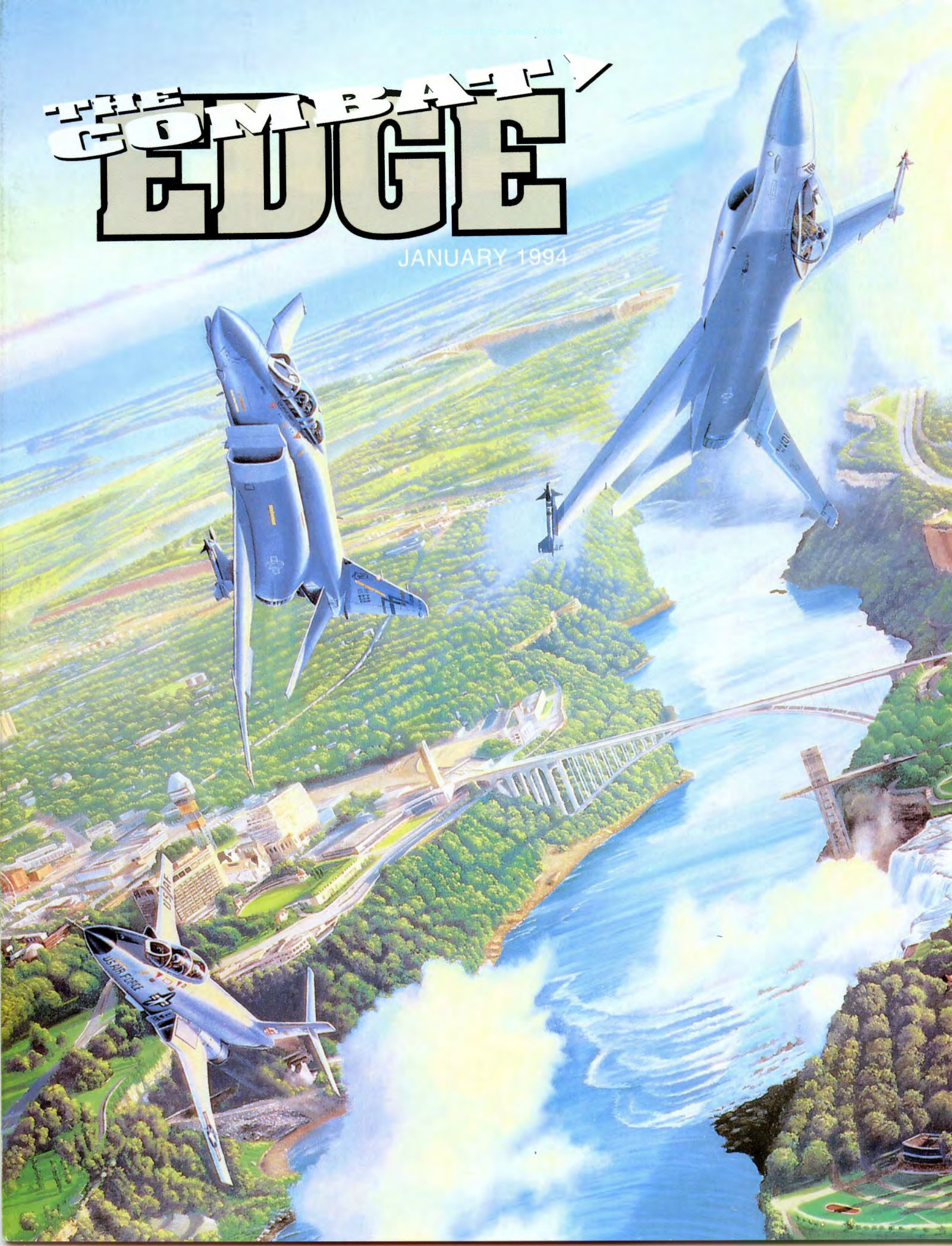


# THE COMBAT EDGE

JANUARY 1994







**Gen John M. Loh**  
Commander

**Col Robert R. Jones**  
Chief of Safety

**Lt Col "Nellie" Beard**  
Editor

**Ron Smith**  
Art Director

**Barbara Taylor**  
Awards Administrator

**Sgt Mark S. Bailey**  
Staff Artist

*The Combat Edge* (ISSN 1063-8970) is published monthly by the Air Combat Command, HQ ACC/SEP, 130 Andrews St Ste 301, Langley AFB VA 23665-2786. Second-class postage paid at Hampton VA and additional mailing offices.

**POSTMASTER:** Send address changes to *The Combat Edge*, HQ ACC/SEP, 130 Andrews St Ste 301, Langley AFB VA 23665-2786.

**DISTRIBUTION:** F(X). OPR: HQ ACC/SEP. Distribution is controlled through the PDO based on a ratio of one copy per ten persons assigned. Air Force units should contact their servicing PDO to establish or change requirements. Other DOD units have no fixed ratio and should submit their requests to the OPR.

**ANNUAL SUBSCRIPTIONS:** Available to non-DOD readers for \$24 (\$30 outside the U.S.) from the Superintendent of Documents, PO Box 371954, Pittsburgh PA 15250-7954. All subscription service correspondence should be directed to the Superintendent, not HQ ACC/SEP.

**CONTRIBUTIONS:** Articles, comments, and criticisms are welcome. Write: Editor, *The Combat Edge*, HQ ACC/SEP, 130 Andrews St Ste 301, Langley AFB VA 23665-2786, or call DSN 574-3658/commercial (804) 764-3658. The editors reserve the right to edit all manuscripts for readability and good taste.

**DISCLAIMER:** Viewpoints expressed are those of the author and do not necessarily represent the policy of DOD, DAF, ACC or the author's organization. Information contained in any article may not be construed as incriminating under Article 31, UCMJ.

# THE COMBAT EDGE

Air Combat Command  
Safety Magazine

## Features

4

### REDUCING ENVIRONMENTAL INCIDENTS: THE TEAM APPROACH

Brig Gen Michael A. McAuliffe  
HQ ACC/CE  
Langley AFB VA

8

### LET'S GET PHYSICAL

#### A "conscious" effort can keep you alive

If you're serious about flying high-performance fighter aircraft, then you'd better get serious about just how you condition your own body.

29

### FLY FAST BUT FLY FIT

G-STEP is an exercise program developed specifically to address the fitness condition of fighter pilots at squadron and wing levels using a wide variety of training equipment and facilities that presently exist on bases and in squadrons.

## Departments

24 26

### FLIGHT SAFETY

22

### GROUND SAFETY

12

### AWARDS

7

### FLEAGLE

15

### ACCOLADES

18

### 1993 INDEX

# JAN 94

ACC SP 127-1 VOLUME 2 ISSUE 8

### ABOUT THE COVER

The lineage of the 107th Fighter Interceptor Group dates from 24 May 1946 when the 339th Bomb Group, equipped with P-47 Thunderbolts, was redesignated the 107th FIG and assigned to the New York Air National Guard at Niagara Falls. Since its inception, the 107th has flown a variety of fighter aircraft from P-47s to F-16s. Later this year the 107th will convert to the KC-135R.



# ACCENT on Safety

**G**REETINGS AND HAPPY NEW YEAR TO ALL! ACC is stepping out smartly in 1994 with much to be proud of in 1993 and hopefully only more progress and improvement in 1994. For one, the command had a record-setting performance in flight safety in 1993 and contributed strong performances in weapons and ground safety. As a result of the strong performance YOU turned in, we have set even more ambitious, yet achievable goals for FY 94 which we are already on pace to achieve. We are setting our objective for '94 to keep our overall Class A mishap rate below 1.6 mishaps per 100,000 flying hours (we finished '93 with a 1.8 rate). In our Missile/Explosive area, we have set an objective of 0.5 Class A mishaps per 100,000 flying hours. In the Ground area, we have set our sights on keeping our Class A ground mishap rate below 0.8 mishaps per 20 million manhours. These are tough objectives but they are achievable -- not too many years ago, a fighter mishap rate of 4.0 was deemed impossible and last year we saw 2.0 -- these objectives are doable!

As I said, ACC is off to a great start in each area with the exception of the ground mishap rate. Thus far, in FY 94, the command has lost 7 individuals in on-off duty mishaps. Five of the 7 were the result of human factors which could probably have prevented the fatalities. Non use of seat belts, alcohol, and inattention to the environment were major contributors. Does this sound familiar? It should -- same story as last year. I challenge all of you who are commanders, supervisors, or just plain friends, to get ACTIVELY involved with your people. We have created the We Care program to provide you a vehicle for assessing risk/vulnerability in your personnel. Get familiar with the program--it will help. More importantly, get familiar with and know your people and provide the leadership and care needed to ensure all of our people are focused on taking care of themselves as well as the mission. I need your help to drive our ground mishap rate down to zero!

As you start back into your operations in the new year which just started, keep in mind that January has historically been a high risk month. A relaxing holiday sometimes tends to relax the mind too much as well and picking up a high pace in early January has sometimes proven unwise and fatal. Common sense must prevail -- if you're not ready to run...WALK! Get your G-tolerance, your driving legs, munitions handling procedures, etc., back before you try to go full bore. There's no peacetime need to press.

Finally, we welcome the B-2 formally into the command. This superb new weapon system is certainly a needed and welcome addition to our inventory. It ensures ACC and the Air Force remain at the leading edge of technology and combat capability. Glad to have you on board!

*Colonel Bob Jones  
Chief of Safety*







*Brig Gen Michael A. McAuliffe  
HQ ACC/CE  
Langley AFB VA*

# REDUCING INCIDENTS

## The Team Approach

**W**e in Air Combat Command (ACC) -- like the rest of the Air Force -- take our role as stewards of America's environment seriously. Actions that hurt the environment are no longer simply reported and seemingly forgotten. Today, everyone from the ACC Commander right down to the newest airman in the squadron is responsible to find ways to prevent these mistakes. Paying fines and cleaning up fuel spills take a big bite out of our funding for mission requirements. On 1 Nov 93, ACC implemented a program that promises to reduce our environmental mistakes and avoid the unnecessary drain on our Operations and Maintenance budget. The new program is called the Environmental Incident Investigation Board (EIIB).

