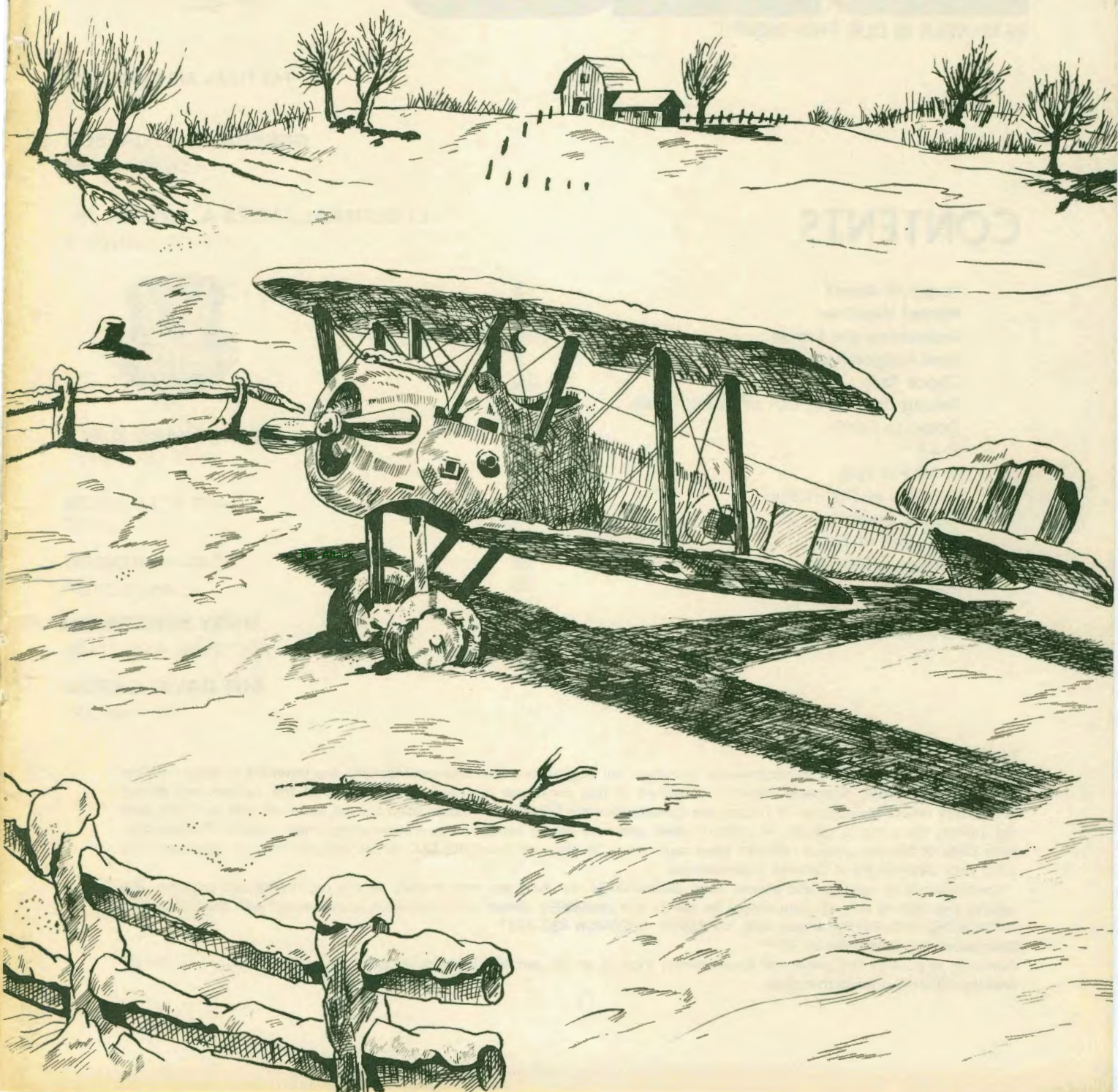


# TAC ATTACK

DECEMBER 1978







READINESS IS OUR PROFESSION



**TACTICAL AIR COMMAND**

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### TACRP 127-1

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## THE HOLIDAY SEASON

December is upon us. I'm sure many of you are making preparations for the holiday season. Christmas shopping, plans for parties and reunions, and vacations to celebrate the holidays with the family are all items of concern during this time of year. I urge you all to take extra care in your activities during the holidays and the winter months. The weather and the season create hazards both on and off duty.

