

THE COMBAT ENGINE

April 1999



The Combat Edge

Air Combat Command's
Mishap Prevention
Magazine

Gen Richard E. Hawley
Commander

Col "Turk" Marshall
Chief of Safety

Ron Smith
Executive Director

Lt Col Adrian Robbe
Editor

Barbara Taylor
Associate Editor

SSgt Dave White
Design & Layout

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CONTRIBUTIONS: Articles, comments, and criticisms are welcome. Write:

Editor, *The Combat Edge*
HQ ACC/SEP
175 Sweeney Blvd
Langley AFB VA 23665-2700


Telephone: (757) 764-8842
DSN 574-8842

FAX: (757) 764-8975

e-mail: adrian.robbe@langley.af.mil

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Accent on Safety

It's springtime! The grass is green and growing like wildfire, the blossoms are bustin' out all over, and, everywhere you look, there are idiots loose across the countryside. Yeah, that's right — college kids on their annual bacchanalia. At beaches and poolside throughout the southern states, you can see them cavorting and carrying on. Mothers grab up their small children and admonish the teenagers, "Don't look, Junior." Fathers try to nonchalantly ignore the revelry, but secretly cast admiring glances as they wistfully picture themselves once again a party to the frolic. The elderly sit bemused, slowly shaking their heads from side to side — half with clucks of disapproval for the impertinence of youth and half with the wonder of whither comes all that energy. Yeah, it's a piece of pure Americana that's more than just tradition.

But what does Spring Break have to do with a safety magazine? Simple. Risk Management, or more so, the all too frequent lack of risk management is a lesson for us all. Here are some samples:

- A half dozen fearless party-goers will think it perfectly ordinary to throw one change of clothes and six cases of beer in a van and head off on a non-stop thousand mile drive — with luck as the only form of risk control, too often the trip will end halfway.
- For those who survive the migration, perhaps the next greatest peril comes on a hotel balcony — each year, scores topple from these perches to crack their alcohol-fogged skulls and bones on the unyielding pavement below.
- Of the others, the vast majority will overindulge, overexpose, and/or overexert to the point of assuming a reddish glow and a sensitivity to touch that elicits yowls of pain.
- Finally, when exhausted of all exuberance, time, and money, they'll once again pile into their cars and join a stream of similarly undaunted revelers in a race back whence they came — some will even make it.

Sure, it's all in fun; and I don't want to sound like the premier party-pooper of all time. However, the toll exacted by this season of excess would indicate that too few wait to hear the answer to **ORM's** first question, "**What can go wrong?**" and that an even smaller percent seem willing to accept the follow-on question, "**How bad can it be?**" It's a shame, because if they did, then they might move on to the next question, "**What can I do to make it not so bad?**" Three simple questions... they could be lifesavers.

Y'all take care, and use that ORM stuff; it's good for you!

*Colonel Turk Marshall
Chief of Safety*

A photograph of a woman with dark, curly hair, wearing a blue flight suit, driving a car. She is looking forward with a focused expression. Above her head is a large, three-dimensional, dark blue graphic of the letters 'DZ'. The background outside the car is blurred, suggesting motion. The car's interior, including the steering wheel and side mirror, is visible.

*TSgt Grace Freeman-Lang poses to illustrate the onset of "DZ"
-Photo by SSgt David White*

*TSgt Kevin R. McDowell
51 FW/SEG
Osan AB, Korea*

Are you Guilty?

We all are guilty of this offense at some point in our lives, and it occurs more often during holiday seasons. Military personnel are not the only victims of this error — it affects all sectors of the population. In fact, this particular mistake results in the loss of countless lives each and every

year. What could this problem be? Simply said, it is an error in "judgment."

I know that this is not a new revelation. It is something all drivers are doubtlessly guilty of to some extent. And believe it or not, I am not talking about alcohol abuse or failing to use seat belts.

This Drive is Going to Be Easy!

In November 1992 (this was, of course, before I became a safety professional), I was in the midst of moving my family to San Antonio, Texas, before I was to go PCS to a remote assignment. It was Friday evening, after a full shift at work at Tyndall

AFB. I went home to finish packing the car with my family (two boys — ages 4 and 1 — and my wife). After finishing up all the last minute preparations, we finally got on the road about 7:00 in the evening.

The trip to San Antonio was about 750 miles. I had to be back at work by 7:00 a.m. the following Monday morning. Since I love driving, I felt I could drive the entire round trip — 1,500 miles — with no problem. Well, a few miles down the road, I realized I was getting a little drowsy. **D2 was starting to set in.** I began to feel my eyes starting to droop as I drove. Realizing this situation, I came up with the bright idea to purchase a bottle of caffeine pills at the next gas station. I thought that the caffeine would keep me awake, and that it did — but only for a short period of time as you will see.

I drank a lot of coffee and popped a pill every time I felt myself starting to feel tired. And the stuff really worked... or so I thought. I found myself flying through Florida, Alabama, Louisiana, and even got to Texas without hardly a wink. My eyes were wired wide open. In fact, I was a little proud of myself. I thought I finally had the long distance travel thing figured out. I thought to myself, "This drive is going to be easy!"

Several hours later at about 4:00 in the morning (somewhere just short of Houston, Texas), I heard my wife screaming as I tried to focus my still wide open eyes. I had driven off the highway, and we were heading westbound across the median toward the shoulder of the eastbound lane of I-10. Being the "skilled" driver I was, I managed to drive back across the median and onto my side of the highway. Hey... no foul, no harm — right? In my view, we were very close to our destination; we only had 200 miles to go! In addition to that, why would I want to spend money on a

motel room at that time of the morning? After all, I was wide-awake now!

So I continued to drive, convincing my wife I was now totally awake. As we drove a little further down the road, my wife and kids drifted back off to sleep. I remember thinking to myself that I really should pull over, but I decided to continue; I was really okay. (Really, I was... or was I?) Again, not much farther down the road, I felt the car leave the solid road and roll onto the shoulder. The jolt woke me back up. **D2 was about to take its toll.** I decided then and there that I needed to make a stop; the next exit was as far as I could go.

I took the next exit and found a motel alongside the highway. It was about 5:00 a.m. by that time. When we checked into the motel, I laid down and realized every nerve in my body was tingling. I literally felt like I was shorting out. Every time I tried to close my eyes, they snapped back open. I couldn't force them closed. I laid like that for at least 2 hours before I dozed off into what I remember as the most uncomfortable sleep of my life. The next morning, we continued our trip to San Antonio safely. After arriving at our destination, I immediately hit the rack, got at least 12 hours of shut-eye-time, and returned to Tyndall AFB — uneventfully. The trip back was planned with "multiple rest stops."

Sleep Deprivation and Vehicle Accidents

Since that excursion, I have conducted some research on sleep deprivation and vehicle accidents. Interestingly enough, there is relatively little study conducted on this phenomenon; but what I did find out amazed me. **D2 is an unforgiving foe.** For example, a Senate Appropriations Committee report noted that "about 56,000 crashes annually are caused by driver drowsiness or

fatigue. Annual averages of roughly 40,000 nonfatal injuries and 1,550 fatalities result from these crashes. Furthermore, it is widely recognized that these statistics actually underestimate the extent of these types of crashes. These statistics also do not deal with crashes caused by driver inattention, which is believed to be even a larger problem."

Sleepiness is a major cause of auto crashes because it creates a significant reduction in performance and eventually leads to the inability to resist falling asleep at the wheel. Critical aspects of driving impairment associated with sleepiness are reaction time, vigilance, attention, and information processing.

What causes sleepy driving? First of all, let us examine what sleep is. We need to understand that sleep is a neurobiologic need. As the name indicates, our mental and physical functions require time to rejuvenate. While our bodies can become partially recharged by simply resting, our mental processing and central nervous system can only recharge when we are asleep. Everybody needs a set number hours of sleep per night to fully recharge their battery. **Don't let yourself fall into the cradle of D2.** Sure, we can cheat our system every now and then and short change ourselves an hour of sleep occasionally. However, some people continually shortchange themselves of the sleep they require and do not allow their bodies to become fully recharged. Among these types of people are usually the "party animals" or the "intense hobbyists." The effect of sleep loss is cumulative and can lead to sleep deprivation. The only way to effectively combat sleep deprivation is to get sufficient sleep.

Some people also fail to recognize their sleep/wake cycle, otherwise known as their "circadian rhythm."

The circadian rhythm is an internal clock, which completes a cycle about every 24 hours. It is an involuntary rhythm and cannot be controlled by desire or will. In fact, nearly everybody experiences drowsiness during the period from 11:00 pm to 6:00 am. This is because it is the period when the body produces melatonin, a natural hormone that induces fatigue.

Sleep deprivation is a major cause of drowsy driving. People who are the most at risk for sleep deprivation are those whose job causes them to vary their duty hours. Examples are shift workers, crew members, people who travel through different time zones, those whose sleep/wake cycle is upset by family needs/commitments, work commitments, travel plans, and generally those who are continually deprived of 1-2 hours of sleep per night.

Safety Lessons Learned

How can you prevent from becoming these statistics? First and foremost, plan your travels for a time when you are well rested. **Taking off on a trip right after you finish your shift is a sure bet you will have to struggle with D2.** The average person needs between 7-9 hours sleep a night. Remember that sleep deprivation is cumulative. Ask yourself if you are really starting the trip well rested? Look at the times when you normally feel sleepy, plan on not driving during these periods. If you are a day shift worker, plan on driving during the day with a break during the mid-afternoon to account for that period of time when you feel sleepy. We are well aware of the risks of alcohol, but do not forget that many prescriptions (as well as over-the-counter medications) may also cause various levels of drowsiness. This may also be enhanced by the fact you are sitting still. Don't forget that synergistic effects of some

*National Highway Traffic Safety Administration (NHTSA)
U.S. Department of Transportation
Washington DC*

HOW TO PREVENT DROWSY DRIVING

- Begin your journey with a good night's sleep.
- Avoid driving during late night and early morning hours, which are the body's natural sleep times.
- Set realistic travel goals about the time it will take to reach your destination.
- Eat healthy meals. Avoid foods high in fat and sugar, which can contribute to fatigue.
- Avoid using alcohol or drugs.
- Share the driving. Switch drivers about every 2 hours, even if you don't feel tired.
- Take regular breaks. Stop every 2 hours to stretch.
- Drink water, juice, or a soft drink low in sugar and caffeine. Sugar and caffeine promote short-term alertness but may increase drowsiness over longer periods of time.
- Keep the inside of your vehicle at a cool temperature.
- Listen to radio talk shows rather than music. The discussion format will help keep you alert.