Most of our environmental concerns stem from unsafe handling and storage of hazardous waste. Although federal agencies -- including the Air Force -- are subject to the hazardous waste rules of the Resource Conservation and Recovery Act (RCRA), until recently the law had no teeth where federal government agencies were concerned. We had

sovereign immunity and could not be fined even if we broke the law. On 6 Oct 92, then-President Bush signed the Federal Facilities Compliance Act (FFCA) eliminating all federal sovereign immunity to fines under RCRA. The law got its teeth.

Since then, many states have taken this long-awaited change to heart and have readily assessed fines on ACC installations for hazardous waste violations under RCRA. In addition, ACC has had several serious fuel spills in the past couple of years alone costing hundreds of thousands of dollars to clean up. These fines and cleanup costs hurt even more when you realize that they are largely preventable. The trick, then, is to find ways to avoid them.

The first step, of course, is for all members of the ACC team to accept his or her environmental responsibility. We are all partners in environmental stewardship and must take this role seriously. General John Michael Loh, the ACC Commander, put this into perspective when he stated, "We ought to treat environmental incidents like aircraft accidents." Serious? You bet!

The logical next step for us as a team is to share



# ENVIRONMENTAL

our secrets. If you've found a great way to avoid fuel spills on the flight line or a new chemical that allows you to do your job but is safer for the environment, pass the word. To do this, we have adapted the Federal Aviation Agency's (FAA) Notice to Airmen, or NOTAM. The FAA NOTAM is issued and given the widest possible dissemination to alert air crews to something happening at an airfield they intend to use that would affect their safety (e.g., runway closure due to construction or repair work). This prevents aircraft accidents by giving air crews a "heads-up" allowing them to change their plans and divert to another airfield. The Environmental NOTAM works much the same way. By sending a notice throughout the Air Force, we allow base personnel to change their procedures as necessary to prevent environmental incidents. Often we don't get to share information this way until someone in the Command has learned the lesson the hard way. Sometimes the word doesn't get out and the mistakes are repeated unnecessarily at other locations. The answer, then, is immediate and full crossfeed of information throughout the Command.

The purpose of the Environmental Incident Investigation Board is twofold: (1) to strengthen the accountability and sense of responsibility of each team member toward the environment, and (2) to maximize the crossfeed of lessons learned throughout ACC. By investigating each incident and sharing the results of the investigation across the Command, we hope to eliminate similar incidents in the future.

The ACC Environmental Leadership Council,

**If you've found a great way to avoid fuel spills on the flight line or a new chemical that allows you to do your job but is safer for the environment, pass the word.**

chaired by the ACC Vice Commander and composed of all the Headquarters Directors, authorized the EIIB and commissioned the EIIB Working Group to study the concept and come forward with a workable process. Representatives of the offices of the Judge Advocate General, Logistics, Public Affairs, Safety, the Office of Special Investigation, the Surgeon General, the Comptroller, and the Civil Engineer teamed up to make the process truly cross-functional. Here's how it works:

When a base reports a petroleum spill or an enforcement action resulting from a violation of environmental regulations, the local wing commander is notified. In the case of a spill, the Spill Response Team is also notified. The wing commander immediately notifies the legal office and asks the local OSI detachment to conduct a preliminary investigation. The EIIB cannot proceed until the wing commander receives the legal clearance. Figure 1 shows the steps of an EIIB investigation.

The purpose of the legal/OSI review is to ensure no criminal offense has occurred. Should the review find that the incident is of a criminal nature, the legal/OSI team can determine the proper method



# REDUCING ENVIRONMENTAL INCIDENTS: THE TEAM APPROACH

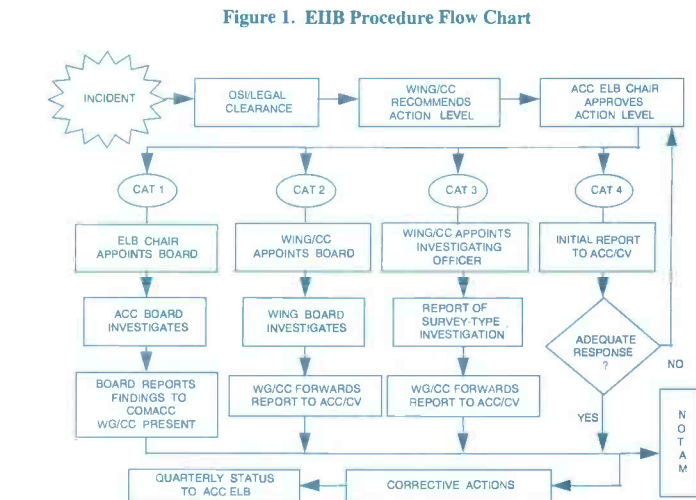
of safeguarding evidence or documenting the scene for future legal proceedings. In the case of a spill, the legal/OSI team will be looking over the shoulders of the Spill Response Team to quickly determine if it is likely that a criminal act occurred, but will not interfere with the spill response. Although the preliminary legal investigation must start immediately, the first order of business is to clean up the spill. Once the legal/OSI team is satisfied that no criminal wrongdoing took place, it gives the wing commander the green light.

Next, we determine the seriousness of the incident to decide the incident category. Figure 2 compares the four incident categories. Note that the top three categories require investigation. There is a special case -- Cat 4 -- when an incident does not require an investigation because the solution was implemented before the base received the enforcement action from the regulatory agency. In this case, further investigation would not be economically feasible.

The Chairperson of the ACC Environmental Leadership Board (ELB) determines the investigation category based upon the wing commander's recommendation. The investigation can then proceed. Once all the facts of a Cat 1 incident are known, the board chairperson and the wing commander brief the COMACC on the results. Reports of Cat 2 and Cat 3 investigations are sent to the ACC Vice Commander.

Since information sharing is essential, we at the Headquarters make sure we send an Environmental NOTAM on the results of each investigation and track each incident until its cause has been completely eliminated. If you want to know more about environmental incident investigations, I suggest you read the ACC Instruction attached to the Vice Commander's 1 Nov 93 EIIB Policy Letter.

Through this process, we hope the information learned from the complete investigation of environ-



mental incidents will reach every team member in the Command. Share the Environmental NOTAMs with your coworkers. Spread your great ideas beyond your own shop. Only when the novel solutions and great ideas reach every ACC team member will we achieve our goal of no new violations and no spill. We're all stewards of the environment we inherited. Let's join in giving our future generations of Americans a better, more secure place in which to live.

After all, that's why we're in this business, isn't it? ■

Figure 2. EIIB Criteria

CATEGORY	CRITERIA	ACTIONS
1	FINE/DAMAGE THRESHOLD ABOVE \$200K OR MORE THAN 5 OEAs FROM INSPECTION OR ENDANGER'S PUBLIC HEALTH, SAFETY, AND THE ENVIRONMENT OR DIRECTED BY ACC ELB CHAIR	TEAM APPOINTED BY ELB CHAIR WITHIN ONE WEEK OF CATEGORY DETERMINATION INVESTIGATION TWO WEEKS MAXIMUM BOARD BRIEFS COMACC WITH WING/CC
2	FINE/DAMAGE RANGE \$50K TO \$199K OR TWO TO FOUR OEAs FROM INSPECTION OR REPEAT OEA	TEAM APPOINTED BY WING/CC WITHIN ONE WEEK OF CATEGORY DETERMINATION INVESTIGATION TWO WEEKS MAXIMUM WING/CC SUBMITS REPORT TO ACC/CV
3	FINE/DAMAGE UNDER \$50,000 RECEIPT OF OEA	REPORT OF SURVEY-TYPE INVESTIGATION FIELD GRADE INVESTIGATING OFFICER WING/CC SUBMITS REPORT TO ACC/CV
4	ALREADY IDENTIFIED BY BASE AND CONSIDERED BY WING/CC AND ACC ELB CHAIR TO BE ADEQUATELY ADDRESSED	INITIAL WG/CC REPORT TO ACC/CV WITHIN TWO WEEKS OF INCIDENT





