cradled in his arms as required. Which old timer out there has not carried BDU-33s in each hand? Thank goodness for change! Again, I have also witnessed people lose their grips with these bombs and wrestle with them all the way to the ground. No detonations occurred, but perhaps that would have changed some minds back then. Remember the MK-106s — those orange lightweight practice bombs? These beauties were carried like chicken wings during happy hour ... all you could handle. No “practiced” limit, like with the BDU-33s. If you could handle two in each hand, you carried four. If you could carry five cradled in your arms, you carried five. However, once one of these bombs decided to come loose, there was no chance of catching it. Even though they were lighter than BDU-33s, they carry the same explosive cartridge and destructive capability.

**Point #3:** One of our old-timers (a Vietnam vet) was crew chief during a mass build-up of MK-82s. Within the MK-82 nose fuze well is a metal clip that the local Maintenance Operating Instruction (MOI) called for removal. Our crew chief ignored this WARNING and proceeded to direct us to install fuzes according to the sortie frag requirements.



Well, as some unforeseen luck would have it, the frag changed. It called for a totally different nose fuze. Who would have thought a frag would ever change? So as we were going back up the line to remove the other fuzes ... it seemed that they would not come out! Our crew chief came up to see what was happening, as we were standing around looking perplexed. After explaining that the fuzes were not coming out, he grabbed the first fuze and bomb, started lifting and dropping the front of the bomb as a way to jar the fuze loose. Well, he jarred something all right ... he jarred the fuze to arm! That was the first time I had ever seen him run! The reason the fuzes would not budge was because of the metal clip. The clip acted as a retainer to hold the fuze. From the crew chief's experience in Vietnam, he had never removed these clips, but that made sense because those bombs were not expected to come back!

**Point #4:** Whenever a shipment of bombs arrived by truck, some were contained in trailers. In order to remove MK-82 pallets, a pallet jack was used to maneuver the pallets to the edge of the trailer where a forklift would then remove the bombs. This was standard

practice enforced by a local MOI. That is until someone theorized it would be quicker if he attached a tie-down strap from the bomb pallet to the forklift, and then backed the forklift up, *dragging* the bombs to the edge of the trailer. Sounds risky, but it could work. And it did initially, for the first couple of attempts. The last pallet came out a bit too far and teetered on the edge of the trailer before crashing to the pad. When that happened, bombs were dropping and rolling everywhere, and we were running again! I guess they forgot that the forklift only came with standard brakes.

I have highlighted these CAUTIONS to show that they do serve a purpose other than to raise an eyebrow in question. With operational risk management, high operations tempo and the manning issues we face in today's Air Force, it makes sense that we are constantly looking for ways to perform tasks better, quicker and safer with the same resources. I just want to emphasize that before anyone attempts one of these "new and improved" theories, please first check to see if it conflicts with a known WARNING or CAUTION. If it does, chances are that someone before you already tested that theory and it did not go well! ■



Photo by Airman First Class David W. Miller, 1st Communications Squadron

*By Ms. Grace Pierson  
Western Air Defense Sector Safety Manager  
McChord AFB, Wash.*

# Just t

**W**e have to face the facts: Driving or riding in an automobile is a risky proposition. Since it has become a necessity in our society, it might be helpful to examine whether it is any more risky now than it used to be? The answer to that depends on whether you are talking about the mechanics of driving like the vehicle and roadways or the human element (i.e., the driver). As I see it, the risks associated with the first have decreased, while the risks associated with the latter have increased. And technology has played a role in both of these trends.

Technology has been used to engineer out much of the risk that is beyond the driver's control. For example, road and vehicle designs have improved and reduced the likelihood of collisions, as well as the chance for injury and the severity of injury. This has made the overall mechanics of driving safer. But driving is still risky so it must be the human element that is contributing to the majority of that risk. How is that happening? Well, America's roadways are busier than ever before and drivers deal not only with more traffic, but more distractions. Technological advances in roadside advertising, cell phones and other devices have made it easier to do other things while driving. The demands on drivers' attentions are at an all time high. It is possible, however, for each driver to control, to some extent, the degree of distraction. We also control the decisions we make on the road, which either reduce or

increase the overall risk we are exposed to behind the wheel of a car. One of those decisions is wearing a seat belt.