Rapidly changing weather requires greater vigilance by aircrewmembers and flying supervisors. Inhospitable cold, rain, and snow make the tasks of maintenance and support personnel much

## Angle of Attack

Angle of Attack

more difficult. In all cases, the potential for fatal human error increases dramatically.

Snow and ice create extremely hazardous conditions for driving. The temptation to extend oneself on the road in order to get that extra day with the folks can be overpowering. These two factors can add up to pain and misery for those who can't resist the temptation to press on.

The same snowy and icy conditions that make driving hazardous allow us to enjoy skating, skiing, snowmobiling, and many other winter sports -- tackle these sports gradually -- get yourself in shape. Don't try to imitate super skier the first day on the slopes.

Any of the above activities combined with alcohol can be deadly. Enjoy the spirit of the season -- know your limits.

For the last two Christmas and New Year holiday seasons, Tactical Air Command has been fatality free. This is a testimony to your efforts -- both supervisors and individuals -- to enjoy the holidays safely. Let's make 1978 the third year in a row. We want you back in '79.

Happy Holidays.

RICHARD K. ELY, Colonel, USAF  
Chief of Safety





By CAPT ROBERT G. BISHOP III  
HQ 5th Weather Wing, Langley AFB

What's the first thing that goes through your mind when you hear the words "winter weather"? Is it the time you went skidding down the runway on freshly fallen snow? Is it those tense moments you had last January when ice was accumulating and you'd already descended below the **forecast** base of that stratus layer? Are you thinking that this year winter will be a breeze because you've been transferred from Mountain Home to Luke? Remember the time you made it in through that snow storm without a hitch--only to fall on your can when you got out of the cockpit? Do you recall that snowy, windy December night when you went to the local mall to buy the kids their Christmas presents?

Perhaps you've gotten the gist of this article already--winter weather means hazardous weather. The key to survival is to learn as much as you can about winter weather and plan ahead.

The perils of winter can affect everything from what to wear to how to operate that sophisticated flying machine. It affects your taxiing and takeoff, your preflight and flight. Not only does it affect your approach and landing, it also affects the radar that GCA uses to bring you in safely.

What does winter bring? The number of frontal passages increases--they move even faster than Old Stormy can predict at times! The amount of cloudiness increases. You may have been able to maneuver around those summer thunderstorms, but watch out--now they're often hidden in thick layers of frontal clouds. When winter arrives, precipitation not only increases, but comes in a variety of forms--rain, freezing rain, or snow. Often nature can't even make up its mind and a combination of any two will occur.

Low ceilings and reduced visibilities increase in frequency and duration. Indefinite ceilings obscured by fog or precipitation are not uncommon. This means that--while on approach--your slant range visibility will be restricted when you penetrate the cloud base, even though you may be able to see the ground directly below the aircraft.



Gusty surface winds are usually associated with the fronts that seem to never stop coming during the winter months. Often they last for hours or even days before subsiding. Perhaps the precipitation will end, maybe the skies will clear--but the winds keep gusting. Cross-wind components become critical, while conditions are ripe for low-level turbulence and wind shear. And remember, these conditions may be present at the range or in the low altitude training routes--they don't just affect terminal areas.

Aloft, conditions for icing become more likely as the freezing level lowers. The jet stream moves south, increasing the possibility of encountering turbulence at higher altitudes.

Planning ahead and anticipating what might occur will keep you on top of the situation. Listen carefully to that weather forecaster. If in doubt, ask questions--although they're trying to learn the critical impacts of weather on your missions, they don't always know everything. Select alternates carefully. Winter storms are usually widespread and that alternate you used last summer may have the same Delta Sierra conditions as your destination. Remember that clear skies may be deceiving. Did it rain or snow at your destination the night before? Maybe the runway condition has changed, or those interminable winds keep blowing the snow back on the runway to form patches of ice. Check those NOTAMs for airfield status!



32-3

Were conditions forecast to change soon after your planned arrival back home or at your destination base? Weather changes rapidly in winter months; keep a close watch on the weather reports from your destination.

Keep that guy in the aircraft behind you in mind, too. If something occurs that wasn't forecast, or if things are as forecast, call in a PIREP.