WARNING SIGNS OF DROWSY DRIVING

- Inability to recall the last few miles traveled.
- Having disconnected or wandering thoughts.
- Having difficulty focusing or keeping your eyes open.
- Feeling as though your head is very heavy.
- Drifting from the lane in which you are driving.
- Yawning repeatedly.
- Tailgating other vehicles.
- Missing traffic signs.

WHAT TO DO IF YOU BECOME TIRED WHILE DRIVING

- Find a safe place to stop the car.
- Take a short nap (20 minutes).
- Drink coffee (or something else with caffeine) to promote short-term alertness until you can find a safe place to rest.

foods and/or medications may also cause drowsiness.

If traveling with two or more drivers, always rest in the back seat. The person sitting “shotgun” in the front passenger seat is subconsciously hyper-vigilant, thus also experiencing mental fatigue. Plan your rest stops before the trip. Forget about maintaining the 700 miles in 10 hours at 70 mph. Ten-to-fifteen minute rest stops every hour will reduce the fatigue and allow you a chance to take quick catnaps. If you feel yourself starting to get drowsy, do not wait for the next rest stop; pull off the road IMMEDIATELY, as soon as it is safe to do so. You have a legitimate emergency. Get out of the car, and stretch your legs for a few minutes. If you do not feel it is safe to stop for long where you are, wait until you feel awake; then get back into the car and drive to a safer place or the closest rest stop. Shut off the engine, and take a nap. Even a 20-30 minute nap under these circum-

stances will do wonders for you. (Note: The relative safety of stopping a vehicle during the day in lieu of at night is another good reason to consider driving during daylight hours. Who knows how many accidents were caused by a sleepy driver who was afraid to stop along the highway at night?)

And a bit of advice from my personal experience, avoid the excessive use of stimulants such as caffeine. A cup of coffee may provide you with an added sense of alertness temporarily, but the use of caffeine masks the sleepiness you are actually experiencing. The NHTSA states that sugar and caffeine promote short-term alertness; and over longer periods of time, they may actually increase drowsiness. In order to help prevent drowsy driving, drink plenty of water, juice, or a soft drink low in sugar and caffeine. A good guideline to follow is this — if you feel the need to take caffeine or another type of stimulant to stay alert while driv-

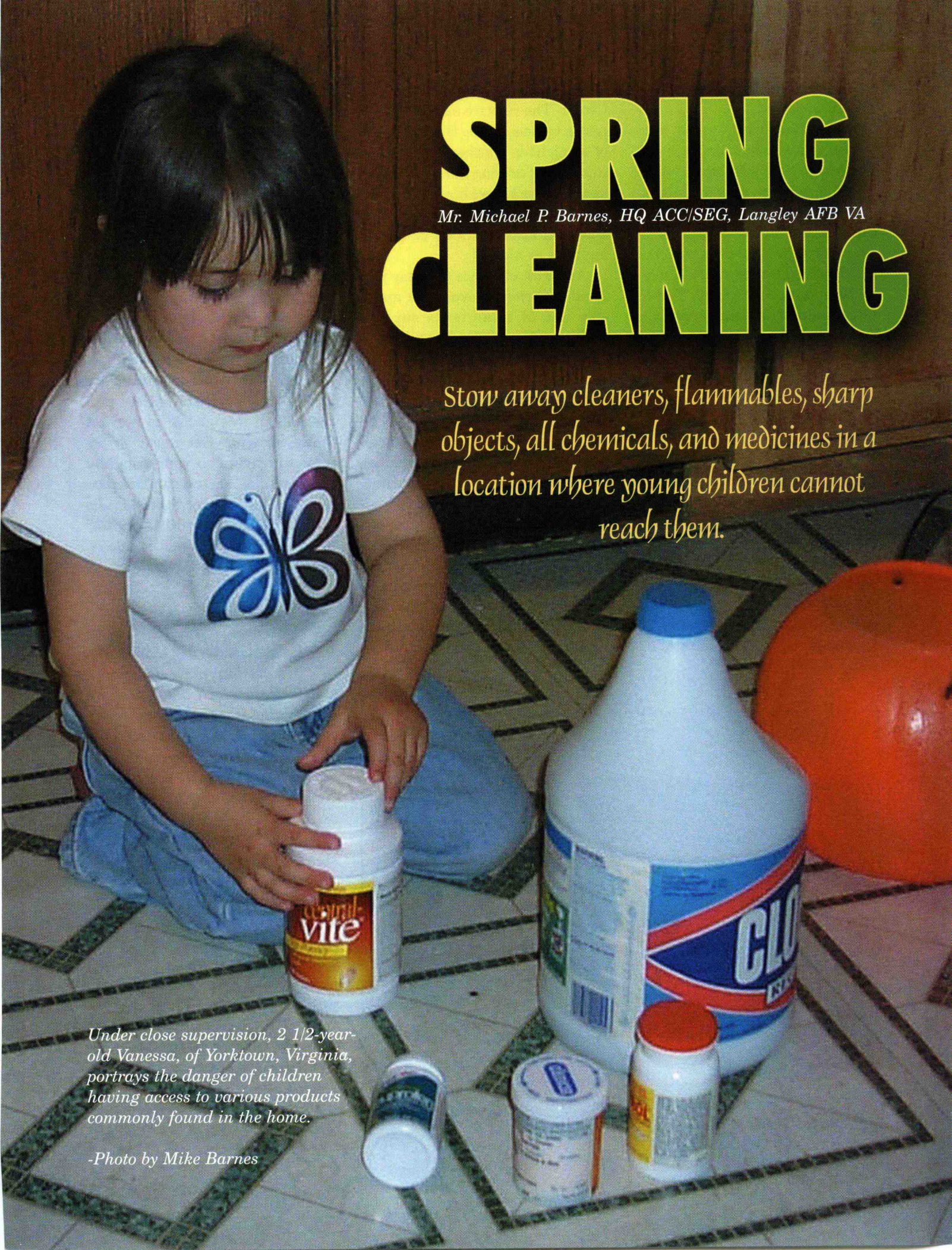
ing, it is time to make a rest stop as soon as possible. There is no way you can shut off or deny this neurobiological need. Sleepiness is your body’s way of telling you it needs to shut down. If that message is ignored long enough, it will shut down on its own.

In summary, D2 (or Deadly Dozing) can be prevented with adequate rest; and to ignore physiological fatigue is an error in judgment. So the next time you plan on taking a long trip in your car, make provisions to adhere to all of the suggested safety precautions in this article to prevent drowsy driving. Get plenty of rest prior to leaving on your trip, and don’t let time constraints place your life (or the lives of your family, friends, or fellow motorists) at risk. After all, when all is said and done, no trip is ever worth dying for. ■

Editorial Comment:

The safety tips presented in this article demonstrate how use of the ORM process can help us make smart risk management decisions as we drive our vehicles on a daily basis. First of all, the author “identified the hazard” — falling asleep at the wheel and having an accident. Second, the warning signs for drowsy driving are a great way to help “assess the risk” (or at least the chances of incurring the hazard) as low, medium, or high. Third, the guidance given us in how to prevent drowsy driving are great “risk control measures” that can be implemented to counter the assessed risk. Finally, the suggestions in what to do if we become tired while driving are excellent “control decisions” to use once we have analyzed the risk as medium or high.



A young girl with dark hair, wearing a white t-shirt with a blue butterfly graphic and blue jeans, is sitting on a tiled floor. She is holding a small white bottle with a yellow label that says "vitamin". In front of her are several other household products: a large white jug of Clorox bleach, a small white bottle with a red cap, a small white bottle with a blue cap, and a small white bottle with a white cap. To the right of the bleach jug is a large orange ball. The background is a wooden wall.

SPRING CLEANING

Mr. Michael P. Barnes, HQ ACC/SEG, Langley AFB VA

Stow away cleaners, flammables, sharp objects, all chemicals, and medicines in a location where young children cannot reach them.

Under close supervision, 2 1/2-year-old Vanessa, of Yorktown, Virginia, portrays the danger of children having access to various products commonly found in the home.

-Photo by Mike Barnes

It's beautiful outside, the birds are singing, and the warmth of the sun seems to call us out from our winter refuge. The garage and lawn are full of debris from the winter; and the windows, roof, and gutters need cleaning. Sounds like it is time for... "Spring Cleaning!" But before we get started outside, let's look at an "inside" effort that will pay safety dividends to you and your family for months to come — that is, getting rid of or reducing potential home and people hazards inside the house.

What are the home hazards you say? These hazards would be anything that could reduce your home to rubble (e.g., flammables, combustibles, electrical appliances, etc.). Obviously, people hazards are part of the home hazards, but they also include anything that can cause injury or death (e.g., chemical products, medicines, razor blades, needles, nails, tools, broken or cracked glass, etc.).

Let's start with the bathroom. Empty the medicine cabinets, shelves, and storage areas under the sink. Remove outdated medicine, all cleaning products, and check for other items that could be flammable or cause injury (e.g., fingernail polish and remover, peroxide, alcohol, scissors, nail files, glass containers, etc.). If you have young'uns running about the house, you need to ensure their little hands and eyes don't have access to items that could injure or kill them. Sure... most dangerous products have childproof caps that can delay children from opening them. But don't bet the farm on these safety features when the life of a young child may be at stake! I've seen a toddler open a bleach bottle in

under 4 seconds! Stow away cleaners, flammables, sharp objects, all chemicals, and medicines in a location where young children cannot reach them. Also, avoid using products in glass containers or other breakable glass objects in the bathroom. These include shampoo, hair conditioner, liquid soap, drinking glasses, etc. Additionally, it is wise not to use containers for plants that could fall and break in the bathroom. Oh, and how about unplugging that hair dryer that sets on the tank of an open toilet, and put it away. Now, you may be thinking to yourself that I'm nit-picking, but stay with me. It's my job as a safety professional to make you aware of ALL the hazards.

Our next stop is the kitchen. You should never keep chemicals, cleaning products, knives, glasses, flammables (matches), medicines (including vitamins), etc., where young children can reach them. We all know this! Check under the sink, in the cabinets, and on the kitchen working surfaces to ensure these types of items are properly stowed away. A good way to store your cleaning items is to store them in a plastic or rubber carrier made for toting window cleaners, cleansers, toilet bowl cleaners, etc. By placing them in such a container, you can then store them in the pantry on a high shelf or overhead cabinet. This applies to spray products, also — such as paints, insecticides, air fresheners, and cleaning products. Check the burner pans on the stove and the toaster for scraps that could ignite, and clean that oven!

Now, let's go to the garage. Good common-sense thinking tells us not to store insecticides near food and to store flammables

in a storage locker made for such things. The garage is an ideal place to put just about anything and everything... from gasoline and oil to waxes and fertilizer. Move your flammables to an outside shed if you have one. Get rid of any chemicals, oils, gasoline, etc., you no longer need or that is waste. Be sure to dispose of them according to local regulations.