It has been proven that wearing a seat belt reduces the possibility of injury or death. The choice to wear or not to wear a seat belt is a personal decision. That decision is a statement of how we view the issue of seat belts and, ultimately, a statement of how we see ourselves. Everyone has a reason why they do or do not wear seat belts, even if they have not consciously thought about it. It has definitely been a controversial issue despite the overwhelming facts that support seat belt use. There is a major payoff in reduced driving risks for such a simple act, yet some are so adamant about not doing it. This intrigued me so I decided to examine some of the reasons people give for *not* buckling up. What I found behind those reasons had more to do with an attitude than actual facts. To be honest, I could relate to the thinking behind each one of the reasons I explored. Maybe you can identify as well. The hard part is ignoring the mountain of evidence and *facts* that stand in opposition to the thinking these attitudes promote.

**LOOKING GOOD IS EVERYTHING:**

Don't you just hate it when you put on your seat belt and it wrinkles your clothes? I certainly do. By the time I get to work, I have a diagonal wrinkle on my clothes. By messing up our clothes, seat belts tarnish the image we are trying to project. You just cannot look neat with wrinkled clothes. Shoulder harnesses also

# he Facts

do a number on that macho look. They can make you look “weak.” To the people who see you from the front of your car, the chest strap helps to make you look like one of those prohibited signs that implies, “No Cool Dudes.” But do you think looking neat or macho will really be at the top of the list when paramedics and the police are trying to pry your crumbled body out of a mangled wreck?

**SEAT BELTS ARE SO RESTRICTIVE:**

If you are the driver, you cannot even reach over to the glove box to retrieve something without the seat belt “catching” and pulling you back. That’s not very convenient and everyone knows you can still control the car while performing that maneuver anyway. Well, coffins are a lot more restrictive than a 2- to 3-inch belt.

**I CAN GET AWAY WITH IT:**

In many states, wearing seat belts is the law for all vehicle occupants. Not wearing one brings out our rebellious natures and, besides, it is such a minor law, what harm can there be in breaking it? In an older vehicle, you can ride around to your heart’s delight by just attaching that restrictive shoulder harness. The highway patrol and other law enforcement officers will never know your lap belt is not hooked up. In newer vehicles you can do the same with the passive restraint system. The only way they will know for sure that you were not wearing a seat belt is when they are covering your broken, bloody body with the green tarp they carry in the trunks of their patrol vehicles.

**TIME IS MONEY:** Putting on a seat belt is too time consuming. When we get into a car, we want to get the show on the road. There are a lot of things to do as we put the car in gear: turning on the tunes, adjusting the mirrors and windows, lighting a cigarette

or dialing that cell phone. Who has time to mess around with a seat belt? Adding that to our lists could cost us a green light at the first traffic signal. Well, here’s a news flash: you have a 90% chance that light is going to be red anyway. People who do not take the time to put on a seat belt are really saving other people some time. You see, at the accident scene that might one day happen, the officer in charge will tell the ambulance driver not to hurry.

**I’M A GOOD DRIVER:** Good drivers should not have to wear seat belts because they are rarely involved in accidents. Well,



*Webster’s* defines an accident as “an unexpected happening causing loss or injury which is not due to any fault or misconduct on the part of the person injured ...” There-

fore, it stands to reason that being a good or bad driver is not necessarily a relevant factor. Expecting the unexpected is. That means every time we climb into our vehicle we should anticipate and be prepared that we might not make it to our destination in the same condition we are starting in. A seat belt will help improve our odds whether we are a good driver or not.

**IT’S SAFER TO BE THROWN CLEAR:**

Some experts and proponents of not wearing seat belts say the major reason to remain unbuckled is to ensure that one is thrown clear of an accident should one occur. While that might sound like the way to go on the surface, take a couple of seconds to think about it. Unless you are in a convertible, there are a few things that you go through to be thrown clear ... like the windshield for example! This is where a review of some of the basic laws of physics would be helpful.

There are two collisions that occur in every accident: the “vehicle” collision and the “human” collision.

If you are involved in a head-on collision and your vehicle comes to a dead stop, you will remain at the same speed your vehicle was traveling until slowed by external forces. Those external forces include, but are not limited to: the steering wheel, the dashboard, the windshield or the pavement. Here is a breakdown of how this works in the first second after a car going 55 miles per hour hits a solid object:

**0.10 second:** The front bumper and grill collapse.

**0.20 second:** The hood starts crumbling, rising and striking the windshield as the spinning rear wheels lift from the ground. Simultaneously, fenders begin wrapping themselves around the solid object.

Although the car’s frame has been halted, the rest of the car is still going 55 miles per hour. Instinct causes the driver to stiffen his legs against the crash and they snap at the knee joint.

**0.30 second:** The steering wheel starts to disintegrate and the steering column aims for the driver’s chest.

**0.40 second:** Two feet of the cab’s front end are wrecked, while the rear end is still moving at 35 miles per hour. The driver’s body is still traveling at 55 miles per hour.