The last two years have shown that winter weather can reach even the southern-most bases. Don't underestimate nature's reach. Anticipate problems and you'll stay on top of them.





# ASSAULTING THE LIMITS

Assaulting the Limits

By Col Dorsey J. Talley  
Comdr, AFCMD Det 27  
and Capt Richard M. Doubt  
AFPRO Aeronautical Engineer  
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Practically everyone who flies has heard the saying, "There are old pilots and there are bold pilots but there are no old, bold pilots," and I don't believe there are many fliers who basically disagree. Here we run into the paradox of confidence and self-discipline. You must have the confidence that you and your aircraft can handle the extremes when the situation demands it; yet you must also be aware that exceeding the limits without cause is foolish, costly, and can be fatal.

The American airman is not a "hot dog" -- he is a well trained, well qualified, professional flier who has the privilege of flying the best fighter aircraft in the world. But with this privilege comes the corresponding duty of being a professional and protecting himself and his aircraft from harm. One way he can accomplish this is by becoming aware of this potential to cause permanent structural damage to his aircraft by flying it above the aircraft's design limit load, i.e., "over-stressing" the aircraft.

## OVER-G MISHAPS

Twenty-two Air Force fighter/trainer aircraft mishaps involving pilots exceeding aircraft "G" limits were recorded during calendar years 1976-1977. This shows an alarming upward trend.

Fourteen of the twenty-two over-G mishaps occurred during air combat maneuvering; eleven involved F-4 aircraft. Four of the mishaps involving F-4 aircraft occurred during engagements with dissimilar aircraft.

During the first quarter of 1978, four Class C and two Class B mishaps due to aircraft being overstressed were recorded.

## RESULTS OF OVERSTRESS

Permanent structural damage may occur as a

*"Experience is a hard teacher because she gives the test first, the lesson afterwards."*

*Vernon's Law*

## INTRODUCTION

The American fighter pilot has always been the best. Not necessarily because he was born better or exhibited more enthusiasm but rather because he was, and is, trained better. Flight training requires discipline. Not just discipline in training but, equally and perhaps more important, self-discipline in the trainee. The faster an aircraft flies and the more complex its systems become, the more discipline is required.



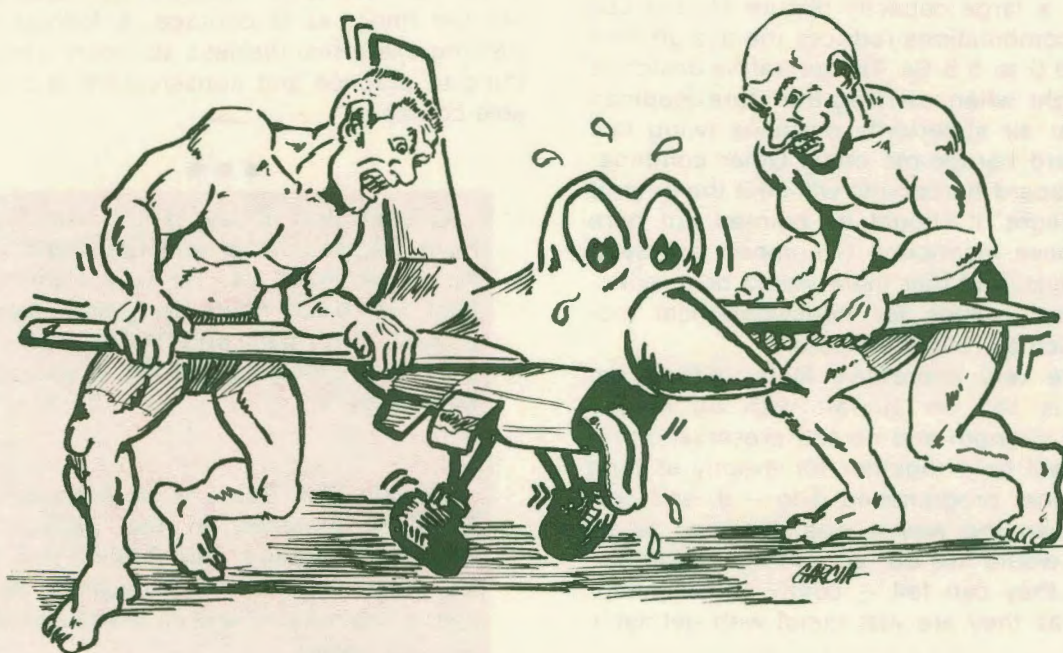
result of exceeding an aircraft's design limit load for just a few short seconds. The design limit load is the number of Gs that the aircraft structure has been designed to withstand without incurring permanent deformation. Each aircraft deforms when pulling a lot of Gs, but unless you go beyond the design limit load, it will resume its normal shape when these Gs are removed. There are occasions, such as combat, when the design limit load might be exceeded just a bit; and this is why a safety factor of 1.5 times the limit load (ultimate load) can be applied without failure. However, this can only be done once -- and just that once will virtually guarantee permanent deformation. This deformation is not just popping rivets but more like bending spars, etc. If you operate the aircraft between the design limit load and the ultimate load, it will cause permanent internal structural deformation, wrinkled skin, torn rivets, crack formation/propagation, and at least, airframe weakening. The 1.5 safety factor is actually established to compensate for such things as tolerance build-up, potential material non-uniformity, and inaccurate analyses. Operation within the 1.5 margin of safety is very dangerous and certainly not recommended.