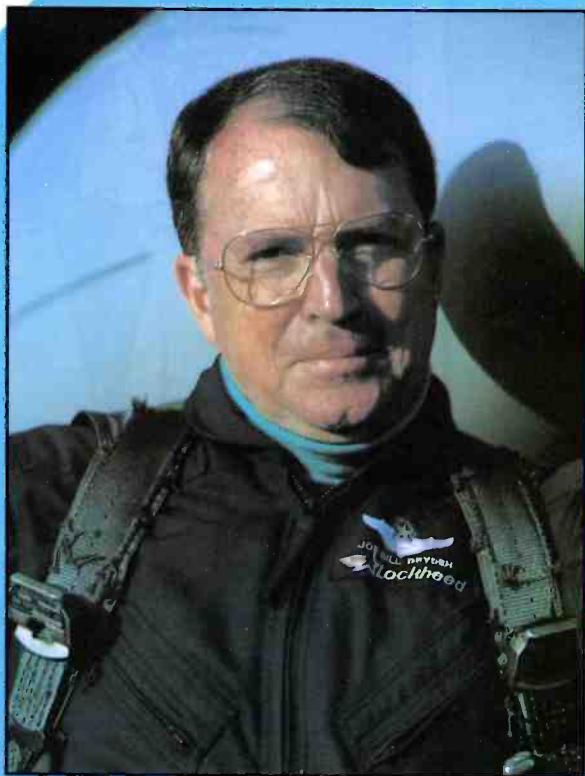


# LET'S GET PHYSICAL

## A "conscious" effort can keep you alive!

*By Joe Bill Dryden  
Experimental Test Pilot*

Reprinted with permission from Code One



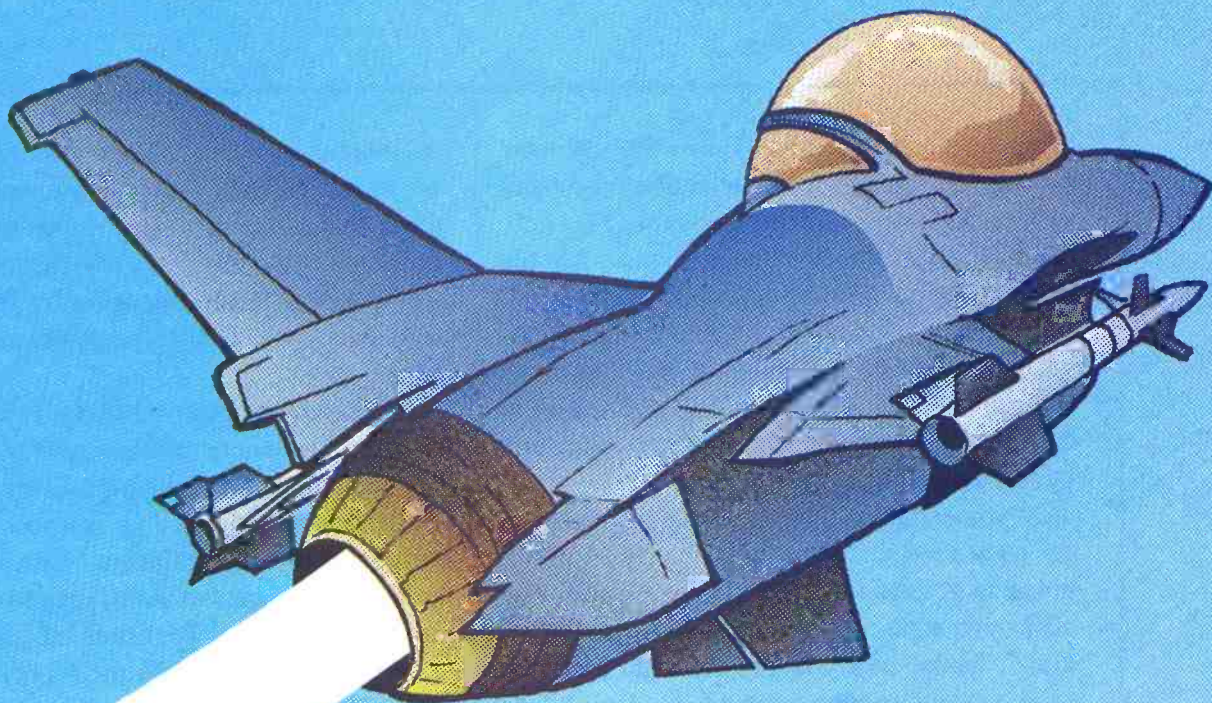
*Joe Bill Dryden died on 24 May 1993 when his F-16 crashed during a company acceptance flight over north central Texas. His untimely passing has left a void that may never be filled. But his articles and views on the Viper remain a timeless legacy to him and his dedication to the F-16 community.*

-Ed

**T**hose of you familiar with automobile racing will immediately recognize the names of Roger Penske and Mark Donohue, an owner/designer and engineer/driver team that dominated automobile racing for a long time. Each time they would enter some new class of racing, they would immediately begin to be a threat to the "old heads" and would soon be winning everything in sight. On one occasion, Mark was being questioned by reporters as to the secret of his success. He replied that he had an unfair advantage...and let the question drop. For weeks this answer drove the reporters nuts as they tried to figure out just what this "unfair advantage" really entailed. When finally pressed further, Mark said this unfair advantage was, simply, attention to detail. Please keep that remark in mind as you read the remainder of this article.

Several F-16 accidents give all the indications that the pilot hit the ground in a perfectly good airplane. One reason advanced for some





of these accidents was that the pilot was unconscious at the time.

Why was he unconscious? (A rhetorical question.) It appears that he had pulled more G than his body was capable of withstanding. How could this happen? Are you not a dyed-in-the-wool fighter pilot, ever capable of sustaining at least 12 G's?

Can you really? Any time you want? Let's look a little deeper into the mechanics of functioning effectively (the operative words here) under the G loads the F-16 is capable of delivering.

How about your own pink body? What kind of physical condition are you in? Are you really? Do you take proper care of the carcass the genetic pool provided for you? Do you get the proper diet? Do you get the right amount of rest? Do you sometimes fly despite a partially debilitating illness? Worse yet, do you sometimes indulge in a little self-medication for the aforementioned illness? Do you take good care of the equipment issued you? Do you use all the equipment that is available? Do you drink a little too much? Hummmmm?

If you're serious about flying high-performance fighter aircraft, then you'd better get serious about just how you condition your own body. Consider the following:

How much exercise do you get? The idea here is not to become a marathon runner or a triathlon competitor. In order to be really in shape for these events, your blood pressure would become too low to fly fighters effectively. But neither can you emulate a sloth, swilling beer in front of your TV set every evening and weekend. It's up to you to establish a routine that will provide a lot of walking, a moderate amount of running (especially upstairs), a reasonable amount of sit-ups, and a general routine of weight work in order to be in the physical condition necessary to really use the airplane to its maximum.

How much rest do you get? Do you really get a good night's sleep before you go fly? If your body is not rested and ready, then nei-



ther are you. I think it was Casey Stengel who, when asked by a sports reporter about his rules concerning sex before the "big game," replied, "Hell, it's not the sex that gets you, it's the staying up all night looking for it!" The moral of the story is this: if you're accustomed to getting 6, 7, or 8 hours sleep a night, then don't stay up to 1 or 2 in the morning and expect to be a hundred percent 4 hours later when you strap yourself into your F-16.

Do you eat right? Just like your jet, you need the right kind of fuel in order to fly. I'm not going to go into a nutrition course here. You all know what is contained in a "balanced diet." Make sure you eat the right kinds of food before thrusting yourself into the high-G environment.

Do you smoke? There's been a controversy lately about "blood doping" by some of our Olympic athletes. What they've been doing is extracting and saving some quantity of their own blood. Then, just before the big event, they infuse the additional blood into their system. The idea is to "supercharge" their blood system with an additional amount of oxygen-carrying red blood cells. This is certainly nothing that we could or even should try to do ourselves, but why go to the opposite extreme and tie up a large proportion of what red blood cells you have with useless CO? DON'T!

Then there's the touchy subject of drinking. Fighter pilots are somewhat the victims of a macho, hard-living, hard-drinking image that has existed since WWI. I'm not a teetotaler; I drink something besides diet soft drinks. But I don't drink more than one beer if I'm going to be flying the next day (especially if I'm going to be flying EARLY the next day). We're nowhere near the limit of a human's ability to fly airplanes, but you're sure cutting into your margin if you insist on staying up late and trying to drink everybody under the table. You are NOT sober the next morning if you try to go fly. For that matter, you can sometimes find traces of alcohol in your sys-

tem more than 48 hours later. A very insidious side effect is that alcohol in your system can infuse and partially replace the fluid normally contained in the inner ear, which can screw up your inner ear calibration and give you erroneous inputs under G just when you can ill afford them.

OK. Enough about your body. It's all yours, but it's up to you to take the proper care of it. Just don't forget that the high-G environment you're trying to exist in is more than the average citizen can tolerate. You must have the self-discipline not to fall prey to the wrong fighter pilot image. That should have changed about the time we quit flying P-51s and P-47s.

Now let's talk about your equipment. In what kind of shape is your G suit? I know of 2 individuals who thought it wasn't macho to wear a G suit. (One of them is a mort. In an airplane. While pulling a lot of G.) Make sure your suit is in good condition and is properly fitted; i.e., snug if not downright tight. Do you always make sure you zip up the thigh zippers? I'll bet you sometimes forget. Do you always plug the sucker into the connection - properly or otherwise? (The new connectors will go a long way to insure that the connection stays put once you've pressed them firmly together.) Make sure you have the G suit refitted after it stretches (they all do). The new quick-fill valve now being installed in the airplane will help a lot.

I definitely get the impression that we're not all doing the right kind of M-1/L-1 (select one). Make SURE you know just what it is that you're trying to accomplish with the maneuver. In its simplest terms, you're trying to artificially raise your blood pressure while pulling G. Over any period of time, it's up to you to provide about 80 percent of your G tolerance by this straining maneuver. EVERY muscle in your body should be tense. You should feel like you're hyper-constipated. Your thighs and calves should be tensed. You should be trying to curl your toes out the bottom of your boots. You should be straining



with every muscle in your upper body. You should also be aware of your breathing. The worst thing you can do is hold your breath while pulling G. I've seen people who try to do exactly that (not recommended)! The medical community tells me you should be taking a breath about every 3 seconds. I'm not sure this is true for each and every one of us, but it seems fairly close. I breathe at about that rate. Check yourself. It's easy. Just go hot mike during your next engagement and then listen to the tape. What you should hear is a sharp (i.e., rapid) intake of breath, about 3 to 5 seconds of relative silence while you really bear down with the M-1/L-1, and then a sharp exhalation followed instantly by the next inhalation to start the next cycle.

Now here's a G-tolerance tip I'll bet you haven't heard about. I saw an article in the 2 June 1980 issue of *Sports Illustrated* that really started me thinking. The article was about our Olympic Luge team and how they had been helped by a dentist. It seems that he'd made them a mouthpiece to wear during their runs on the luge to improve their ability to pull G during the turns. I figured that if it could help these folks pull 3 to 4 G for less than 10 seconds, then it should certainly be able to help us pull 9 G for a longer period of time. I had the dentist at Edwards AFB make one for me, and I'm convinced it improves my G tolerance by at least 1 G. This is just my subjective judgement, but I'm sure that the improvement is at least that much. The kind of mouthpiece I'm describing is a TMJ bite block. It is very important that you make this distinction. It is NOT the kind of mouthpiece you wear playing football or any other contact sport. *It's not there to keep you from chipping your teeth.* TMJ is short for temporomandibular joint ("jawbone" for you ag majors). The principle involved is that all of us have some degree of misalignment as to how our teeth match up. We subconsciously hold our jaw in the proper position so our teeth mesh. This TMJ bite block helps align the jaw prop-

erly so we can now relax and not have to use unnecessary muscular strength. It also gives us something to bite on to help strain. The more muscles we can use effectively, the higher we can raise our blood pressure to combat G effects. I know some of you think this is a bunch of BS, but give it a try before you write it off. Go to your dentist on base and tell him you want to be fitted with a TMJ appliance. I'll be surprised if you don't think it makes an improvement in your ability to sustain G. It is not magic. (The bite block is just one more item to add to what you already should be doing.)