Finally, throughout the house, you need to consider using child-proof safety locks for cabinets and drawers that contain hazardous items. Also, the use of cord wraps for blinds, window locks, sliding door locks, safety gates for stairs, oven locks, stove knob covers, outlet covers, etc., is advised. Check the yellow pages for current information on poison control centers and other emergency numbers; then, list these numbers near each telephone. Check your first aid kit, and ensure you have replenished any used supplies. Check your smoke detector for proper operation and replace the battery when necessary. Installation of a carbon monoxide detector and the purchase of a fire extinguisher are also good investments for home safety. In addition, don't forget to make sure your tools are stored properly.

As you carry out your spring cleaning project this year, I hope you'll use the safety tips in this article to serve as a good guide for your household mishap prevention efforts. After all, the cost to you is free... and it's relatively painless. Don't allow yourself or your family to learn safety lessons through agonizing personal experience — the process of recovery (if you get the chance) is oftentimes very painful and lengthy. It's simply not worth it. ■

FLIGHT SAFETY AWARD OF THE QUARTER

Maj Westley C. Kasper, HQ AWFC, Nellis AFB NV



In his capacity as the HH-60 FSO, Maj Kasper is responsible for the administration of the HH-60 flight safety programs for the AWFC, USAF Weapons School HH-60 Division, 422d Test and Evaluation Squadron HH-60 Division, and the 66th Rescue Squadron (RQS). His specific accomplishments are as follows:

HH-60 Class A Mishap Investigation: Selected as the pilot member for the interim Safety Investigation Board (SIB), Maj Kasper was recalled at 0300 hours and immediately dispatched to the crash site as part of a five-person initial response team. He provided invaluable assistance to the on-scene commander and led the survivor search. Once it was determined there were no survivors, Maj Kasper advised the on-scene commander and conducted an extensive initial photographic survey of the crash site. Maj Kasper spent a total of 5 days at the site. During this time, he assisted in remains recovery

and identification, led a survey team that completely marked and produced a digital schematic of the wreckage field, assisted in the development of a hand-over briefing for the permanent SIB, and provided invaluable insight into the impact geometry between the aircraft.

Class C Mishap Investigations: Maj Kasper was the investigation officer on three Class C mishap investigations, two of which were HH-60G incidents. The first HH-60 mishap involved a physiological incident during an HH-60 sortie caused by an ill-fitting helmet. His investigation uncovered the fact that the squadron had requested a waiver to fly with an improved helmet that was more comfortable and better suited to the mission. However, because higher headquarters had not approved this waiver, the squadron was required to use older helmets that were in short supply. He was able to determine where the staffing process was stalled and subsequently broke a logjam in the effort to gain approval for the newer helmet. His efforts went well beyond what was required to complete the investigation, solving a significant safety issue which will preclude future mishaps of this type.

AWFC Trend Analysis Program: Maj Kasper is responsible for an extensive Trend Analysis Program that is used to highlight mishap and IFE rates/trends to senior leadership during quarterly Combined Aerospace Safety Councils and to aircrew members during quarterly flying safety meetings. Capturing this trend data is a monumental task, as the AWFC flies over 54,000 sorties annually and encompasses 17 squadrons/divisions flying 11 aircraft types. Maj Kasper significantly improved the data capture methodology, statistical analysis accuracy, and overall usability of the information. He designed an Excel program to automatically calculate data rates and developed a system to link the flight time/sortie database used by wing scheduling into his program.

Anti-Skid Floor Coverings for HH-60: In response to a MH-53 Class A mishap, resulting in a crewmember fatality, Maj Kasper initiated an effort to obtain anti-skid floor covering for the HH-60G. He coordinated with the 66 RQS/MA to obtain a cost/man-hour estimate required to retrofit the fleet and surveyed 66 RQS crewmembers to determine the optimum installation pattern. His initiative will make the HH-60 crew cabin a much safer environment during rescue operations.

GROUND SAFETY AWARD OF THE QUARTER

Capt Daniel E. Hamilton, 85 OS, 85 GP, NAS Keflavik IC

Understanding the implications of having a properly trained fire department, Capt Hamilton established an all-encompassing education program for the entire NAS Keflavik Fire Department and Emergency Response Teams. This new program provided initial and recurring F-15C/D and F-15E familiarization, weapons safety training, and aircrew extraction procedures for 60+ Icelandic fire fighters. Capt Hamilton personally directed and produced a training video used for the department's continuation training. In addition, he developed a safety guide for the fire department covering F-15 warnings, cautions, and danger areas ensuring knowledge of required critical-action procedures.

To continue the effort to reduce safety mishaps, he superbly revamped and instituted a Lessons Learned Program which enabled the study and further understanding of mishaps to prevent future occurrences. He was recognized as an outstanding contributor by the 85 GP/CC at the group Winter Safety Day for his innovative briefing on automobile safety kits. In addition, he was a key contributor to the first annual 85 OS Winter Readiness Review. This significant gathering enabled squadron operations and maintenance personnel to thoroughly discuss the flight line hazards associated with the winter months at NAS Keflavik and perform a verbal "walk-through" of typical snow and ice removal and control activities in preparation for flying. As a result, squadron awareness of potential problem areas was increased and mishap possibilities were reduced.

Capt Hamilton was responsible for establishing the critical Operations S squadron Duty Officer (OSDO) position to assess West End travel conditions. He worked diligently with Naval Air Station Keflavik, the Joint Command Post, 85 GP Command Section, and supporting agencies, determining procedures for assessing West End travel risks. In addition to developing a thorough OSDO checklist delineating all duties, he instituted the scheduling process to accurately assign the position to qualified and available personnel. As a result of this new program, individuals traveling to the West End are less exposed to the hazardous road conditions during the harsh winter months.

Continuously enhancing the Keflavik joint mission, Capt Hamilton superbly coordinated with NASKEF, Iceland Defense Force (IDF), and an international contracting team to establish parameters for the Restore Airfield Lighting Project scheduled for summer '99. His expert inputs ensured minimal impact to the group mission and resulted in a reduced risk to flying operations as a whole. Working closely with IDF, he coordinated an innovative inland radio plan to improve communications in the overland training area. This never-before existing communications relay between operations and air traffic control helped reduce the probability of mishaps as operations are now able to reach aircraft for weather recalls or for relay of any critical information. Capt Hamilton consistently places safety as his top priority while still excelling in his numerous squadron duties.

Compliance

*SMSgt William A. Hodgson
5 MUNSLGW
Minot AFB ND*

When you're sitting in your office working on that stack of performance reports, decorations, operating instructions, and other miscellaneous paperwork that someone up the chain wants finished yesterday, the last thing you expect to happen is a mishap in your maintenance bay — especially if it's one clearly caused by failure to comply with approved technical procedures. Compliance has been the key to a successful nuclear weapons maintenance program for over 50 years. As a nuclear weapons maintainer, you grew up in this strict environment and feel safe in the comfortable confines of your integrated maintenance facility office because "compliance is your business."

You have ensured your team chiefs understand their important role in ensuring their team members perform



... not following the correct procedures can cause someone to be injured, killed, or cause major damage to equipment — thereby reducing your unit's combat readiness.

Nose is Key

to avoiding a "bad day"

tasks in accordance with approved procedures. During daily shift briefings, supervisors emphasize technical data usage during all phases of maintenance. This is because not following the correct procedures can cause someone to be injured, killed, or cause major damage to equipment — thereby reducing your unit's combat readiness. You have everything covered (so you think), but one simple lapse in following procedures can cause you to have "a bad day." Speaking from firsthand experience, here's my story of when I had one of those days.

During a limited-life component (LLC) exchange operation on a nuclear gravity weapon, the maintenance team was preparing the weapon by performing all the required preliminary maintenance. The technical procedures required the technicians to remove the nose and disconnect the electrical cable between the nose and weapon. During this part of the operation, the team encountered problems removing the nose and had to use the aluminum shims to fill the gap between the two components in addition to rocking the nose from side to side to remove it. This was not an uncommon problem; it is normally caused by burrs or other defects on the mating surfaces of the components. The rest

of the disassembly operation was completed without problems. This is where the team chief had a lapse and failed to follow procedures. Instead of having his team inspect the mating surfaces for burrs, sand the surfaces, and alodine them (which was required whenever you use shims during nose removal), he chose to continue with the LLC operation. He planned to have the team perform any required repairs later... right before assembly. However, his failure to follow procedures set his team up for a mishap during the reassemble process.

After completing the LLC operation, the maintenance team went to lunch. This break in time caused confusion between his team and the other team that was left in the maintenance bay performing other work. So when the team returned from lunch 1 1/2 hours later to reassemble the bomb, nobody remembered they had not accomplished all of the required procedures. The team chief read the step and the two team members had trouble getting the nose to slide easily onto the basic assembly. After considerable effort, the nose was wedged on the basic assembly at an angle; it would not move in either direction.

This is when the team chief realized no one inspected, repaired, or sanded the mating surfaces. Then, the next thing they did was in violation of required procedures

when encountering an abnormal condition. They should have stopped the operation and sought technical guidance. However, instead of complying with established procedures, one team member held the nose while another hit it with a larger rubber mallet. This created a dent about 4 inches in diameter. Now there was no way out of the mishap — the damage was done. *(Note: Here's where a little Operational Risk Management (ORM) might have helped. Just asking the questions, "What can go wrong, and how bad could it be?" might have kept that mallet in the toolbox. - Ed.)*

The nose was removed from the basic assembly. The weapon was unserviceable until another nose could be shipped from depot. The team chief and two of his crew members were decertified from the Personnel Reliability Program (PRP). The Dull Sword investigation revealed what everyone in the shop suspected... the maintenance team violated technical procedures.

Strict compliance with established procedures is key to preventing mishaps, so don't let a lapse in following procedures gain a foothold in your unit. Mishaps happen without warning and when you least expect them. Not performing all of the required steps in a technical order, checklist, or workcard is all it takes to have "a bad day." Don't let it happen to you. ■

Personal Protective Equip

*AE1 (AW) Larry Denman
Electronic Attack Squadron 128
NAS Whidbey Island WA*

In aircraft maintenance, we all hear about Personal Protective Equipment (PPE) in our respective work centers on a regular basis. It seems as though everyone in our duty section has a responsibility for ensuring that PPE is worn properly and at the appropriate time. But what about PPE at home? Many of the tasks we perform while off duty require some form of protective equipment, as well. Whether we're doing routine car maintenance, household maintenance, or general yardwork around the home, proper use of PPE would significantly reduce the risk of personal injury.

Much of the time, we learn how to perform such standard household maintenance tasks from family and friends — without the benefit of ever receiving instructions on the use of protective equipment. As a result, the uninformed family member who steps out into accomplishing a hazardous household related maintenance action without the recommended PPE is placing himself at great risk of being hurt ... or even fatally injured.