While over-G mishaps are costly in terms of dollars and inspection manhours, the potential for catastrophic failure and possible loss of lives is far more serious.

## THE F-16 MULTIROLE FIGHTER

The F-16 is a new generation, single-engine, single-seat, multirole tactical fighter. It is smaller, lighter, and simpler than present designs but has far greater maneuverability and combat capability. The F-16's low-wing loading, high-thrust engine, rugged structure contribute to its superiority in the air combat role. It has an advanced digital fire control and stores management system and nine store stations with capacity for the carriage of up to 15,200 pounds of external stores. The result is a superior multi-mission air-to-air and air-to-ground tactical fighter.

The F-16's design maneuver limits have been demonstrated repeatedly with maneuvers up to 9Gs. Its 30-degree inclined seat and the raised heel line enable the pilot to better tolerate a 9 G load. A side stick with arm rest is provided to assist the pilot in executing precise maneuvers under high-G loads. One feature of the fly-by-wire flight control system even guards against structural overloads. The F-16's design load limit is 9 G with 100% internal fuel, in contrast to current fighters with design load limits of 6.5-7.3 G with 60-80% internal fuel. The airframe has a design service life of 8,000 hours.

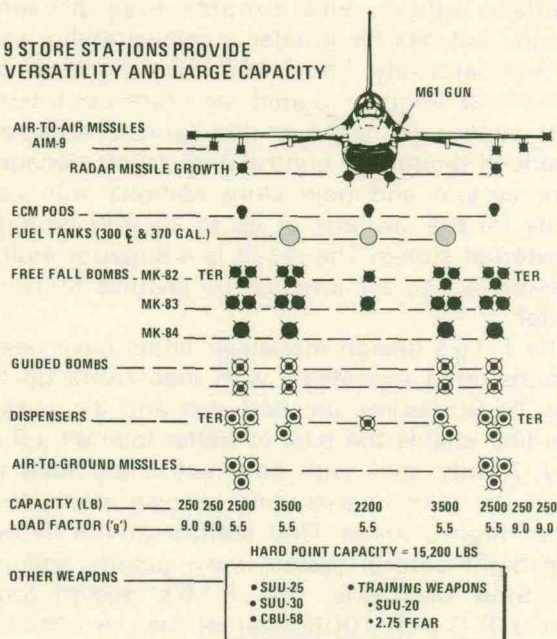




# Assaulting the Limits

Assaulting the Limits

## 9 STORE STATIONS PROVIDE VERSATILITY AND LARGE CAPACITY



Although the nine store stations provide versatility and a large capacity (Figure 1), the use of certain combinations reduces the design limit load from 9.0 to 5.5 Gs. The aircraft is designed for 9 G flight when carrying the store loadings required for air superiority missions (wing tips and outboard hardpoints only). Other combinations on inboard hardpoints will limit the aircraft to 5.5 G flight. It should be pointed out here that the above mentioned G numbers are symmetrical limits; and that there would be a reduction in these values for nonsymmetrical maneuvers, such as rolling pullouts.