Before I end, I want to discuss one more aspect of pulling G. There's some concern that the ability of newer airplanes to pull G in a hurry, or "onset rate" (specifically the F-16, but with its new G limiter the F-18 is probably as quick) decreases your ability to pull G. I don't see where this is a player. If you're flying the airplane, it should never be a surprise that there's suddenly a rapid increase in G. If the message goes from your brain to your right hand "Mongo, PULL now!" it should also be able to send a message in parallel to the REST of Mongo - "here comes a lot of G!" Although these new airplanes are capable of high onset rates, you're the one controlling the onset of the onset. Understand? It should come as no surprise, then, that there'll be a lot of G to contend with shortly after you yank on the stick. You're the one in control. Get ready early! Just because you know that the G limiter will prevent you from an over-G on the airplane does not remove your obligation to prevent an over-G on YOU!

Attention to detail. You can make it work for you. *I'm no superman*, but I'll be happy to demonstrate a constant 9 G for more than 45 seconds. Any time you'd like. Because I'm looking for any detail that will help me win...I'm looking for that "unfair advantage." Check six. ■



# PILOT SAFETY AWARD OF DISTINCTION

*1Lt Kenneth H. Dwelle, 389 FS, 366 WG, Mt Home AFB ID*



First Lieutenant Dwelle, an F-16C pilot at Mt Home AFB, was flying as number eight in a wing composite force training (CFT) mission. Lieutenant Dwelle's element successfully ingressed the target area at Saylor Creek Range, 25 miles southeast of Mt Home and began a 30-degree afterburner climb for Maverick missile attacks. At 4,500 feet AGL, the engine on Lieutenant Dwelle's aircraft began to vibrate severely. He immediately snapped the throttle to Mil power, but the vibration continued. After a subsequent throttle reduction to idle power, the vibration ceased. While continuing a zoom climb, he called a knock-it-off, pointed his aircraft toward Mt Home, and called for his lead to join on him. Since idle power would not allow him to gain enough altitude for a simulated flame out (SFO) approach to the base, Lieutenant Dwelle advanced the

throttle to approximately 80 percent RPM, the highest power setting he could get with no engine vibration. With a call from his lead that he was now trailing smoke and his airspeed still decreasing, Lieutenant Dwelle pushed the emergency jettison button to get rid of the Maverick missile and empty external wing fuel tanks. When a 1:1 glide ratio from the runway was attained, he laced the throttle at idle. At 14 miles from the field, the HYD/OIL pressure caution light illuminated and the oil pressure went to zero. Lieutenant Dwelle flew a flawless SFO approach and landing and accomplished an emergency ground egress due to the amount of smoke billowing from the aircraft. Post-flight inspection revealed oil starvation to the number five engine bearing, causing it to fail.

## CREW CHIEF EXCELLENCE AWARD

*SSgt Clifford M. Bielesch, SSgt Jack T. Reid,  
Sgt Dewayne R. Fowler, SrA Eduardo Sanchez, Jr.  
59 FS, 33 FW, Eglin AFB FL*



Sergeant Bielesch was instructing an airman on F-15C fireguard duties during the first launch of the day.

The pilot started the aircraft's right engine uneventfully, but during the start of the left engine, the jet fuel starter (JFS) failed and caught on fire. Sergeant Bielesch unrolled the fire extinguisher hose, instructed the airman to charge the hose, and started fighting the fire. Sergeant Reid, on the next row, saw the fire and ran over to assist. At the same time, Sergeant Fowler and Airman Sanchez also saw the fire and ran over to assist. Airman Sanchez took a second fire extinguisher and

positioned it on the other side of the aircraft. He had run through a cloud of Halon to get to the other side of the aircraft and could only manage to charge the extinguisher. Sergeant Fowler took over the extinguisher hose and applied agent to the JFS intake. The pilot shut off the engines and fuel was vented onto the ground and caught on fire. Sergeants Bielesch, Reid, Fowler and Airman Sanchez fought the fuel blaze until it was out. Sergeant Reid then checked the engine fire access door and found more fire in the engine bay. At this point, he and Sergeant Fowler extinguished the remaining fire. The coordinated efforts of these four men prevented the loss of the aircraft, collateral damage to the adjacent F-15Cs, and saved the pilot.



# AIRCREW SAFETY AWARD OF DISTINCTION

*Capt Scott W. Hughes, Capt Michael J. Dunlay  
429 ECS, 27 FW  
Cannon AFB NM*



I was leading a two-ship flying a direct support jamming mission. Approaching the letdown point for the low-level route, my EWO noted the INS and one navigation computer had failed. Verifying our position with our wingman, we continued the low level using the auxiliary navigation system. Four minutes later, the auxiliary navigation system failed accompanied by the forward equipment bay cooling system caution lights. I started a climb and directed my wingman to rejoin. Passing 3,000 feet AGL, the aircraft pitched up and rapidly rolled to the left. I quickly applied full forward and full

right stick and was able to recover the aircraft to level flight with 30 degrees of left bank while holding full right stick. The warning panel caution lights reflected a serious flight control problem. We confirmed emergency generator operation while fighting the aircraft and performed a controllability check. A divert to Dyess AFB began while reviewing our ejection plan. We landed successfully from an opposite direction formation approach. Post flight inspection revealed a major electrical fire in the forward equipment bay.

# GROUND SAFETY INDIVIDUAL AWARD OF DISTINCTION

*TSgt Ernest J. Winn, 28 TESTS, 79 TEG, Eglin AFB FL*



Technical Sergeant Winn is a highly motivated, experienced NCO whose unique combination of technical proficiency and dynamic "can do" attitudes have created an atmosphere of safety awareness within the squadron that has no parallel. The results speak for themselves: he revitalized a hum-drum squadron ground safety program to one that was rated "EXCELLENT" during a recent inspection. Shortly after assuming responsibility for the squadron ground safety program, he discovered the fault; it was only a matter of time before grave damage to expensive equipment and/or life threatening injury to personnel occurred. Sergeant Winn greatly increased visibility through his electronic mail ground

safety communications program. The program enables rapid dissemination of information, reduces paperwork, and encourages innovative self initiatives among the subordinate flights. The personal touch he added to the E-Mail program promotes interest and attention to the squadron safety program. As a result, the squadron passed the "101 Critical Days" with a zero-incident rate. The E-Mail program concurrently cuts the report time in half as compared to the old program. He is a dynamic leader who searches for potential problem areas and develops solutions before they become incidents. He has more than earned the ACC Ground Safety Individual Award of Distinction.



Mail To: Superintendent of Documents  
P.O. Box 371954, Pittsburgh, PA 15250-7954



# ACColades

QUESTIONS OR COMMENTS  
CONCERNING DATA ON THIS  
PAGE SHOULD BE  
ADDRESSED TO HQ ACC/SES,  
DSN: 574-3814

	TOTAL			ACC			ANG			AFR		
	NOV	THRU NOV		NOV	THRU NOV		NOV	THRU NOV		NOV	THRU NOV	
		FY94	FY93		FY94	FY93		FY94	FY93		FY94	FY93
CLASS A MISHAPS	2	2	4	1	1	3	1	1	1	0	0	0
AIRCREW FATALITIES	1	1	4	1	1	4	0	0	0	0	0	0
* IN THE ENVELOPE EJECTIONS	1/0	1/0	3/0	0	0	2/0	1/0	1/0	1/0	0	0	0
* OUT OF ENVELOPE EJECTIONS	0	0	0	0	0	0	0	0	0	0	0	0

\* (SUCCESSFUL/UNSUCCESSFUL)

## CLASS A MISHAP COMPARISON RATE

(CUMULATIVE RATE BASED ON ACCIDENTS PER 100,000 HOURS FLYING)

ACC	FY 93	2.0	3.1	2.2	1.6	1.7	2.1	1.7	1.7	1.7	1.6	1.6	1.8
	FY 94	0	1.0										
1 AF	FY 93	0	0	0	0	0	8.0	6.5	5.5	4.6	4.3	4.1	3.9
	FY 94	0	0										
2 AF	FY 93	0	0	0	0	0	0	0	0	0	0	0	0
	FY 94	0	0										
8 AF	FY 93	0	5.2	3.7	2.7	2.1	1.6	1.4	1.2	1.0	0.9	0.8	2.3
	FY 94	0	0										
9 AF	FY 93	6.7	6.5	4.4	3.3	3.9	3.1	2.7	2.3	2.7	2.4	2.2	2.0
	FY 94	0	0										
12 AF	FY 93	0	0	0	0	0	0	0	0	0	0	0	0
	FY 94	0	0										
ANG	FY 93	0	2.2	2.9	2.1	3.5	2.9	3.1	2.7	3.4	3.0	3.2	3.3
	FY 94	0	2.2										
AFR	FY 93	0	0	8.0	5.9	4.8	4.0	3.4	3.0	2.7	2.4	2.2	4.0
	FY 94	0	0										
TOTAL	FY 93	1.3	2.7	2.7	2.0	2.4	2.4	2.2	2.1	2.3	2.1	2.1	2.4
	FY 94	0	1.3										
MONTH	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	

\* (HOURS NOT AVAILABLE)





# Niagara's Thunder



the 107th

# Fighter Interceptor Group 45 Years of Fighters

Artist: Dan Maloney





# THE COMBAT EDGE 1993 INDEX

The following index of articles and artwork is provided in an effort to make it easier for our readers to tap the reservoir of knowledge contained in *The Combat Edge*. We receive numerous requests throughout the year concerning past articles or artwork. Many times, the requests are quite vague concerning title, author, subject or issue and often necessitate laborious research through past magazines. This index was compiled so that *The Combat Edge* could continue to be a valuable source of information to our readers.