During a weekend not too long ago, it took a near mishap to make

me pause and think about the safety benefits in properly performing routine household chores. I can honestly say, prior to that weekend, I had never considered using PPE at home. My once cavalier attitude toward PPE has changed dramatically since the events which I am about to describe.

It was about lunch time, and my hands, arms, and clothes were covered in grease from changing a wheel bearing. I was hungry, and I was trying to get the job done quickly so I could grab a bite to eat before starting on the next item on my "honey-do list." I tightened the wheel but still needed to bleed the brakes. The plan was simple enough; as my son pumped the brakes, I would turn the bleed valve. I fumbled blindly to find the valve. When I finally put a wrench on it, I discovered that it was pretty tight.

I had my son turn the steering wheel so that I could get a better look at the valve. I wanted to make sure that the wrench was seated well before I applied a lot of pressure to break it loose (that was a trick I learned after busting my knuckles several times in the past). After a few moments of effort, the



-Photo by MSgt Ron Morrison

valve still wouldn't budge. I couldn't seem to get the right leverage. After repeated changes in my body position, I finally managed to get just the right amount of leverage.

I pulled on the wrench again; and as the bleed valve broke loose, the brake fluid did exactly as ad-

ment... Not Just At Work



vertised. It spurted out very quickly ... right in my face! As I wiped the brake fluid from my glasses, I realized I had gotten off easy. The fluid could have easily splashed around the sides of my prescription lenses into my eyes, but it didn't. I was very fortunate because my subsequent review of

the Material Safety Data Sheet on brake fluid revealed to me that this liquid contains the hazardous ingredient "diethylene glycol." On direct contact — not only can this chemical cause skin irritation, but contact with the eye can cause severe tearing and burning.

I had learned my lesson well,

and I learned it quickly. After washing my face, I went directly to the garage where I found an unused set of "safety goggles." The crazy thing is ... I've had those goggles for years but never used them! In addition, besides safety goggles, it would have been a good idea for me to have used other protective equipment as well (i.e., coveralls and chemical resistant gloves).

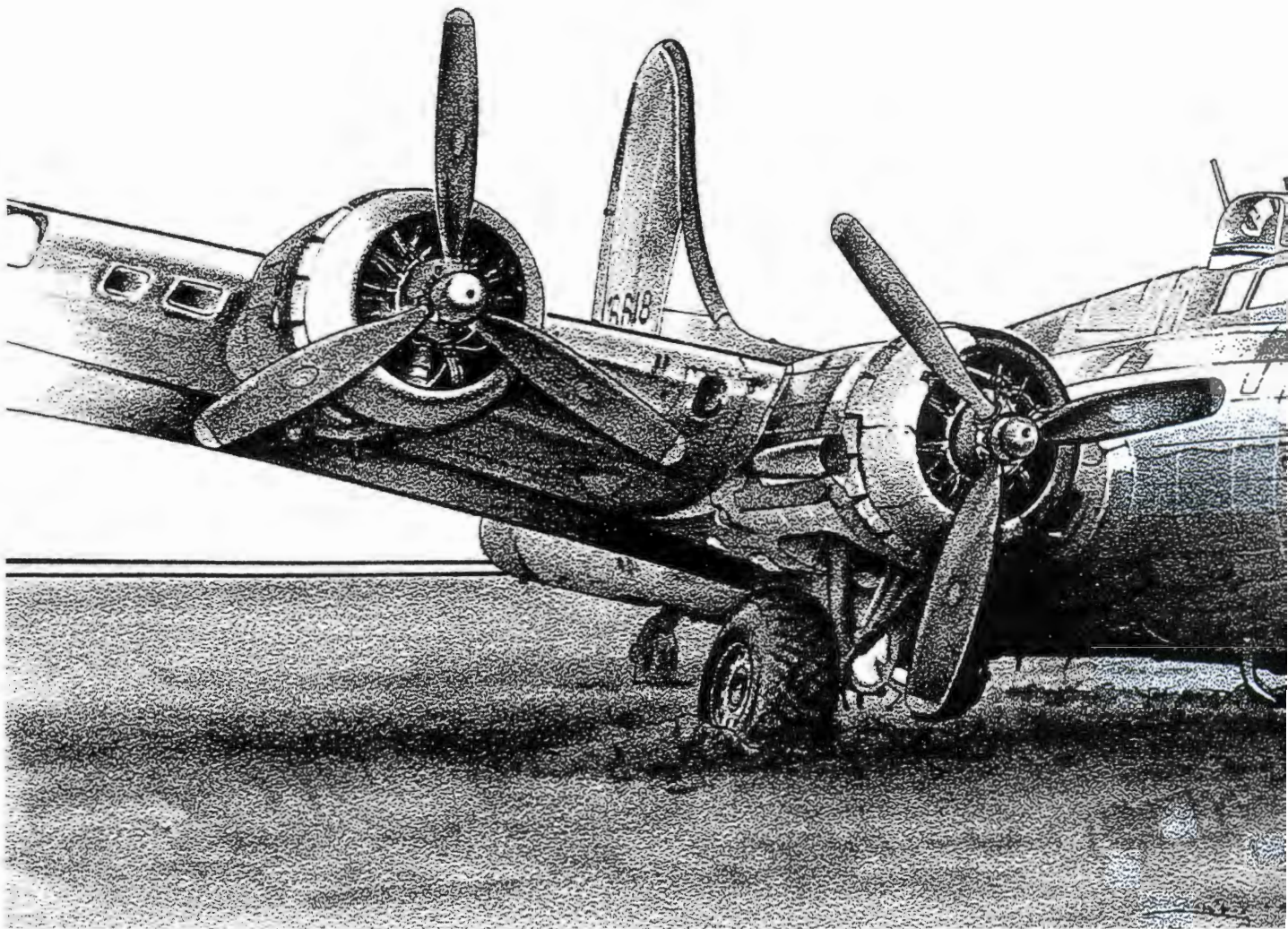
So what's the bottom-line to my story? Well, when I tackle any of those routine, everyday household tasks now, I always wear the proper PPE for the job! I hope you will, also.

Editorial Comment

Unfortunately, this is an all too common story in Operational Risk Management (ORM). The hazards were known, the associated risks were analyzed, and the appropriate risk control measures were identified and readily available. But as all too often happens, the risk controls (safety goggles in this case) were not implemented. There are an abundance of "unknown" hazards and risks out there just waiting to ruin our days; we don't need to give the hazards we've already identified a shot at us, too. ■

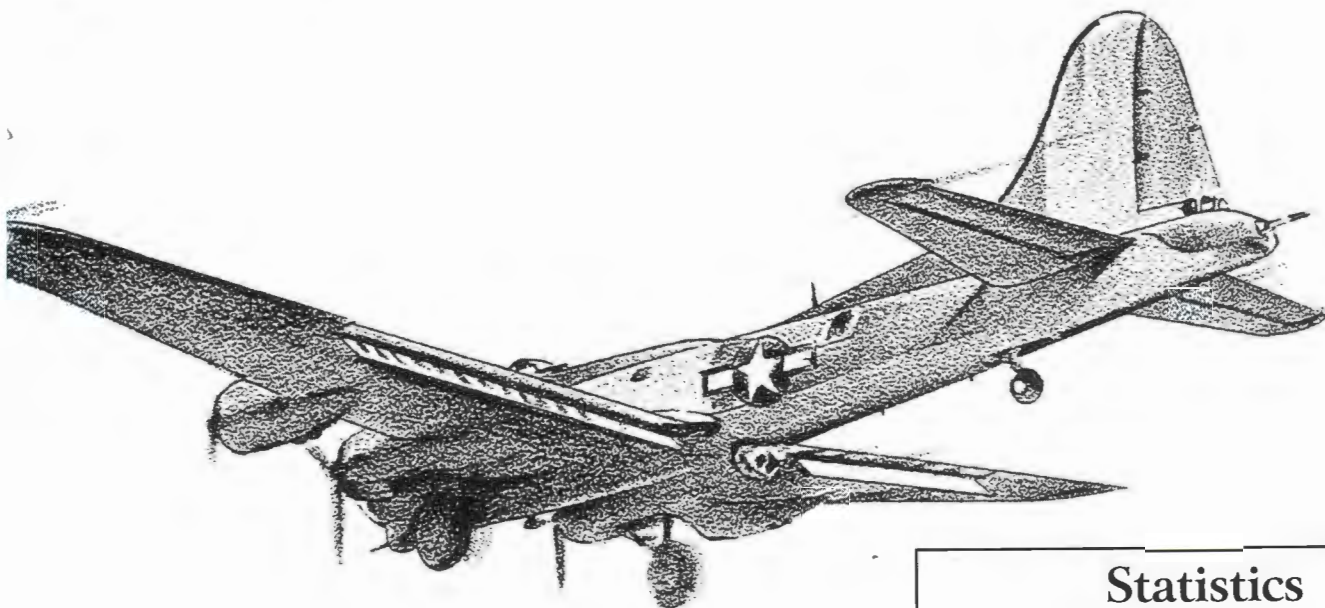
B-17 "Flying Fo

In the eyes of many aircraft enthusiasts, the B-17 bomber is one of the most popular planes ever made. With a crew of 10 (pilot, copilot, bombardier, navigator, radio operator, and five gunners), the Flying Fortress was the first four-engine bomber put into production for the Army Air Corps. Although large numbers of the Flying Fortress were utilized in every theater during World War II, the aircraft is best remembered for its famous role in daylight strategic bombing of industrial targets throughout the European theater. The first B-17 aircraft were delivered to the 2d Bomb Group at Langley Field VA in 1937; production ended in May 1945 with a total of 12,726 B-17s manufactured by the Boeing Aircraft Company.



stress"