These are very impressive facts, indeed, yet the F-16 is still an aircraft with no hidden reserves of strength and no self-preservation instincts. It will hold together for exactly as long as its designer programmed it to -- if, and only if, it is flown the way it was designed to be flown. We would like our aircraft not to fail but, if abused, they can fail -- coldly and unemotionally -- as they are just metal with definable limits.

## THE CHALLENGE

Today's Air Force pilot will determine how soon his aircraft fails or how long it will last by the manner in which he flies. There will be times when realistic training will require both the pilot and the aircraft to approach the limits. There may even be times during training or routine flying when the limits will be exceeded. When this happens, the professional must report it so that the aircraft and its vital components can be properly inspected for airworthiness.

Many obvious reasons exist for you to treat your aircraft and yourself with respect. But aside from the high cost of inspection, repair, and retrofit; the lost flying time and proficiency; and the possibility of loss of life or injury to yourself or the next pilot; you must remember that you are here to do a job -- to protect your country and your loved ones. Knowledge of the aircraft and its design limits will better enable each pilot to demonstrate his professionalism on every mission.

Lt General John P. Flynn (Ret), former AF/IG, observed: "We were not born with ability, it's a learned thing, as is courage. It follows that in training exercises, reckless abandon is the worst thing to practice and conservatism is a reasonable course ...."

• • •

Colonel Jim Talley is the Air Force Plant Representative and Commander of Air Force Plant #4. He is a Command Pilot with 6,600 hours flying time, served in ADC, SAC, ATC, and PACAF. He holds a BS in Engineering and MS in Industrial Management.

Captain Rich Doubt is an Aeronautical Engineer assigned to the Deputy for Selected Programs, Air Force Plant #4. He holds a BS in Mechanical & Aerospace Engineering and an MA in Business Administration.



# -FOD RECIPE-



## Ingredients

1 ea aircraft (the newer the better) turbo-prop, turbojet better, turbofan excellent!  
1 aircraft maintainer  
1 batch of tools, spare parts, residue (almost anything will do) ...

Blend ingredients on flightline. The darker and more inclement the weather the better. Illuminate with dim flashlight, add haste to make the early mission, subtract supervision (the mechanic's done this job before). Add one worn out apex bit to install a panel forward of the intake, subtract a Red X inspection for job completion. Let airplane simmer until aircrew launches. While inflight, rotate loose screw(s) counterclockwise and let windstream blend one into madly rotating engine.

Yield: A very loud compressor stall, power decay, high EGT. Engine begins to disassemble itself (if one engine acft, very bad; two engines, scary -- but one could hack it). With luck, the aircraft recovers safely. Sometimes it doesn't ....

To Serve: Place one long table in wing commander's office; you at one end, he at the other. You explain to him how this happened because he will soon be explaining it to his boss.

CAUTION: Not everyone will want to use this recipe. If you don't like the yield, carefully read AFR 66-33 (FOD Prevention Program), and substitute mixing procedures to get desired yield.

By SMSgt Michael Vedas  
HQ TAC/LGMS

FOD Recipe



# chock talk

Chocktalk

*...incidents and incidentals  
with a maintenance slant.*

## DROP = CRUNCH

Not long ago, a maintenance technician, who was performing initial checkout of an AIM-9E Guidance Control Unit (GCU), positioned the GCU on a locally manufactured maintenance stand. The GCU slipped from the stand as he attempted to reposition the IR dome cover. The IR dome was shattered, and the seeker head was broken off.

There was no way for the GCU to be adequately secured to the stand. The locally manufactured stand is no longer used -- only the holding fixture, P/N 16ADA27807, may now be used during GCU repair operations at this unit. Does your unit have any locally manufactured equipment which doesn't quite do the job? Take a quick look, you could save yourself and your co-workers a lot of headaches.

## DRAGONFLY EATS VALVE STEM

The A-37 has used a nosewheel designated the PN-D-30570. These nosewheels are being replaced on an attrition basis by an improved PN-5002812 nosewheel. In the interim, a 50-hour valve stem inspection has been instituted. However, this inspection was overdue at the time of the incident. The inspection became due during a cross-country mission to which several legs had been added, but it was not accomplished during this time. On landing, the nose tire failed in the valve stem area -- the valve stem separated from the wheel and entered the left engine damaging the compressor to the tune of \$3,700.