Index entries are listed alphabetically by title in the following format:

-Ed.

## TITLE

*Subject synopsis*

*Author/Artist*

*Issue, Safety discipline (if applicable)*

We solicit your comments and suggestions concerning the index (or *The Combat Edge* in general) so we can better serve our readers. Send us a note or give us a call. Our address and phone number are inside the front cover.

### A DARK AND STORMY NIGHT

*Medevac from Shemeya, Being ready*  
Capt Ronald B. Panting  
OCT 93 FLT

### A HOLIDAY MESSAGE

*End of year review, Happy Holidays*  
Gen John M. Loh  
DEC 93

### A TEAM EFFORT

*Olympic Arena '93, ICBM competition*  
Maj Gen Lawrence E. Boese  
APR 93

### ACC ANNUAL AWARDS

*ACC Annual Award winners*  
MAR 93 AWD

### ACC EMBLEM FLIES AT SCOTT

*Rescue Center comes under ACC*  
Col Jim Ackert  
SEP 93

### ACC SAFETY MANAGEMENT COURSES

*Safety courses available in ACC*  
Capt Carl T. DeKemper  
JUN 93

### ACCENT ON SAFETY

*Holiday return, Winter weather*  
Col Bodie R. Bodenheimer  
JAN 93

### ACCENT ON SAFETY

*NAF series, complacency, bad weather*  
Col Bodie R. Bodenheimer  
FEB 93

### ACCENT ON SAFETY

*ARS welcome, Thunderbirds, Awards*  
Col Bodie R. Bodenheimer  
MAR 93

### ACCENT ON SAFETY

*ACC ICBM missile competition*  
Col Bodie R. Bodenheimer  
APR 93

### ACCENT ON SAFETY

*Static display safety, Publicity*  
Col Bodie R. Bodenheimer  
MAY 93

### ACCENT ON SAFETY

*ACC anniversary, 101 Critical Days*  
Col Bodie R. Bodenheimer  
JUN 93

### ACCENT ON SAFETY

*ICBM farewell, Summer safety*  
Col Bodie R. Bodenheimer  
JUL 93



**ACCENT ON SAFETY**

*Farewell from the Chief of Safety*  
Col Bodie R. Bodenheim  
AUG 93

**ACCENT ON SAFETY**

*101 Critical Days, Welcome, Safety Day*  
Col Robert R. Jones  
SEP 93

**ACCENT ON SAFETY**

*Welcome C-130, New FY, Winter Preparations*  
Col Robert R. Jones  
OCT 93

**ACCENT ON SAFETY**

*FY 93 Mishap prevention results*  
Col Robert R. Jones  
NOV 93

**ACCENT ON SAFETY**

*ACC Safety Christmas card*  
Col Robert R. Jones  
Dec 93

**ACTIVITY**

*Pace of operations, Training*  
MSgt James K. Kivell  
JAN 93 GRND

**AIRCRAFT MAINTENANCE**

*Correct maintenance procedures*  
CMSgt Robert L. Hubbell  
JUL 93

**AIRCRAFT MISHAP INVESTIGATIONS**

*Reprint from TIG, Release of information*  
Col Bridge  
MAY 93 FLT

**ANOTHER SUCCESSFUL FOT&E LAUNCH**

*ICBM Safety, FOT&E launches*  
Maj David C. Sharp  
JUL 93 WPNS

**ARE YOU A CAUSE?**

*CAR taxonomy, Mishap causes*  
Lt Col Armando V. Villagran  
JUN 93 FLT

**ARE YOU A GOOD WINGMAN?**

*Wingman duties and responsibilities*  
Maj William J. Woodworth  
JUL 93 FLT

**ARE YOU A TIME BOMB?**

*Stress management, Stress factors*  
Lt Col Dan Eagle  
OCT 93

**ARE YOU GUILTY?**

*Correct mailing addresses*  
Mr Ron Smith  
JUL 93

**ASSUMPTIVE INSTITUTIONALIZATION**

*Human factors, Perceptions, Rules*  
Col Mike Scott  
SEP 93 FLT

**ATTACKING THE HUMAN SIDE OF THE MISHAP EQUATION**

*Human factors, Mishap prevention*  
Lt Col James D. Teigen  
FEB 93 FLT

**ATTENTION TO DETAIL**

*Attention, Focus, Checking things*  
Capt Brad Dodd  
NOV 93 GRND

**ATTITUDE, DIRECTION, INVOLVEMENT**

*Safety accountability, Attitudes*  
Maj Roger Forsyth  
MAY 93

**AUTOROLLS IN THE EAGLE**

*F-15 handling, Autorolls*  
Maj Pat Tank  
FEB 93 FLT

**BREAKING THE CHAIN**

*Focus, Crew coordination, Attention*  
Lt Col Armando V. Villagran  
DEC 93 FLT

**BUFFOONERY**

*C-130 mishaps, Aircraft performance*  
Lt Col James D. Teigen  
OCT 93 FLT

**CENTER ART**

*A-10*  
Mr Bob Engle  
JUN 93

**CENTER ART**

*B-52G*  
SSgt Harry Paige  
JUL 93

**CENTER ART**

*C-119*  
Sgt Mark Bailey  
OCT 93

**CENTER ART**

*CURTISS P-40*  
Sgt Mark Bailey  
NOV 93

**CENTER ART**

*SPITFIRE*  
Sgt Mark Bailey  
AUG 93

**CENTER ART.**

*Messerschmitt Bf-109E*  
Sgt Mark Bailey  
DEC 93

**DEATH, TAXES AND INSTRUMENTS**

*Instrument procedures and practice*  
Capt Mike Giuliano  
SEP 93 FLT

**DISCIPLINED FLYING**

*Discipline, Professionalism,*  
Maj Ed Brownstein  
NOV 93 FLT

**DRIVING VALUES SHOULDN'T CHANGE WITH TIME**

*Driving values changing with experience*  
MSgt James K. Kivell  
FEB 93 GRND

**EYE PROTECTION ON THE JOB**

*Eye protection, Safety glasses*  
Capt Walter B. King  
JAN 93 GRND

**F-15 EAGLE LATERAL ASYMMETRY LIMITATIONS**

*Reprint from MCAIR Digest, F-15 handling*  
Monte Cooper/Del Linge  
DEC 93 FLT

**FALLING FOR A DEER**

*Tree stand safety, Deer hunting*  
MSgt Daniel R. McCormick  
OCT 93 GRND

**FAMILIES IN CONFLICT**

*Family conflict, Strife, Supervisors*  
Mr Joseph A. Bubala  
MAR 93 GRND

**FIGHTING THE FLAP**

*B-52G structural failure, CRM*  
Lt John A. Long  
MAY 93 FLT

**FIRETUG**

*Aircraft towing, Training*  
Sgt James Lewis  
DEC 93 GRND

**FLEAGLE**

*Cartoon, Cost cutting, Valentines Day*  
Mr Stan Hardison  
FEB 93

**FLEAGLE**

*Cartoon, Shop safety, Home safety*  
Mr Stan Hardison  
MAR 93

**FLEAGLE**

*Cartoon, Missile competition, Olympic Arena*  
Mr Stan Hardison  
APR 93



**FLEAGLE**

Cartoon, *Summer flying, Bird avoidance*  
Mr Stan Hardison  
MAY 93

**FLEAGLE**

Cartoon, *Weapons storage/clean up*  
Mr Stan Hardison  
JUN 93

**FLEAGLE**

Cartoon, *ICBM (Mole) farewell*  
Mr Stan Hardison  
JUL 93

**FLEAGLE**

Cartoon, *Current pubs, Information flow*  
Mr Stan Hardison  
AUG 93

**FLEAGLE**

Cartoon, *Freezer safety, Hot weather*  
Mr Stan Hardison  
SEP 93

**FLEAGLE**

Cartoon, *Welcome C-130, Introducing Peto*  
Mr Stan Hardison  
OCT 93

**FLEAGLE**

Cartoon, *Foolish boasting*  
Mr Stan Hardison  
NOV 93

**FLEAGLE**

Cartoon, *Christmas greeting*  
Mr Stan Hardison  
DEC 93

**FROM KITCHEN TABLE TO KIDS**

*Safety Dog program to teach safety*  
TSgt John E. Fleeger  
SEP 93 GRND

**GIBBER'S THREE BLIVETS**

*Safety attitude, Viewpoint*  
Col John B. Gibbs  
MAY 93

**GPO ORDER FORM**

*Subscription form/service*  
AUG/NOV 93

**HABIT PATTERNS**

*Habit patterns, Conditioned response*  
LCDR Mike Cross (USN)  
JUN 93 FLT

**HOW'S THE BUSINESS?**

*Quality, Safety customers, Proactive programs*  
MSgt Lawrence E. Stulz  
JUN 93 GRND