**0.50 second:** The driver is impaled on the steering column and blood rushes into his lungs.

**0.60 second:** The impact has built up to the point that the driver’s feet are ripped out of tightly laced shoes. The brake pedal breaks off. The car frame buckles in the middle. The driver’s head smashes into the windshield as the rear wheels, still spinning, fall back to earth.

**0.70 second:** Hinges rip loose, doors fly

open and the seats break free, striking the driver from behind. The seat striking the driver does not bother him because he is already dead.

**The last three-tenths of the second mean nothing to the driver.**

If your vehicle leaves the road, begins to roll and, by some miracle, you are thrown out of an open door, the law of physics still apply. You will continue to go in the same direction as your vehicle until the point at which you are usually reunited with it. It is

at that instant that you will become intimately familiar with what a 4,000-pound car can do to 170 pounds of flesh and bone.

**IT’S MY RIGHT! AH HA!** The real reason not to wear seat belts is honor, courage and the American way. It is our inalienable right to do stupid things and risk our lives. If we want to jump off the roof and land on a picket fence, it is our right to do so. If we want to give an obscene gesture to a car full of people stopped at a traffic light, it is our right to do so. If we want to risk our own

life and those of the ones we love by not buckling up, it is our right to do so. When I really think about it, it does take real courage and guts to get behind the wheel without fastening your seat belt. As you drive off, you are literally staring serious injury and even death in the face without an ounce of protection. Yes, that one does take real courage.

We control very few things in this life. I trust I have clarified the flawed thinking behind some of the many reasons we give for not taking control of our seat belts. It is my hope that each of you will pause to reflect on which one of these reasons might stand between you and “just the facts.” ■

It has been proven that wearing a seat belt reduces the possibility of injury or death. The choice to wear or not to wear a seat belt is a personal decision.

# Ground Safety Stats

## ACC Losses for FY 01

(1 Oct 00 - 30 Apr 01)

*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 Mishap/Dollar Losses

	<b>Class A</b>	<b>Class B</b>	<b>Class C</b>
<b>8 AF</b>	0	0	74 / 535,383
<b>9 AF</b>	3 / 403,412	0	68 / 302,090
<b>12 AF</b>	2 / 250,000	1 / 115,000	116 / 527,378
<b>DRU</b>	2 / 1,000,000	0	26 / 134,196
<b>FY 01 Totals</b>	<b>7 / 1,653,412</b>	<b>1 / 115,000</b>	<b>284 / 1,479,047</b>
<b>FY 00 Totals (same period)</b>	<b>8 / 2,055,340</b>	<b>2 / 414,660</b>	<b>270 / 1,088,868</b>

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

# Ten Commandments for Highway Safety

I  
THOU SHALT NOT  
MURDER BY MOTOR

II  
THOU SHALT NOT MIX  
ALCOHOL WITH GASOLINE

III  
THOU SHALT NOT  
EXCEED THE SPEED LIMIT

IV  
THOU SHALT NOT  
FOLLOW TOO CLOSELY

V  
THOU SHALT NOT WEAVE  
FROM LANE TO LANE

VI  
THOU SHALT NOT  
FAIL TO SIGNAL

VII  
THOU SHALT NOT  
LOSE THY TEMPER

VII  
THOU SHALT BE COURTEOUS  
TO THY FELLOW MOTORISTS

IX  
THOU SHALT FAVOR THY  
PEDESTRIAN & BICYCLIST

X  
HONOR TRAFFIC LAWS THAT  
THY DAYS MAY BE LONG

*Author Unknown*

- \* **BOATERS:** Before getting underway, make sure you have all required safety equipment and file a float plan with a member of your family or friend.
- \* **SWIMMERS:** Never swim alone or overestimate your swimming skills – each year, most of the 6,000 people who drown in the United States drown within 10 to 30 feet of safety.
- \* **DIVERS:** Never dive into lakes and rivers – every year, more than 8,000 people suffer paralyzing spinal cord injuries and another 5,000 die before they reach the hospital.



- \* **CHILDREN:** Always watch small children – each year about 200 children drown and several thousand others are treated in hospitals for submersion accidents.
- \* **ALCOHOL:** Research shows that 4 hours of boating, exposure to noise, vibration, sun, glare and wind produces fatigue that makes you act as if you were legally intoxicated – adding alcohol to this mix can be deadly.
- \* **HYPOTHERMIA:** To retain heat during accidental submersion, do not discard any clothing, draw your limbs into your body and keep armpits and groin areas protected from unnecessary exposure.

*These and other water safety tips can be found on the U.S. Army Corps of Engineers website (<http://watersafety.usace.army.mil>)*