Illustration courtesy
Bob Engle Aviation Art



Statistics

Span: 103 ft 10 in

Length: 74 ft 4 in

Height: 19 ft 1 in

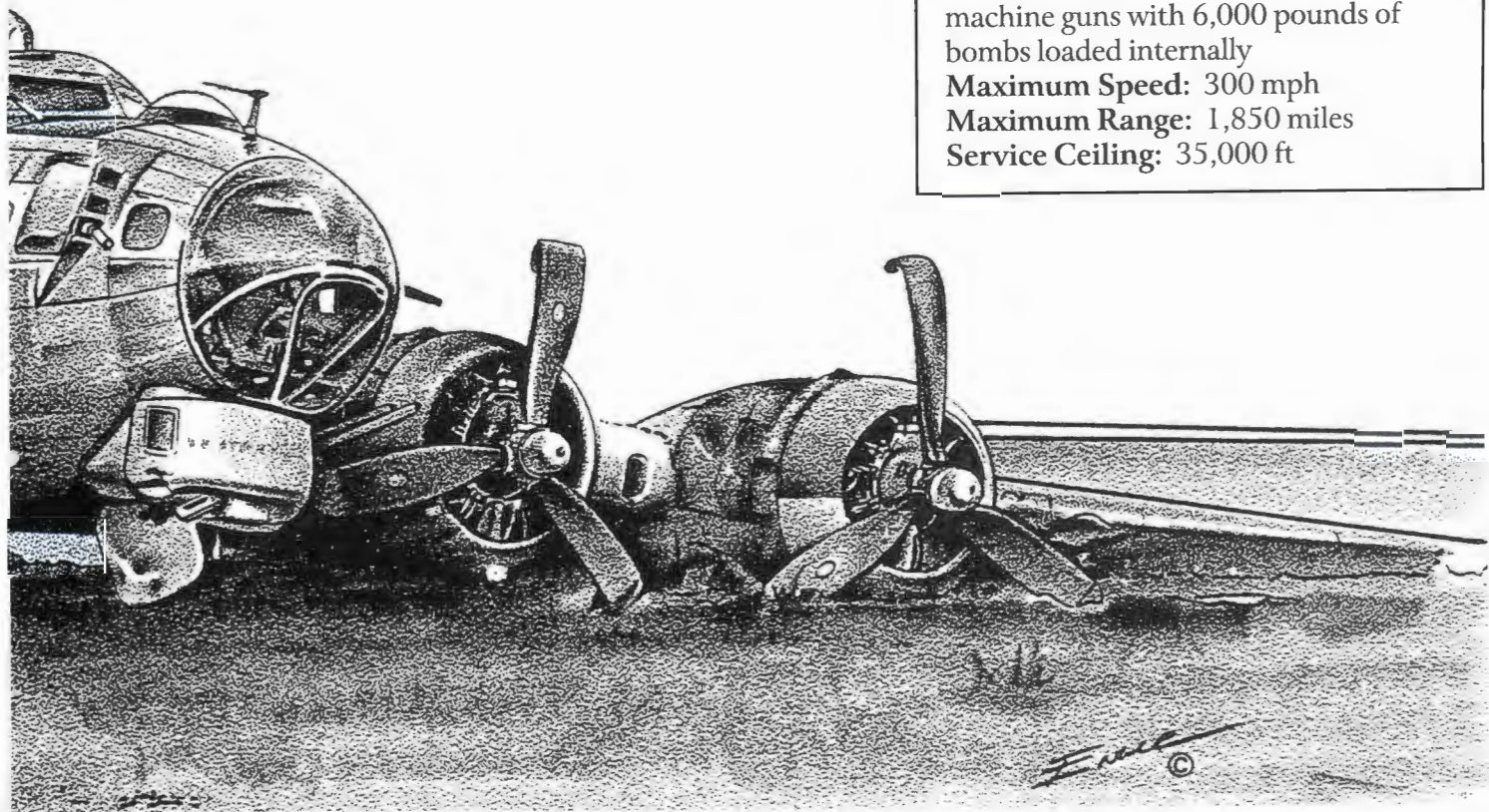
Weight: 55,000 pounds loaded

Armament: Thirteen .50-caliber machine guns with 6,000 pounds of bombs loaded internally

Maximum Speed: 300 mph

Maximum Range: 1,850 miles

Service Ceiling: 35,000 ft



Mishap Res

I had finally found just the right posture in the not-so-comfortable squadron briefing room chair. I was now looking forward to the moment when the lights would be dimmed for the hour-long briefing. All of a sudden, the briefing room door flew wide open. Then the squadron commander jumped in and asked in his "Don't mess with me if you want to live" sort of way: "Does anyone here have the keys to the squadron six-pack parked outside? I need them right now! Something really bad just happened." A set of keys flew through the room, and the squadron commander snagged them before disappearing out the door. He was followed shortly thereafter by everyone in the room (so much for the nap... uh, I mean, briefing).

As we got to the hallway, we heard the bad news. One of our jets had caught on fire and crashed while in the pattern. They had seen 4 good chutes. While the phones started ringing in the background, I happened to see the look in our flight safety officer's face as he heard the news. In my mind, I thought to myself... "I'm glad I'm not you today."

One of the most trying times many of us will encounter in our career is that occasion when we lose a fellow flyer in an aircraft accident. As a safety dude, this becomes even tougher when you not only have to deal with the loss of friends; but also have to find out "what happened" in order to prevent losing more friends this way. These will be tough times up and down the chain of command, and there will be a lot of pressure associated with investigating the mis-

hap. This is definitely one of those times when the law of the 7 P's (i.e., Proper Prior Planning Prevents Pretty Poor Performance... or something like that) comes into play.

Your unit's mishap response plan takes care of the 7 P's for you. It is one of the most important aspects of mishap prevention and will serve as the foundation for the safety investigation. There are two mishap prevention aspects relative to your mishap response plan: (1) The gathering of evidence for the Safety Investigation Board (SIB), and (2) The mitigation of hazards present at the crash site.

The initial response and Interim Safety Board actions can make or break the investigation. They are a key part of the process of making sure this mishap does not happen again. The Interim Safety Board is there not so much to find out why the mishap took place, but rather to secure the evidence for the Permanent SIB. Keep in mind the Permanent SIB may not get there until 2 to 4 days after the mishap, so the actions of the Interim Safety Board are critical. If the mishap occurs away from home base, there may actually be two or three interim boards being assembled. The host installation will do the "standard" interim board response to the site. The home unit should have an interim board that would assemble the evidence at their end (i.e., impounding aircrew/aircraft records, impounding the ground equipment units that serviced the aircraft, obtaining statements from those that serviced/launched the aircraft, etc.). At the same time, with

so many deployments going on, you may have an aircraft that actually was operating from a deployed location; so an interim board would have to gather the evidence available at that location.

A crash site can be an extremely hazardous area. The scene of the accident is not only hazardous physically but also mentally. A crash site is never a pretty picture and can very well become a life altering experience for some of the people responding to it. It is not unusual for someone to experience mental anguish after taking pictures or viewing human remains. Air Force Instruction (AFI) 44-153, "Critical Incident Stress Management," will provide assistance in this area. As far as the physical hazards, bloodborne pathogens can be a serious problem along with composite materials and other burning substances. Ensure you have access to the necessary personal protective equipment. Again, have this preplanned; make sure you have points of contact in your response plan, and include this as part of your training program for potential safety board members.

One of the first things you should do when revising your mishap response plan is to grab a map and pick out the nearest active duty Air Force bases. The nearest active duty Air Force base to a mishap has the initial response/On Scene Commander (OSC) duties IAW AFI 91-204, "Safety Investigations and Reports." Figure out what constitutes your

Response Plans



area of responsibility.

Better yet, put it in writing and coordinate with the other bases. Depending on their size and makeup, some active duty Air Force bases may be hard pressed to perform OSC duties. This makes it crucial to have an understanding ahead of time of their capabilities. Once you figure out what area you are responsible for, take a good hard look at it. Are there any Air National Guard (ANG)/Air Force Reserve

Command (AFRC) bases in the area? If so, talk with their respective safety offices and get an idea of what they can do if a mishap occurs at or near their base. Depending on the timing and the facilities at their base, they may be able to take care of the initial response and the OSC duties. The catch here, however, is that OSC duties continue long after the dust settles (i.e., through recovery efforts and the subsequent cleaning up of the mishap site). In

some cases, this has taken years. Even if they do pick up OSC duties, an ANG/AFRC base (or even some active duty bases for that matter) may need assistance in the long run with site security manning and other things.

One note here: security does not always have to be provided by security forces. In some cases, you may just need someone to monitor the site, warn passers-by of hazards in the area, and contact local authorities if there is a problem.

Another set of players are other nearby DOD installations. We've had a number of instances when the initial response and the rescue/pick up of crewmembers was done by military personnel from another service's installation. If an Army, Navy, or Marine Corps base is near the crash site, the host service may well provide the initial security until the nearest Air

Force base can take over. Again, coordinate in advance with the sister service's installation so that you know whom to contact if they respond to a mishap. The other side of the coin is, "What if an aircraft from another nearby base has a mishap in near proximity to your installation?" Again, it will make things easier for you if you have an agreement in writing with them outlining what to do in this type of situation along with a listing of the various points of contact (POCs).

While you are looking at the map, are there any low-level routes or Military Operating Areas (MOAs) in your vicinity? Do you know who uses them regularly? It would also be a good idea to get POC information from those units along with some aircraft data to include in your annual training for safety board members. Your fire department will know what chemicals and composite materials are in the different aircraft, but they may not be the particular ones responding to the mishap. If you regularly use the same low-level routes or MOAs, it may be a good idea to make sure all fire departments in that area are familiar with your particular aircraft. (Note: Your fire department may have done this already.)

Back to the OSC. Some mishap response plans I've seen have the same individual doubling as the OSC and the Interim Safety Board President. This is not a good idea. Both have different duties, and it is better to have a defined line between the two. In the past, we had a few cases where the OSC/Interim Safety Board President turned over the site to the Permanent SIB President... this is not the approved solution. Again, they have different duties. The OSC keeps responsibility of the site from beginning to end. The SIB president is there to find out what happened and how to prevent it from happening again. He is not there to secure the site, feed the personnel in the area,

and then make sure it is cleaned up. Those are some of the many responsibilities of the OSC. What should happen is that the SIB President gets the handover of the evidence from the Interim Safety Board President and then presses on with the investigation, giving the OSC an entry access list of who can go to the site with the OSC maintaining responsibility of the site.

What kind of helicopter support do you have available? Is there a nearby helicopter unit that can help with transportation to the site or to provide overhead photography? We have seen cases where the only reasonable way to and from the site was through the use of helicopters.

If there are fatalities in the mishap, AFI 51-503, "Aircraft, Missile, Nuclear, and Space Accident Investigations," requires that the Accident Investigation Board (AIB) President be on station within 48 hours of the Safety Investigation Board President's arrival. This will add to your workload. If your plan was to use some of the same facilities, computers, etc. — guess what! Your plan just went out the window. In some cases, you may have to lease computers and/or other equipment in order to support both investigation boards simultaneously. Have a plan in place so you can keep both boards running simultaneously with minimum interference of each other (i.e., place the AIB and SIB board members in separate buildings).