**HUMAN FACTORS MISHAPS**

*Human factors, Conscious prevention*  
Capt Dave Brawley  
OCT 93 FLT

**I WANT YOUR ARTICLE**

*Article advertisement*  
Editor  
DEC 93

**IT'S ONLY UNSERVICEABLE EXPLOSIVES**

*Packing and shipping explosives*  
MSgt Terry N. Lane  
MAR 93 WPNS

**JUST ANOTHER DAY ON THE JOB**

*Nuclear surety, Missile safety*  
Capt Keith A. Jackson  
JUL 93 WPNS

**JUST WHAT WERE THEY THINKING?**

*Ejection decisions, Crew coordination*  
Lt Col James D. Teigen  
JUL 93 FLT

**KEEPING SAFETY STRONG**

*Proactive safety and quality*  
MSgt Gary R. Reniker  
DEC 93 GRND

**KOREN KOLLIGIAN, JR., TROPHY**

*Presentation of Kolligian trophy*  
Maj Mark E. Kennedy  
AUG 93 AWD

**LESSONS LEARNED**

*Lessons learned, Human factors*  
Lt Col Armando V. Villagran  
MAY 93 FLT

**LET FITNESS ENHANCE YOUR LIFE**

*Aerobics, Physical fitness*  
Mr David K. Johnson  
JAN 93 GRND

**NEAR MISSES OR NEAR HITS, YOU DECIDE**

*Incident trends, Close call mishaps*  
Lt Col James D. Teigen  
JAN 93 FLT

**OLYMPIC ARENA '93**

*ACC ICBM missile competition*  
Lt Gen Dirk Jameson  
APR 93

**PARENTS, KIDS AND SAFETY**

*Parental supervision, Base open house*  
MSgt James K. Kivell  
JUL 93 GRND

**PREPARE FOR COMBAT -- REALISTICALLY**

*Realistic training, Mishap summary*  
Maj Gen Lawrence E. Boese  
OCT 93 FLT

**READER SURVEY**

Editor  
AUG/SEP 93

**RESTRUCTURING DANGER SIGNALS**

*Reorganization, Drawdown*  
Maj Ed Robison  
APR 93 WPNS

**REVERTED RUBBER HYDROPLANING**

*Pavement types, Hydroplaning*  
Capt Larry Kordosky  
NOV 93 FLT

**SAFE, SECURE & STANDING DOWN**

*Minuteman II standown, Drawdown*  
Capt Cross/Lt Fisher/Lt Stewart  
APR 93 WPNS

**SAFE SEPARATIONS**

*Divorce, Separation, Coping*  
Capt Thomas P. Azar  
DEC 93 GRND

**SAFETY AND ANGER**

*Controlling anger, Proper responses*  
Capt Thomas P. Azar  
AUG 93 GRND

**SAFETY AWARDS**

*ACC safety awards program*  
Mrs Barbara Taylor  
JUL 93 AWD

**SAFETY CULTURE**

*A goal of zero mishaps, Attitude*  
MSgt Donald L. Bigelow  
OCT 93

**SAFETY ENHANCERS -- YOUR CHAPLAIN**

*Chaplain's role in safety*  
Capt Thomas P. Azar  
JAN 93

**SAFETY, FORCE REDUCTIONS AND YOU**

*Mission focus, Drawdown, Urgency*  
SSgt Eric Prince  
DEC 93 GRND

**SAFETY IN TODAY'S CHANGING AIR FORCE**

*Reorganizing, Downsizing, Safety*  
Lt Gen Thomas A. Baker  
JAN 93



### **SAFETY-PRESERVING COMBAT CAPABILITY**

*New Chief of Safety views on safety*  
Col Robert R. Jones  
AUG 93

### **SAFETY SUPERVISOR**

*Supervisor's role in safety*  
MSgt James K. Kivell  
DEC 93 GRND

### **SEASONAL LADDER SAFETY**

*Ladder safety, Chores around home*  
SSgt Brian Rutherford  
JUL 93 GRND

### **SEEING DOUBLE?**

*Awards explanation*  
Editor  
MAY 93 AWD

### **SIGN OF THE TIMES**

*Hazardous material placards and labels*  
Capt Mark A. Martin  
JUN 93 WPNS

### **SLEEK, BUT DEADLY**

*FB-111, Night misperception, Communication*  
Capt Patrick A. Pope  
JUL 93 FLT

### **SPOTLIGHT ON BIG MISSILES**

*20th Air Force, ICBM's*  
Lt Gen Dirk Jameson  
FEB 93

### **STANDARD INSTRUMENT DEPARTURES**

*SID rules and procedures*  
AIFC Staff  
SEP 93 FLT

### **STANDARDIZED APPROACH CALLOUTS**

*Instrument approach procedures*  
AIFC Staff  
FEB 93 FLT

### **SUICIDE AND SAFETY**

*Suicide in the Air Force*  
Capt Thomas P. Azar  
NOV 93

### **SUPERVISING THE SAFETY ATTITUDE**

*Supervisor role in safety*  
SSgt Harold L. Alkire Jr.  
JAN 93 GRND

### **SYSTEM SAFETY**

*Designing safety into missile systems*  
Capt Craig Mahan  
MAY 93 WPNS

### **TAKE THE PAIN OUT OF BACK INJURIES**

*Proper lifting, Back injuries*  
MSgt Gary R. Reniker  
AUG 93 GRND

### **THANKS FOR SETTING US STRAIGHT**

*Air Rescue Service correction*  
Lt Col Richard R. Stock  
MAY 93

### **THAT OTHERS MAY LIVE — RESCUE FORCES JOIN ACC**

*ARS joins ACC, Rescue mission*  
Col John D. Woodruff  
MAR 93

### **THE BIG THREE**

*ICBM alert operations*  
Capt Robert D. Gibson  
JUN 93 WPNS

### **THE COMBAT EDGE 1992 INDEX**

*Index of COMBAT EDGE 1992 articles*  
JAN 93

### **THE CUTTING EDGE**

*Tool handling and sharpening*  
Mr Mike Mehalko  
NOV 93 GRND

### **THE IMPORTANCE OF COMPETITION**

*Olympic Arena '93, Missile competition*  
Gen John M. Loh  
APR 93

### **THE PROMISE OF CONFIDENTIALITY**

*Mishap investigation, AFR 127-4*  
Lt Col Dan Eagle  
MAY 93 FLT

### **THE SAFETY CHAIN**

*Shipboard maintenance procedures*  
AMSC David Spence (USN)  
JUL 93

### **THE TEMPERATURE FACTOR**

*Instrument approach temp factors*  
Capt Dan Charchian  
JAN 93 FLT

### **THE WE CARE UMBRELLA**

*ACC WE CARE program and checklist*  
Mr Mike Mehalko  
NOV 93 GRND

### **THUNDERBIRDS: 40 YEARS OF SAFETY EXCELLENCE**

*Thunderbird safety, Training*  
Capt Paul C. Strickland  
MAR 93 FLT

### **TRADITIONAL DANGER**

*Static display safety*  
LT Houston B. Smith (USN)  
NOV 93 GRND

### **TRAPPED EXTERNAL FUEL**

*F-16 trapped external fuel procedures*  
Capt Delvin L. Young  
AUG 93 FLT

### **TRENDS**

*Fictional scenario of mishap trends*  
Maj Bob Sampson  
OCT 93 FLT

### **TRUE CONFESSIONS**

*Winter travel, Winter driving*  
SSgt David Somdahl  
NOV 93 GRND

### **WEARING SEATBELT SAVES LIFE**

*Seatbelt usage*  
TSgt Judy Covert  
JUN 93 GRND

### **WE FAILED AGAIN**

*Lessons learned, Spreading the word*  
Lt Col James D. Teigen  
MAY 93 FLT

### **WHAT IS A FIRE?**

*Fire extinguisher classes and uses*  
SSgt Brian Rutherford  
AUG 93 GRND

### **WHAT YOU TOLD US**

*Reader survey results*  
Editor  
DEC 93

### **YOUR SAFETY AWARDS**

*Recap of ACC safety awards*  
Mrs Barbara Taylor  
OCT 93 AWD

### **321st MISSILE WING**

*Olympic Arena '93 competitors*  
APR 93

### **341st MISSILE WING**

*Olympic Arena '93 competitors*  
APR 93

### **351st MISSILE WING**

*Olympic Arena '93 competitors*  
APR 93

### **44th MISSILE WING**

*Olympic Arena '93 competitors*  
APR 93

### **90th MISSILE WING**

*Olympic Arena '93 competitors*  
APR 93

### **91st MISSILE WING**

*Olympic Arena '93 competitors*  
APR 93





## OFFICE SAFETY

**O**ffice work is generally considered to be one of the safest occupations we engage in. Consequently, little thought is given to the many hazards present in most offices. However, slips and falls, improperly positioned electrical cords, collisions with desks and chairs, strains from moving furniture, injuries from self-help projects and other similar accidents are all too common in offices. Specialized machines and equipment also add to the mishap potential. Everyone who works in an office should be familiar with the many hazards and comply with the appropriate safety rules.

**Lifting.** Bulky office furniture, supplies and



*TSgt Eddie L. Thomas  
HQ ACC/SEG  
Langley AFB VA*



materials will be lifted in the proper manner to avoid muscle strains and back injuries. When lifting heavy objects, people should bend their knees and use their legs instead of lifting with their backs. Mechanical devices will be used to lift or carry loads that cannot be easily handled by no more than two people.

**Electrical machines.** Electrical office machines and equipment will have all hazardous parts properly guarded. Electrical conductors will be completely insulated and the equipment will be grounded, when appropriate, as recommended in Article 250-45, National Electrical Code, to guard against the possibility of shock and/or fire.

Some types of equipment, such as data processing machines or copiers, may require special training for the user. Office machine operators will be given appropriate instruction in proper work practices and machine operation. They will be specifically told of the particular hazards involved in the use of different office machines.

**Furniture.** Splintered or jagged edges and other defects found on office furniture will be repaired or the equipment replaced. Where doors and/or projections on book cases, filing cabinets and desks create a mishap source, they will be relocated, removed or guarded. Close file drawers immediately after each use. An open drawer can cause bruises and painful cuts, as well as cause the cabinet to tip over.

**Entrances.** During inclement weather, mud, snow or water may be tracked onto floors near building entrances. To preclude slippery floors, storm mats should be placed near entrances and the floors mopped when necessary. Dual doors without glass will be clearly and prominently marked "Entrance" and "Exit." Glass doors will be marked with decals or other highly visible material to prevent people from walking into them. Glass will be shatterproof or wire reinforced.

**Electric fans.** Office electric fans, pedestal, oscillating desk or wall types, will be equipped with safety guards when installed less than 8 feet above the floor. A safety guard will reject a 1/2-inch sphere. Fans which are not equipped with adequate installed guards can be protected by nylon tie-on

mesh guards. Care will be taken to prevent fan cords from becoming tripping hazards.