## WHEN IS A NICKEL WORTH \$700?

Answer: When the nickel ends up in an RF-4 engine. The RF-4 returned from a cross-country mission. The 781 entries confirmed that intake inspections were made at en route bases and somehow a nickel found its way into the intake during one of these inspections.

The imprint of the nickel was found on the first stage of the compressor but hasn't been heard from since. Wouldn't it be nice if this were the last coin to go through a jet engine? If you're going to drop money in the intake, how about using dollar bills next time?





# OLE MAN WINTER

As the last traces of fall pass by, it's becoming apparent that winter is ready to put out lots of cold air, rain, ice, and snow. Probably no one feels this more than the troops who work outside: civil engineers, supply, security police, and most importantly -- you maintenance folks.

Since we can't shut down operations until the weather gets better, the show must go on. The changing weather affects the airplanes too. Hydraulic seals and O rings crack and leak as do fuel tanks; and moisture drives avionics troubleshooters crazy. So what can you do about it? Not much, but you can make your time outside easier. Here are some tips to make that shift on the line a bit more tolerable:

## CLOTHING

1. Keep clothing dry and free from oil, fuel, and grease.
2. Have an extra pair of dry gloves handy.
3. Use several layers of lighter clothing rather than thick, bulky clothes, but ...
4. Avoid getting overheated. It can happen even when it's 20° outside if you're really humping. Don't wear outdoor clothing indoors for extended periods.
5. If you feel like you're getting too cold to work, you are too cold -- move

around or get into a warm place. Wind chill can easily take its toll and it's most insidious when the air isn't so cold. At 0°, you know it's cold; at 15° or 20°, it can seem warm, but all it takes is a bit of wind to make the effective temperature drop way down. See Figure 1 if you don't believe me ...

## FLIGHTLINE OPERATIONS

1. If it's icy on the ground, the aircraft and equipment are sure to be slippery. No one enjoys falling off a wing or ladder.

2. Allow more time when working outdoors. Go slowly. You're not at 100% when you're cold. The tendency to hurry up is natural; don't let it lead you to a mistake.

3. Spend more time inspecting static ports, vent lines, fuel drains, etc. Ice or snow can easily clog them.

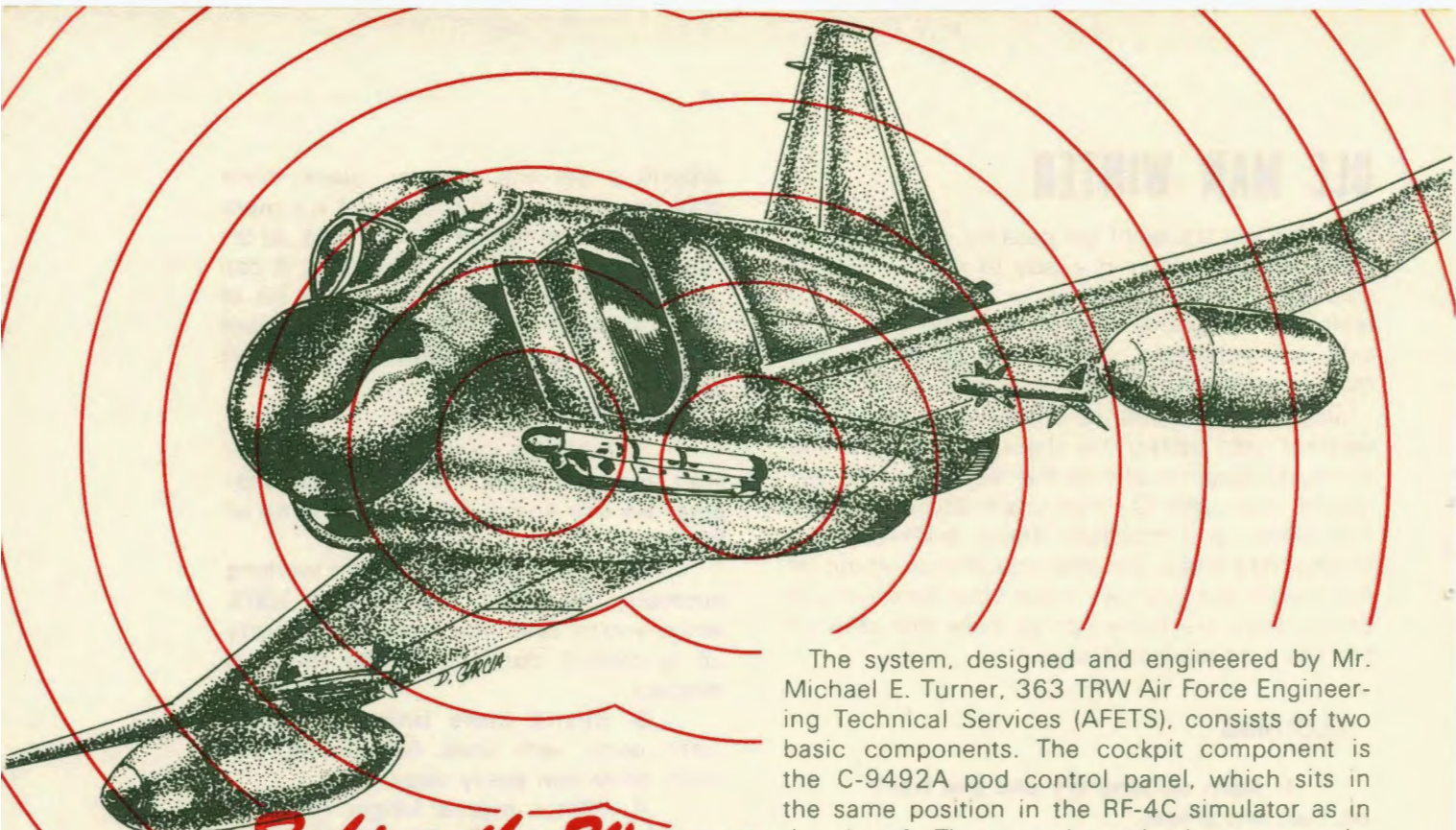
4. Winter means longer hours of darkness -- get reflective tape on your clothes, toolboxes, etc. Darkness and bulky headwear can restrict your vision. Watch out for the sharp corners of aircraft and AGE, not to mention all flightline vehicles.