One good idea we have seen is to have a "Mishap Response Executive Guide" that summarizes the mishap response plan and lets wing leadership know at a glance what is supposed to be taking place and who is supposed to be doing it. The Draft Air Force Pamphlet (AFPAM) 91-211, "USAF Guide to Safety Investigation," is available on the internet by accessing the publications link through the Air Force Safety Center (AFSC) website: www-afsc.saia.af.mil/AFSC/welcome.html





An occasional area of confusion is, "Who makes what reports, and when do they make them?" Usually questions arise when the mishap occurs away from home base, and there is doubt as to which base makes what report. The most important thing to remember is to make sure the mishap base and the host installation talk to each other. Generally, the preliminary Class A mishap 8-hour message and 72-hour status report levied by AFI 91-204 are done by the host installation, since the information in these reports is probably going to be obtained from the interim and permanent boards. The preliminary "Safety 4-Hour Telephonic/Telefacsimile Report" and the more detailed "Operations Group (OG)/Logistics Group (LG) Commander 8-Hour Report" (which addresses the maintenance history of aircraft and aircrew experience) that are levied by the ACC Supplement to AFI 91-204 are probably better done by the mishap ACC unit, since they are the ones most likely to have the required information (i.e., aircrew, aircraft, and mission specifics).

The mishap response plan can be a rather lengthy document, but this is one of those cases where more is better. Take a look at the plans for other bases. This is definitely a case where "cooperate and graduate" is a good thing. Give a call to bases that had a mishap awhile back and get their input on what worked and what did not. Again, the mishap response plan is one of the most important features of your mishap prevention plan. Take a good look at it, and make sure it meets your needs not only for your mishaps but for someone else's mishaps as well. To live day-by-day in your unit with an inadequate plan to address flight mishaps in your area of responsibility is inexcusable. Now is the time — while you are at ground-speed zero — to find out if there are any holes in your mishap response plan. FLY SAFE. ■

Weapons Safety Stats

ACC Losses for FY 99

(1 Oct 98 - 1 Mar 99)

Number of Weapons Mishaps / Dollar Losses			
	Class A	Class B	Class C
8 AF	None	None	None
9 AF*	None	None	1/\$20K 
12 AF	None	None	None
AWFC	None	2/\$1.09M  	1/\$24K 
TOTAL	None	2/\$1.09M	2/\$44K

Weapons Fatalities - None
Nuclear Mishaps - None

* Includes all Class C mishaps in CENTAF AOR
 ** Cost of most recent mishap(s) not yet available



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

Kids & Bicycle Safety

Having children wear bicycle helmets is the single most effective thing parents can do to make bicycle riding safer. In the United States, approximately 600 children die from bicycle related injuries each year — with 80% of these children suffering from head trauma. This exceeds the combined death rate from accidental poisonings, falls, and firearm injuries to children.

This article is designed to help you understand some of the more salient aspects of bicycle safety, which include:

1. Recognizing the seriousness of “bicycle related injuries.”
2. Understanding “when and how most bicycle accidents occur.”
3. Teaching children the “rules of safe bicycle riding.”
4. Knowing what to look for when “purchasing a bicycle helmet.”

Four-year-old, Kirsi White, of Newport News VA, models her bicycle safety gear. Photo by SSgt David White

Bicycle Related Injuries

Bicycling has become an increasingly popular sport in the United States. Unfortunately, this increase in popularity has been accompanied by a dramatic increase in bicycle related injuries and deaths. Children are especially vulnerable. Of the 93 million bicyclists in the United States, nearly half are children under 15 years of age. Nearly 900,000 children are treated each year for bicycle related injuries.

While many once common childhood illnesses have become quite rare, trauma from accidents remains in epidemic proportions. Of all types of accidents, head trauma is the most serious. Here are some notable facts about head trauma:

One-third of all child bicyclists treated in emergency rooms have head injuries and two-thirds of all children requiring hospital admission have head trauma. Nearly one-fourth of all significant brain injuries in children under 15 years old are bicycle related, and most bicycle related hospital admissions and deaths are due to head injuries. Up to one-third of all comatose head injured children die!

Survivors of head trauma often have significant long term problems such as personality disorders, difficulties with speech and memory, learning disabilities, or seizures. A recent study suggested that bicycle helmets reduce the rate of head injury by 85% and brain injury by 88%.

Despite this evidence, bicycle helmets are not worn frequently by American bicyclists. A recent study in Tucson, Arizona, found that less than 2% of school children wear bicycle helmets.

When and How Most Bicycle Accidents Occur

Many children and parents have misconceptions about safe bicycle riding. They assume, for instance, that the biggest risk of injury to a child on a bike comes from colliding with a car, when, in fact, most bicycle crashes involving children don't involve cars at all. Most injuries occur to children when they fall from bikes, collide with fixed objects (like curbs or trees), or lose control of their bikes.

The two most common riding situations that do involve cars are riding against the traffic and riding out of a driveway or sidewalk into a street. In fact, more than 50% of bicycle related fatalities occur when a child rides into the street from a sidewalk or driveway and collides with a car.

Rules of Safe Bicycle Riding

Every person riding a bicycle on a roadway is granted all the rights and subject to all the rules that apply to a driver of a motor vehicle. As a result, parents should set limits on where their children are allowed to ride, depending on their age and level of maturity. Children should be taught never to ride at dusk or in the dark. This is extremely risky, even for adults. Instead, your child should be taught to call home for a ride in lieu of driving their bike home in the dark. The most important bicycle safety rules for children to learn are:

1. Ride in the same direction as the flow of traffic.
2. Stop and look both ways before entering a street.
3. Stop at all intersections — marked and unmarked.

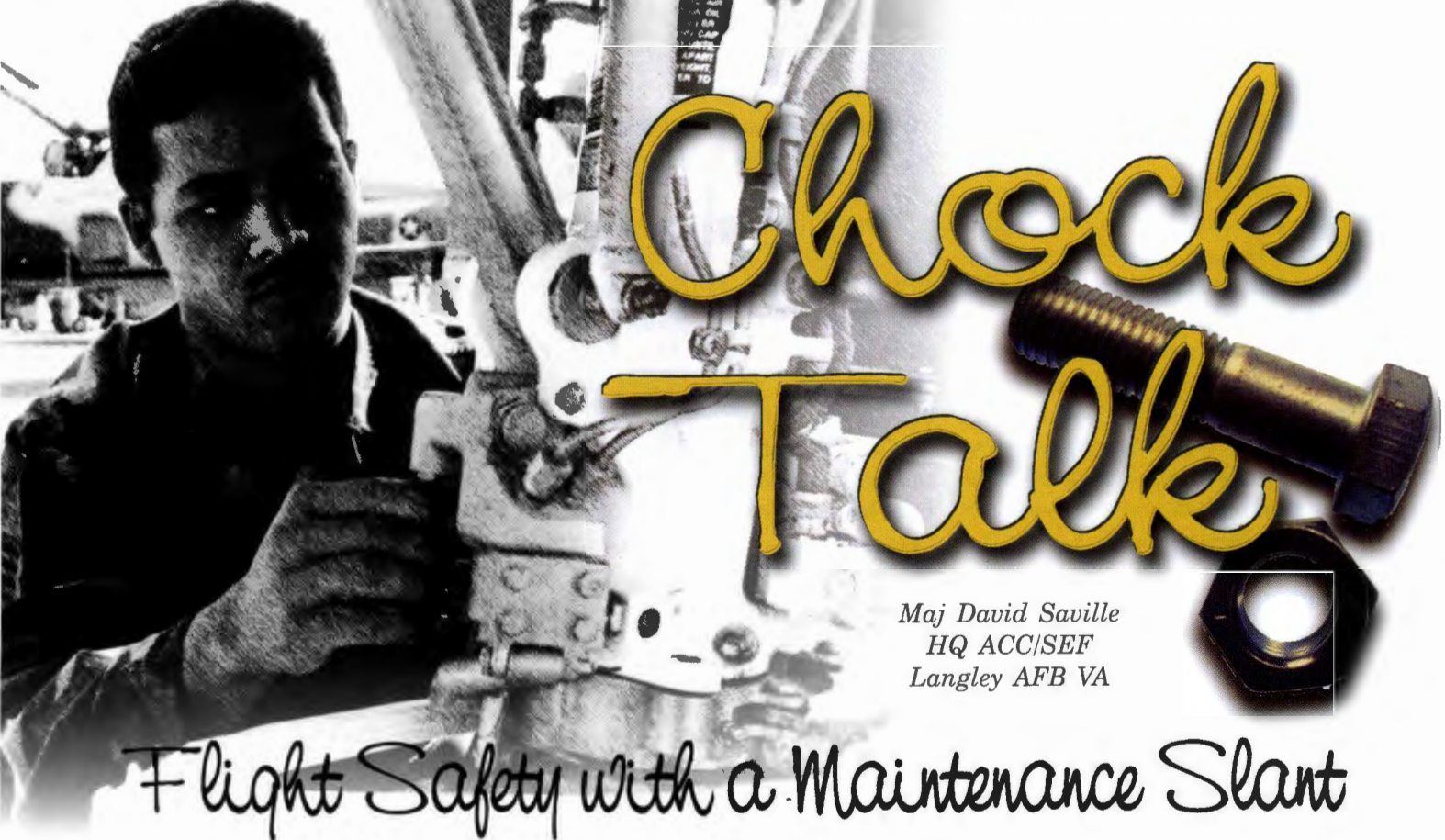
4. Before turning, use hand signals; and look in all directions.
5. Ride as near to the right of the roadway as possible.
6. When riding with other cyclists on a roadway, keep in single file order.
7. When riding bicycles during hours of darkness, each bike must have a light in front and a red light (or reflector) in the rear.

Purchasing a Bicycle Helmet

Consider a bicycle helmet as part of your standard equipment. When purchasing a helmet with a child's first bike, be sure to buy an approved one. You should buy only a helmet that meets the bicycle safety standards of the American National Standards Institute (ANSI) or the Snell Memorial Foundation. Also, ensure your child wears the protective helmet as soon as he/she starts to ride a bicycle. For your information, all personnel riding bicycles on military installations must wear helmets that meet these standards. At the present time, not all helmets meet these standards. Prior to purchasing the helmet, check the inside of the protective covering for the ANSI or Snell label.

Only bicycle helmets are designed to protect your child from injuries sustained in bike crashes or falls. Football helmets — or hard hats — are not acceptable alternatives to bicycle helmets.

Note: Selected bicycle safety excerpts provided by Vineland Pediatrics, P.A., Vineland, New Jersey; and information reflected in Whiteman AFB Instruction 31-23, "Installation Traffic Code," and Air Force Instruction 91-207, "The US Air Force Traffic Safety Program," were used in the preparation of this article. ■



Chock Talk

Maj David Saville
HQ ACC/SEF
Langley AFB VA

Flight Safety with a Maintenance Slant Preserve the Electronic Evidence!