**Fire prevention.** Non-combustible wastebaskets will be used except where offices have a "no smoking" policy. Suitable metal containers, where necessary, will be provided in office areas for the disposal of cleaning materials contaminated with flammable solvents, etc., used to perform maintenance on office equipment. Suitable containers will be provided for the disposal of smoking material in approved/designated smoking areas. Only approved (high flash point or low toxic) solvents should be used to clean typewriters and other office equipment. A small amount of solvents (normally less than 1/2 gallon) may be kept on hand in closed metal containers.

You don't have to be a construction worker or window washer to risk falling on your job. Even the most sedentary office worker can slip or trip their way to a serious injury.

It all starts with the feet. When you're walking down halls, always be aware of possible spills or obstructions in your way, and slow down when rounding corners. Most of the time office workers are in a hurry and often preoccupied which is a sure way to collide with a co-worker.

Some other tips to keep you from tripping or falling around the office:

- \* Wear shoes with low heels and skid-resistant soles. Be sure your shoe laces are tied and aren't dragging on the floor.

- \* Use handrails on the stairs (especially steep stairs). Even if you're late for that meeting, never take the stairs two at a time.

- \* Wipe up spills and use a lid on your coffee cup to avoid sloshing.

- \* Don't use your office chair as a recliner. Tipping over backwards will be more than embarrassing if you injure your back or neck.

- \* Use "Caution -- Wet Surface" signs after cleaning or waxing the floors.

We can all make our office environment safer and more productive by paying attention to inherent hazards, exercising a little common sense and taking the time to correct unsafe conditions. Don't become an office statistic! ■



# Who's That Clown With One Engine?

*MSgt Gary Lemmonds  
DPRO PEMCO Aeroplex  
Birmingham AL*

**A**s C-130 flight test crew members assigned to a contractor overhaul facility, aircraft commander Captain Drees Griffin and pilot Captain Brian Harriett thought they'd seen about every type of inflight malfunction possible with the venerable Hercules. However, a recently overhauled Argentine Air Force C-130E proved to be a gold mine of new experiences for the pilots and navigator Captain Jon Gaushe and flight engineer Master Sergeant Salvador Gomez.

Clown 02 passed all the ground checks, including extensive engine run-ups, to assure its airworthiness. All flight test crews will admit that in an aircraft that's been virtually taken apart and re-assembled, the takeoff roll increases the pulse rate ever so slightly. This takeoff was uneventful, however; and the crew headed for the test area, about 30 NM from the Birmingham airport.

As part of the flight test profile, each engine is individually shut down and the prop feathered to determine the integrity and rigging of the engine as well as assure its airstart capability. Since the

engineer had noticed a small amount of fluid on the propeller cowlings, they planned to shut down number four last.

Both inboard engines performed normally; but after number one had been shut down, it refused to restart. When two further attempts to restart it failed, the functional check flight was terminated and the crew requested a lower altitude and a turn toward Birmingham. They declared an emergency to obtain priority, since the busy radios indicated heavy traffic in the airport area.

Shortly after beginning a descent from 14,000 feet, an acrid odor similar to electrical overheating began to fill the flight deck. Sergeant Gomez quickly completed the smoke and fumes elimination checklist, depressurizing the cabin and dissipating the fumes. Efforts to isolate the source were unsuccessful, but later it was determined to be the landing gear warning circuits.

Continuing the descent, the engineer detected a generator out light on number three engine. Placing the selector in the off position allowed the generator to be monitored during the remainder of the short flight. If the

frequency and voltage is lost and the generator will not reset, the engine must be shut down.

Passing 8,000 feet with one dead engine and another creating a distraction, the navigator reported that number four's prop leak appeared to be worsening. A thick stream of fluid now flowed over the engine cowlings. Should the gearbox fluid become completely depleted, it would be impossible to feather the prop.

Reviewing their options, the crew requested a straight-in approach and monitored number four closely. "We have prop RPM fluctuation, number four," the engineer announced over interphone.

With two remaining engines that appeared to be operating normally, they continued the approach. Captain Gaushe visually monitored number four while Sergeant Gomez watched the prop RPM closely. If the prop appeared to be losing all its fluid it would have to be feathered instantly.

The visual approach went smoothly until one mile on final, when the unsafe gear light illuminated in the landing gear handle. Captain Griffin had only



a few moments for his decision - attempt a go-around on three engines with another that may require shut down; or continue the landing, risking tremendous damage to the aircraft should the gear not be fully extended.

"Crew, we're going around," he announced, applying power and banking away from the useless number one engine, raising the dead, as it's called. Captain Harriett requested a right-hand traffic pattern from the tower. Though this would place the aircraft near several antennas perched on a ridge line, it was a better option than turning into the failed engine, thereby increasing minimum control airspeed.

While the engineer visually inspected the gear, Captain Griffin maneuvered the now power-limited airlifter into a tight downwind leg, avoiding the obstacles. With fluid now completely covering number four's nacelle and the prop RPM fluctuating wildly, the AC wrapped the aircraft around a tight base leg and turned onto short final. The aircrew was working against time, knowing that number four may require shutdown any moment.

Touchdown was normal; and though only the inboard engines could be reversed, roll-out was short. Clearing the runway and stopping amid the emergency fire rescue equipment, the nacelle overheat light illuminated on number four. The crew shut down the engine in accordance with the flight manual.

After being assured it was safe

to do so, they taxied to the contractor's ramp, thinking a rough day was almost over. As the crew prepared to shut down the remaining two engines, ground crew personnel reported heavy smoke coming from both inboard engines. Now it was time to give up and get out. Shutting off all electrical power and the engines, the crew egressed through the crew entrance door and stood a safe distance away as the fire trucks expectantly aimed their nozzles at the smoking engines.

After it was determined safe to do so, the contractor flight line supervisor appeared interested in number two engine. "Hey! Come look at this," he shouted to them. On number two's exhaust pipe was a thick coating of smoking, sizzling engine oil. The only engine that seemed to operate normally during the short flight had suffered a ruptured labyrinth oil seal. During tear-down of the engine two days later, it was discovered that massive turbine blade failure had also occurred in the aft combustion section. The engine was minutes, possibly seconds, away from total disintegration.

Clown 02 was moments away from being reduced to one operating engine. Tech data states that performance of the C-130 on two engines at gross weights above 120,000 pounds is marginal. There is no data for flight on one engine. This crew was forced to make some complex and critical decisions in a very

short time while experiencing multiple malfunctions. It was fate that allowed number two to hold together long enough. It was chance that number four's overheat light didn't illuminate until after touchdown.

There are many small "what ifs?" And one huge one: Let's say the number four nacelle overheat light illuminated on short final and the crew, thinking the landing was assured, shut it down. Now with only the inboards operating and forced to go-around because of the unsafe gear, **WHAT IF** number two, with no oil and turbine blades disintegrating, decided its working days were over?

Only a few moments, fate and chance, made the difference regarding the engines. But the safe recovery of the aircraft and crew was the result of training, experience and professionalism. Working as a crew, they maintained focus on the overall situation as each malfunction added to the problem. With one dead engine and another about to require shutdown, the generator problem was minor. Had they chose a precautionary shutdown of either number three or four, it would have placed them one step closer to becoming a four-engine glider.

Historically, multi-engine aircraft seldom experience malfunctions in more than one engine at a time. But don't tell that to the crew of Clown 02.







# FITNESS *In the Air*

*CPL "Gillus" Chausse  
G-STEP Coordinator  
CFB Cold Lake Canada*

**T**wenty-first century aerospace technology in fighter aircraft continues to advance at an astounding pace, possibly to the point of eventually eliminating the pilot from specific fighter roles. Research continues on life support equipment such as PPB (Positive Pressure Breathing) or even restructuring the cockpit to apply Gy as opposed to Gz forces.

These are possibilities for future flying, but right now the pilot is still the constant and primary controller of the ever-changing aircraft and technology composition. Gz loads and Gz onset rates increase as well as the sustained Gz pilots must withstand for repeated events often only seconds apart.

I am a G-STEP (G Stress Exercise Program) instructor at 4 Wing, CFB Cold Lake, Alberta; and the fitness level of our F-18 pilots in 4

Wing is my responsibility. Pilots must be physically fit to the point that comparison to a high performance competitive athlete is an absolute truth; and with the direction we have chosen in Canada, we believe we have achieved that aim.

Since 1990 here in 4 Wing Cold Lake, we have offered a volunteer training program specifically for fighter pilots and structured to develop high intensity work load capabilities with minimal recovery time. G-STEP started with 410 TFTS (Tactical Fighter Training Squadron) with an overwhelming response. It was offered to IPs and students alike and rapidly became so popular that not only were group numbers increasing but pilots were actually rescheduling flights in order not to miss a class. Using a wide variety of training equipment and facilities, I work the group on a high intensity short duration principle with







controlled rest periods promoting fast recovery. Swimming, weight lifting, circuit training, power skating, interval and paarlauf running, you name it; and we do it. We work in a group and have a good time. Special neck exercises were developed; and since their use among all G-STEP participants, neck injuries have virtually been eliminated.

G-STEP is now being offered to all squadrons on base, as well as all Fighter Bases in Canada, and is mandatory at CFFTS (Canadian Forces Flying Training School).

I have found that working in a structured group program enhances squadron team spirit and camaraderie as well as peer support, pushing the individual pilots to achieve fitness levels that would never be attained if working solo.

During this period I monitor and record the individual's progression, ensuring that the program is not only progressive and effective for each pilot, but safe as well. Part of the monitoring process also includes, for those who are willing, an in flight readout of blood pressure and working heart rate while under G loads in ACM situations. I ride in the trunk with an electronic readout device which is wired to the pilot. All records are logged and kept for individual fitness comparison and

stats. This also serves as payback time by the pilots who now get their chance to rack me around in their world.

G-STEP is a no cost program which can be implemented on any base using existing resources. The only limitations involved are with the instructors' imagination. If I notice the guys are getting a little tired and disinterested, "OK, warm up, one mile run, stretch and man-on-man basketball, or floor hockey, etc." Everyone still gets a great workout; they just don't notice the effort as much.

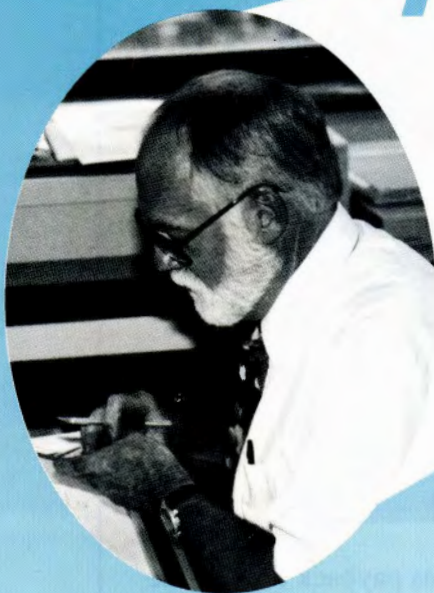
Fitness is essential for fighter pilots. When you are required to make that second or possibly even that third trip, or you just have to pull harder, longer, it all comes down to basics -- fitness, and fitness might as well be fun.

Get lots of the right exercise, eat good food, sleep well, and go like hell. ■





# Safety Professional Spotlight



*Mr Ron Smith  
Art Director  
The Combat Edge*

**A**s you first enter the storefront glass door of **The Combat Edge** office, your attention is immediately captured by a neatly dressed, distinguished looking gentleman. "Hello, I'm Ron Smith. How may we help you?" Ron's pervasive friendliness, quiet competence and unmatched professionalism ensure that every visitor to the magazine office leaves with a renewed feeling of importance as a customer. As Mr Smith said recently, "Our mission is mishap prevention through safety education, recognition, and marketing. To fulfill our purpose in life, we must serve our customers in the best manner possible. We must give them the quality of service and products they deserve -- the best!"

After 13 years behind "locked doors" as Chief of Intelligence Graphics for HQ TAC, Ron returned to working in publications by becoming the Art Director for **TAC Attack** in 1990. However, labeling Ron as an "Art Director" is akin to describing Leonard Bernstein as a "conductor." Both

descriptions are correct; but they belie the true depth of character, commitment, and contribution exemplified by the individuals.

Officially, the Art Director performs duties as art editor, illustrator, public affairs officer, alternate editor, author, contracting representative and GPO liaison. However, this is only a small part of Ron's contribution to **The Combat Edge** and Air Combat Command. His outstanding artistic and creative ability, mastery of art media, and ability to manage and operate under pressure have shaped, molded, and developed the magazine from its very beginning. It was largely Ron's insight and tireless efforts that resulted in a full color magazine dedicated to mishap prevention by serving you -- the reader. It is still Ron's calming influence and unflappable demeanor that keeps us all on track in the midst of hectic deadlines, chaotic schedules, constant changes, and innumerable stumbling blocks and obstacles. Every month **The Combat Edge** is seen worldwide throughout the Air Force, DOD, Allied Forces, and private industry. Almost a quarter million people have the opportunity to appreciate the result of Ron Smith's efforts and dedication.

Born in Boone IA and raised in Seattle WA, Ron started his graph-

ics career with private industry. His tenure with Boeing Company, where he was trained as a draftsman and technical illustrator, was interrupted about mid-point by an active duty tour in France with the US Army. His first five years in the Civil Service system were at the Pentagon working in Air Staff Graphics. While at the Pentagon, Ron and his family enjoyed the active pace and cultural diversity, but somehow never adjusted to Washington area traffic. When a position vacancy was announced at HQ TAC he quickly applied, was selected, and has worked at Langley ever since.

Ron's affiliation with the Air Force does not end with his civil service role. He also serves as an Air Force Reserve Individual Mobilization Augmentee and is currently assigned to the 696th Intelligence Group at Andrews AFB MD as a linguist/interrogator/debriefer.

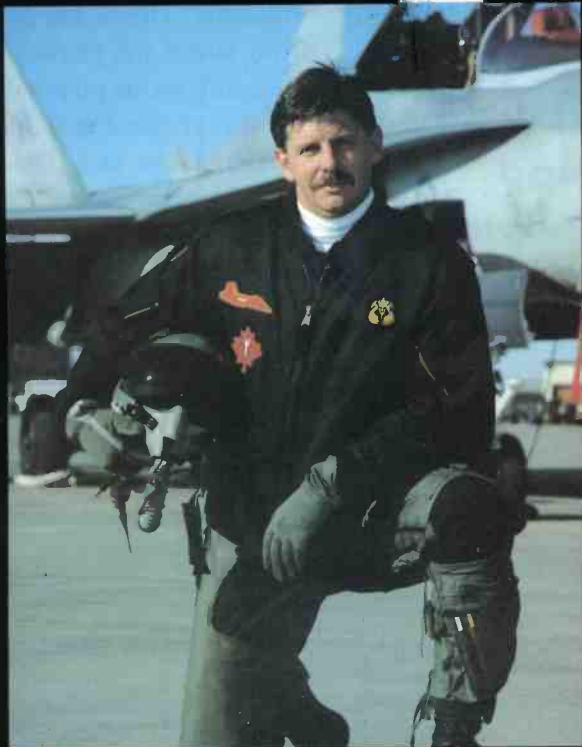
Despite his many interests and varied endeavors, Ron's total focus is directed toward making **The Combat Edge** the best mishap prevention magazine in the Air Force. The broad assortment of ACC weapons systems and widely diversified missions require unusual imaginative ability to avoid repetition and monotony in pictorial presentations and to accurately depict objects, people, and occurrences within the frame work of mishap prevention. That is Ron Smith's commitment and contribution to you -- the customer -- in every magazine! ■



# Fly Fast low Fly Fit



**Sgt J. B. "Mac" MacWilliam**  
**Chief Instructor G-STEP**  
**CFB Edmonton**



In 1989 the 410th Tactical Fighter Training Squadron and the CFB Cold Lake Physical Education and Recreation staff took fighter pilot training in a new, more dynamic direction. Until recently, Canada, like other nations flying third and fourth generation high performance fighter aircraft, was not providing the critically needed physical training necessary for pilots to withstand the demands of sustained high G exposure. These G effects are well documented and range in severity from loss of vision to immediate and unapparent complete loss of consciousness which, of course, can and have in the past had very serious consequences.

Cockpit technology, aircraft design, and increased thrust-to-weight ratios create ever-changing flight



# Fly Fast but Fly Fit

dynamics and performance capabilities; but the one factor that does not change, of course, is pilot/human physiology. Life support equipment can increase human G tolerance to varying degrees from 1-2 G with G pants or significantly more with a full body suit and positive pressure breathing (PPB) system. However, pilot fitness remains critical in high performance human flight control.

G-STEP (G Stress Exercise Program) is an exercise program developed specifically to address the fitness condition of fighter pilots at squadron and wing levels using a wide variety of training equipment and facilities that presently exist on bases and in squadrons. Fitness training for high G exposure requires basically high intensity, short duration training principles. In the past, free weight or weight lifting/resistance apparatus was the wide scale recommended means to serve that end. Unfortunately, only a small percentage of the pilot population was moti-

vated to use weights as their training media. With no alternative offered, no training was conducted other than what the pilots themselves may have been personally interested in; be it squash, be it nothing.

This was not a problem unique to Canadian pilots. It was very common throughout most countries of the world.

**G-STEP is an exercise program developed specifically to address the fitness condition of fighter pilots at squadron and wing levels using a wide variety of training equipment and facilities that presently exist on bases and in squadrons.**

G-STEP is 8-10 weeks of intense structured training which is conducted prior to the Air Combat Maneuvers (ACM) phase of flight training. This is the period where the physical demands on the pilot will be the greatest and fitness must be at a peak. As the pilot enters the ACM phase, the high intensity G-STEP classes give way to a maintenance program that will maintain fitness at the pilot's convenience and at a considerable lesser intensity.

G-STEP classes include power skating, running, swimming, weight lifting, and circuit training with numerous variations in all areas. Special attention





is paid to major muscle groups used in the Anti-G Straining Maneuver (AGSM). Specific neck exercises and neck slings have been developed to increase strength and flexibility and to prevent neck and upper back injuries. Since the incorporation of the neck slings and exercises, injuries to members on the G-STEP program have been virtually eliminated.

The philosophy of the G-STEP program is what has made it successful. We put the pilot first. It is critical that the pilot wants to come back and train tomorrow. The wide variety of training and informal but structured atmosphere together with the educational approach (a continuous flow of handouts and information not just about training but, dehydration, dietary information, stress, and even how to sleep better) make it a very complete package.

Since its conception and first trial in late 1989 at Cold Lake, G-STEP has grown from pilot and squadron level popularity to Air Command and Fighter Group acceptance and promotion. G-STEP is now offered on all fighter bases in Canada and is a mandatory program at the Canadian Forces Flight Training School, 15th Wing, Moose Jaw.

Internationally, G-STEP has aroused considerable interest in the U.S., Sweden, Pakistan, Saudi Arabia, Australia, and Poland. Some of these countries are in the process of incorporating G-STEP within their fighter training

community. It's not enough to just offer a training program. It must be a program pilots will use continuously because it is effective and it's something they enjoy using.

The results of G-STEP in terms of effectiveness are subjective in that a scientific study has not been conducted on the actual program. Pilots find it extremely effective in combating fatigue, injury, and flying more aggressively for longer periods of time. This program was developed specifically for pilots; and as long as feedback continues with such unanimous approval from pilots, it remains clear that G-STEP does effectively fill a critical need and play an important operational role.

In the words of Dr Ariz, PhD and Air Commador of the Pakistan Air Force, "It's fascinating that Canada gave the world the 5BX program in the 50's and 60's and now the fighter pilot training program in the 90's."

**HIGH PERFORMANCE FITNESS  
FOR HIGH PERFORMANCE PILOTS!**