In general, preserving evidence for a Class A mishap is a pretty solid process. Chances are, even if you've never done it before, there's enough guidance out there and expertise floating around to get you moving in the right direction as well as keep you on the right track. I remember my first time on an interim Safety Investigation Board (SIB) as the maintenance member. I'd been to the school, but I was glad to get some last-minute coaching from my Chief, who said, "Remember, Lieutenant, your job is to preserve the evidence for the Safety Investigation Board." So that's what I did. You know the drill... try to get samples of all the aircraft fluids (oil, fuel, hydraulic, avionics cooling, etc.) and remind the other interim board members to preserve ground scars. Take still pictures and video at the crash site and im-

pound the aircraft records and the various servicing carts used on the aircraft before the mishap flight. For me, it all happened very quickly, so I was glad to get the wise counsel to get me going.

The same is not always true, however, for lower profile Class B and C events (or even in-flight anomalies not reportable in the safety channels). Even before the identity of the single safety investigator is being determined, there are usually several eager maintainers on the jet starting the troubleshooting process. After all, no one is more curious to find out why the plane did what it did, and no one can fault a maintainer for wanting to fix the jet. The trouble is, however, that's how evidence sometimes gets lost, especially "electronic evidence."

There are several ways to lose

critical electronic data without intending to. For example, someone runs a BIT check on the system and erases the data or someone begins troubleshooting which records over data valuable to the pending investigation. Sometimes, in an attempt to get electronic data from a certain component, a technician will remove a cannon plug — this seems reasonable, right? Well, the problem is that for certain systems, that very act erases the data! Another example involves jacking an aircraft off its landing gear (completing the "weight off wheels" circuit) and applying external ground power. After that, it is too late to expect to get a helpful download of data from the previous flight.

In all the examples of unnecessarily lost electronic data that I've seen through mishap reports, I have never perceived any malice or

intent to erase the data. In addition, cases of outright carelessness are rare. Most of the time, those involved are well-trained, conscientious technicians trying to do the right thing, as always. The reality is, however, that the sometimes quirky procedures for how to preserve the electronic evidence often become available after it's too late.

Preserving electronic data as evidence is, of course, primarily an issue with our newer jets. And, as you would guess, the most common source of current examples come from the F-16 community; but it is not just an "F-16 issue." All jets have some sort of electronic data that could be useful to a safety investigation, and you can expect newer weapon systems to have even more than the F-16. We must, therefore, adopt a more universal and vigilant mindset to preserve the data we need and prevent it from being needlessly lost.

One good example of this need to do better on the mindset of preservation of electronic evidence is found in a Class C mishap investigation report I found. Paraphrased excerpts from the report read like this: *"Data retrieval for the incident was unsuccessful for a number of reasons. The CSFDR (Crash Survivable Flight Data Recorder) was written up for inoperative power supplies; therefore, no data was saved. A download of the seat recorder was attempted, again with no retrievable data. Contractor technicians suspect that the field attempt to download the information may have erased any data that was recorded during the incident. The last item that could have revealed the cause of this incident was the DFLCC (Flight Control Computer). The DFLCC was removed from the aircraft and installed in another aircraft to attempt a data download.*

No data could be retrieved. The DFLCC was then sent to home station for analysis in the avionics shop. The back shop unintentionally performed a "BIT" check of the computer erasing the data." The rest of the report is prefaced with the leading statement, *"After reviewing the evidence, it is the investigating officer's opinion that..."* (See what I mean?) The loss of electronic data forced the investigator to base his conclusions on an educated "best guess." Even if he and his team were right on the money, it is unlikely that any fleet-wide corrective action would get funded and fielded, because the available evidence was not conclusive. Our ability to prevent the next similar mishaps has been severely hampered.

Please consider the following pieces of practical advice to be employed in your unit:

CONTROL: Even before an event gets officially tagged as a safety investigation, gain and maintain positive control of the aircraft so nothing gets touched until the troubleshooting or safety investigation team gets formed and can decide what it needs and how to get it. Even the most innocuous, routine event can render critical information unretrievable on certain aircraft. Enforce proper impoundment procedures. Impoundments are supposed to get everyone to stop and think carefully about what should happen, in what order, and why.

MEASURE TWICE AND CUT ONCE: Like an experienced carpenter, make sure you do it right the first time. Make sure you've downloaded all your data BEFORE you start troubleshooting.

EDUCATE: Teach a mindset of "preserving the evidence," with special emphasis on the problems

associated with electronic data retrieval. Get hold of the occasional safety report that highlights this issue, and read it at roll call. The target population includes avionics technicians, dedicated crew chiefs, expeditors, and production superintendents. Backshop disciplines such as engines, flight controls, and avionics are critical in this education process as well. This is certainly not just a flight line issue.

ANTICIPATE: When equipped, strive to keep your CSFDRs (and equivalent systems) Fully Mission Capable (FMC). Everyone knows that parts problems drive your fleet's CSFDR status down, but don't let it get worse than it has to be. A SIB member told me that the mishap wing he was at wasn't paying close attention to it. Although the wing had enough parts to have all but five of their jets with FMC CSFDR systems, they had well over five aircraft with inoperative CSFDRs. He told me the CSFDR status for each jet didn't even show up on the daily status sheet. Your fleet status for CSFDRs and like systems is much more important than that!

Maintainers aren't the only ones that preserve evidence, but our role is more prominent now with more aircraft in the inventory offering electronic data on various forms of avionics. That puts us in a critical position to make or break a safety investigation. I have absolutely no doubt that each incident of unnecessarily lost data resulted from a noble-hearted attempt to do what's right; but in retrospect, we wish we could have handled it differently. Please talk it up among your colleagues and key players. We must recognize the ever-increasing role maintainers play in the effort to preserve evidence... and especially the "electronic evidence." ■

Monthly Awards

AIRCREW SAFETY AWARD OF DISTINCTION

Capt Carl A. Butts, Capt Craig Hunnicutt, 335 FS, 4 FW, Seymour Johnson AFB NC

The sortie began with Mazda 34 as number four of a five-ship in the first cell of a re-deployment package. Blue 61 and 63 were the tankers escorting and refueling this cell departing from Lajes AB, Portugal, direct to Seymour Johnson AFB NC. The 7-hour flight crossed 1200 miles of icy water and required three refuelings. An hour and a half into the flight the first cell entered a 400-mile band of weather and was forced to fly in close formation with the tankers. Approximately 30 minutes into the weather, Mazda 34 experienced a Master Caution Light with Left Inlet and Utility A indications on their Multipurpose Displays (MPDs). Capt Butts and Capt Hunnicutt immediately analyzed the situation and accomplished the appropriate hydraulic checklists while maintaining aircraft control and formation in the deteriorating weather. Once they completed the immediate actions, Mazda 34 declared an emergency and started coordinating with Mazda 31, and Blue 61 for an ALTREV (Altitude Reservation) change and divert to the nearest suitable airfield with an arresting gear. After relaying their game plan to Mazda 31, they proceeded with the trail tanker for the 750-mile divert. Shortly



thereafter, Capt Butts and Capt Hunnicutt experienced total utility hydraulic failure and started encountering structural icing on their aircraft. Once again they accomplished the appropriate checklists and performed a flawless rejoin to the trail tanker, Blue 63, in IMC conditions. At approximately 35 NM from the Initial Approach Fix at Greenwood

AB, Canada, Mazda 34 performed an emergency alternate gear extension and directed his wingman to conduct a battle damage check. At this point they coordinated with ATC to have their wingman land first while they set up for their cable engagement and subsequent runway closure. Prior to shooting the approach, Capt Butts and Capt Hunnicutt accomplished all checklist items as well as coordinated contingencies associated with IMC, the short runway, and a missed cable engagement plan. In spite of an inoperative HUD and 25-knot crosswinds, the approach, landing, and cable engagement were all successful and uneventful. Capt Butts and Capt Hunnicutt demonstrated superb airmanship and Cockpit Resource Management given the severity of their situation and limited options available.

CREW CHIEF SAFETY AWARD OF DISTINCTION



*TSgt Patrick J. Doyle
302 FS, 944 FW
Luke AFB AZ*

TSgt Doyle was performing an engine interface inspection as is required anytime an engine is installed in an F-16 aircraft. The engine systems are checked for proper connections and operation.

Technicians inspect all connections and components to ensure no hot air leaks are present. If a bleed air leak is present and not detected, the hot air can cut metal like a blowtorch. When a fuel or hydraulic line is in this vicinity, catastrophic results could happen.

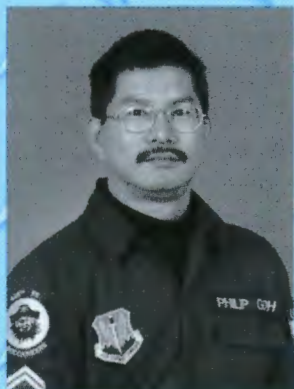
Sgt Doyle methodically checked each component during the engine run. As he swept his bare hand near the 13th stage bleed air valve connection, he thought he felt a small air leak; but when he rechecked the

area, no leak was apparent. As he continued through the technical order steps, he kept thinking about the 13th stage valve. He thought, "Something didn't seem right." Trusting his intuition, he returned to the valve and rechecked the area. Again, no leak was evident. He asked the engine operator to increase engine RPM, which would increase bleed air pressure and flow. He thoroughly rechecked the valve and was able to detect the leak.

In-depth troubleshooting determined that the leak was located in a confined area making it difficult to detect. If this condition was allowed to continue, extensive aircraft damage would have occurred from the blowtorch effects of the hot air leak.

Sgt Doyle pursued a gut feeling and, because of this persistence, may have possibly saved a valuable Air Force Weapons System and perhaps the life of a pilot.

WEAPONS SAFETY AWARD OF DISTINCTION



*1SG Philip Goh Meng Kwang, RSAF
428 FS, 27 FW
Cannon AFB NM*

On 23 Nov 98, weapons load crewmember 1SG Philip Goh Meng Kwang was tasked to perform a weapons preflight check on an F-16 aircraft. While inspecting the acceleration monitoring assembly (AMA), which was installed

on the station 1 missile launcher, he noticed that the retaining clip (measuring 1" by 2"), attached to the bolting area in the forward section of the AMA, was loose. The clip is used to prevent a bolt on the AMA from working itself loose. He proceeded to check the integrity of the clip and discovered that the retaining clip would easily dislodge from the AMA body. Further inspection of the rest of the squadron fleet revealed that two other aircraft had the same problem. If this

had not been discovered, the electronic unit of the AMA could have dislodged in flight resulting in a serious dropped object incident. The clip could also be a potential FOD hazard on the flight line. Load crewmember 1SG Philip Goh Meng Kwang went beyond the requirements of technical orders and averted a potential FOD hazard and an in-flight incident.

Ed Note: This award provides the opportunity to welcome back an old friend. The 428th "Buccaneers" have recently rejoined the active roles as ACC's newest re-activated fighter squadron. Based at the 27th Fighter Wing, Cannon AFB NM, the 428th is home to an outstanding joint USAF/RSAF (Republic of Singapore Air Force) group of professional aviators and maintainers. Welcome, Buccaneers, and congratulations on your first ACC Safety award!

GROUND SAFETY AWARD OF DISTINCTION



*TSgt Robert J. Salinas, SSgt Kevin A. Butler
Detachment 2, USAF Ground Operations School
Fort Irwin CA*



TSgt Salinas and SSgt Butler were performing Live Fire safety duties, call sign "Rustic," during National Training Center (NTC) rotational exercise 99-01. Live Fire is an intense phase in the NTC training environment as thousands of deployed personnel and their associated equipment utilize live ammunition and explosive ordnance to support realistic training. One of Rustic's primary duties is to oversee and direct ingress and egress routings for attached observer/controller personnel. Observer/Controllers are organic to the NTC battle space and provide real-time encouragement, training, and evaluation to the deployed force. Sergeants Salinas and Butler passed these instructions to Team Raven (USAF) observer/controllers collocated with blue force rotational players. The plan called for the extraction of forward deployed Enlisted Terminal Attack Controllers during a defensive live fire battle. All Team Raven observer/controllers are to call in to Rustic when they reach predetermined checkpoints along their route and when they reach their final destination. Unfortunately, in the vast desert landscape one can become readily disoriented. The Army's division fire support element notified Rustic that two Air Force

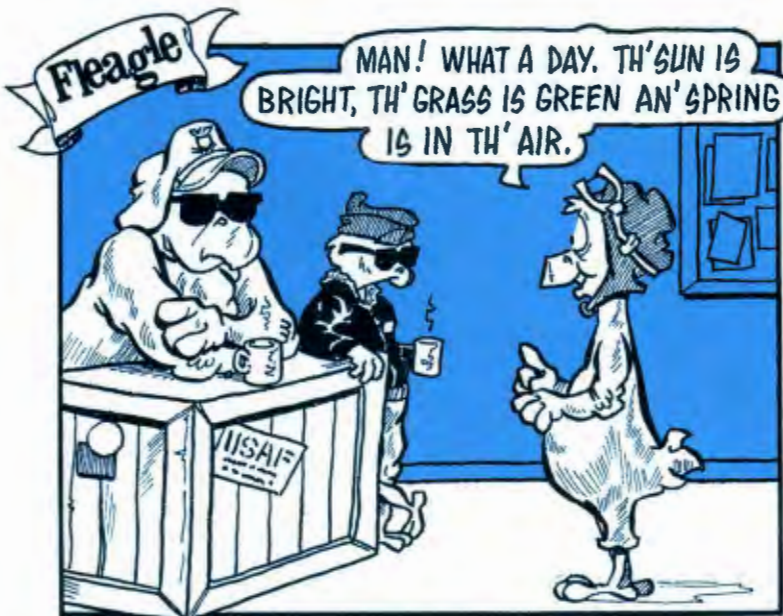
HMMWV vehicles had strayed off their course and were moving dangerously towards M-1 Abrams main battle tank gun positions preparing to fire 120 MM live rounds. Additionally, these vehicles were on a direct course for a live minefield. Rustic immediately notified the fire support element to cease all fire and contacted the strayed HMMWV to stop immediately and communicate their present position. Rustic rapidly verified that the vehicle had, in fact, strayed off its predetermined route and was moving toward this potentially catastrophic situation. They immediately developed and passed an extraction plan to include distance, heading, geographical reference points and new checkpoints to ensure the HMMWV got back on its original course with minimum risk. Rustic maintained 100% communication with the HMMWV throughout its new route ensuring it safely reached its destination. Sgt Salinas and Sgt Butler's proactive, aggressive, and timely reaction were life-saving, injury preventing, and resource preserving. Additionally, they were able to promptly restore live-fire training allowing for complete and realistic combat training to be completed.

FLIGHT LINE SAFETY AWARD OF DISTINCTION

*SrA Keith Wroten
33 MXS, 33 FW
Eglin AFB FL*

SrA Wroten had completed his assigned task of delivering missiles to the flight line from the weapons storage area. His travel route led him past the outdoor alternate fuel cell maintenance area where he noticed a smoking lite-all. Amn Wroten immediately stopped the bobtail he was driving and retrieved the vehicle's fire extinguisher. It was at this time he noticed the lite-all had burst into flames. Amn Wroten alerted munitions control of the need for the fire department to respond and immediately

proceeded to the business at hand -- fighting the fire. Due to the alert actions of Amn Wroten, the fire was completely extinguished when the fire department arrived on the scene. Had the fire not been put out so rapidly, it could have potentially started an explosive chain reaction involving the nearby fuel cell maintenance area. The quick thinking and assertive actions of this airman not only prevented the destruction of valuable combat resources, but loss of life as well.



I Threw It

AB Scott A. S. Willeke, Former member assigned to Misawa AB, Japan

April 20, 1994, was my wife's 25th birthday. There was no celebrating this year. It's not that I don't love my wife; I killed her by driving drunk.

I'm not someone sitting behind a computer in an office. I'm writing this letter from my jail cell.

Both me and — unfortunately — my wife, have been affected by drunk driving. For my stupidity, I was court-martialed, received a bad-conduct discharge, 1 year of confinement, forfeiture of \$550 a month for 12 months, and a reduction in grade to airman basic. For my stupidity, my wife died. How did this happen?

Like many couples, we had a promising future. We had a beautiful marriage and satisfying jobs. I had been selected for promotion to staff sergeant and selected to participate in the annual Gunsmoke competition. Though we had been married slightly more than a year, we had traveled to places others only dreamed about. We looked forward to a life in the United States Air Force and all the benefits that accompanied it. However, on November 7, 1993, "I threw it all away!"

That night, I decided to drive my wife home after a night of drinking and dancing. "I'm not drunk"... or so I thought. But in reality, I was drunk; and I decided to drive home in that condition anyway. Sad to say, that night was the last time I ever saw my wife alive.

On the way home, I foolishly tried to keep up with a friend who had been speeding in another car. I lost control of my car and slammed into a concrete utility pole. My wife was thrown head first into the concrete pole and was ripped from the car as the passenger side was completely demolished. She died violently.

Who was I to play God with her life and others? She didn't deserve this. No one deserves this. If you ever met my wife, you know she was full of life and happiness. She was seldom seen without her beautiful smile. But now, no one will ever see her smile again.

Drinking affects your judgment. I drank alcohol before, and thought I knew my limit. That night, I consumed a bottle of wine, a couple of beers, and a soju-based mixed drink in approximately 4 hours. I didn't think I was drunk, nor did I think the alcohol would affect my judgment. I was wrong.

On the night of the accident, I was speeding and failed to negotiate a curve I knew like the back of my hand. Driving requires your best judgment and reflexes. Unfortunately, alcohol took mine away on November 7th; and that took my wife away... forever.

If there is a lesson to be learned from this tragedy, it is this: Don't Drink and Drive! You will eventually get caught. If you are fortunate, you'll only have to pay a fine or have your driving privileges revoked. However, there is a good possibility you may end up like me — a convicted felon with an uncertain future. My wife is dead, as is my career.

It will be virtually impossible for me to find meaningful employment and obtain credit after I am released from jail. On the balance, my sentence is a small price to pay for the lives I destroyed — "I threw it all away!"

Unfortunately, my wife never had a say in what happened; and she paid the ultimate price for my crime. For those of you who would shrug this article off and say, "It won't happen to me," I beg to differ. ■

t All Away

She didn't deserve this. No one deserves this. If you ever met my wife, you know she was full of life and happiness. She was seldom seen without her beautiful smile.



Reprinted from Northern Light, Misawa AB, 27 May 1994

FY 98 Air Combat Command Flight Safety Award

The ACC Flight Safety Award recognizes units that flew the previous fiscal year without a command-controlled Class A or B flight mishap. Congratulations to the following winners of the fiscal year 1998 Flight Safety Award:

ACC Active Units

2d Bomb Wing, Barksdale AFB LA
5th Bomb Wing, Minot AFB ND
9th Reconnaissance Wing, Beale AFB CA
20th Fighter Wing, Shaw AFB SC
24th Wing, Howard AFB PN
33d Fighter Wing, Eglin AFB FL
49th Fighter Wing, Holloman AFB NM

55th Wing, Offutt AFB NE
85th Group, NAS Keflavik IC
93d Air Control Wing, Robins AFB GA
347th Wing, Moody AFB GA
366th Wing, Mt Home AFB ID
509th Bomb Wing, Whiteman AFB MO
552d Air Control Wing, Tinker AFB OK

ACC-Gained ANG Units

102d Fighter Wing, Otis ANGB MA
103d Fighter Wing, East Grandby CT
104th Fighter Wing, Westfield MA
106th Rescue Wing, Westhampton Beach NY
110th Fighter Wing, Battle Creek MI
111th Fighter Wing, Willow Grove PA
113th Wing, Andrews AFB MD
114th Fighter Wing, Sioux Falls SD
115th Fighter Wing, Madison WI
116th Bomb Wing, Robins AFB GA
119th Fighter Wing, Fargo ND
120th Fighter Wing, Great Falls MT
122d Fighter Wing, Fort Wayne IN
124th Wing, Boise ID
125th Fighter Wing, Jacksonville FL
127th Wing, Selfridge ANGB MI
129th Rescue Wing, Moffett Federal Airfield CA
131st Fighter Wing, Bridgeton MO
132d Fighter Wing, Des Moines IA
138th Fighter Wing, Tulsa OK
140th Wing, Aurora CO

142d Fighter Wing, Portland IAP OR
144th Fighter Wing, Fresno CA
147th Fighter Wing, Houston TX
148th Fighter Wing, Duluth MN
149th Fighter Wing, San Antonio TX
156th Fighter Wing, Central Carolina PR
158th Fighter Wing, South Burlington VT
169th Fighter Wing, Eastover SC
174th Fighter Wing, Syracuse NY
175th Wing, Baltimore MD
177th Fighter Wing, Egg Harbor TWP NJ
178th Fighter Wing, Springfield OH
180th Fighter Wing, Swanton OH
181st Fighter Wing, Terre Haute IN
183d Fighter Wing, Springfield IL
184th Bomb Wing, McConnell AFB KS
185th Fighter Wing, Sioux City IA
187th Fighter Wing, Montgomery AL
188th Fighter Wing, Fort Smith AR
192d Fighter Wing, Sandston VA

ACC-Gained AFR Units

419th Fighter Wing, Hill AFB UT
442d Fighter Wing, Whiteman AFB MO
513th Air Control Group, Tinker AFB OK
917th Wing, Barksdale AFB LA

919th Special Operations Wing, Eglin AFB FL
926th Fighter Wing, NAS JRB New Orleans LA
939th Rescue Wing, Portland IAP OR
944th Fighter Wing, Luke AFB AZ