\* \* \* \* \*

These are just a few suggestions -- add more of your own to the list. Not all of our units are in Phoenix or Alaska. But there are enough in between to warrant preparing for ole man winter.

WIND SPEED		EQUIVALENT CHILL TEMPERATURE CHART																						
KNOTS	MPH	TEMPERATURE (°F)																						
CALM	CALM	40	35	30	25	20	15	10	5	0	-5	-10	-15	-20	-25	-30	-35	-40	-45	-50	-55	-60		
		EQUIVALENT CHILL TEMPERATURE																						
		3-6	5	35	30	25	20	15	10	5	0	-5	-10	-15	-20	-25	-30	-35	-40	-45	-50	-55	-65	-70
		7-10	10	30	20	15	10	5	0	-10	-15	-20	-25	-35	-40	-45	-50	-60	-65	-70	-75	-80	-90	-95
		11-15	15	25	15	10	0	-5	-10	-20	-25	-30	-40	-45	-50	-60	-65	-70	-80	-85	-90	-100	-105	-110
		16-19	20	20	10	5	0	-10	-15	-25	-30	-35	-45	-50	-60	-65	-75	-80	-85	-95	-100	-110	-115	-120
		20-23	25	15	10	0	-5	-15	-20	-30	-35	-45	-50	-60	-65	-75	-80	-90	-95	-105	-110	-120	-125	-135
		24-28	30	10	5	0	-10	-20	-25	-30	-40	-50	-55	-65	-70	-80	-85	-95	-100	-110	-115	-125	-130	-140
		29-32	35	10	5	-5	-10	-20	-30	-35	-40	-50	-60	-65	-75	-80	-90	-100	-105	-115	-120	-130	-135	-145
33-36	40	10	0	-5	-15	-20	-30	-35	-45	-55	-60	-70	-75	-85	-95	-100	-110	-115	-125	-130	-140	-150		
WINDS ABOVE 40 HAVE LITTLE ADDITIONAL EFFECT		LITTLE DANGER					INCREASING DANGER (Flesh may freeze within 1 min)					GREAT DANGER (Flesh may freeze within 30 seconds)												
		DANGER OF FREEZING EXPOSED FLESH FOR PROPERLY CLOTHED PERSONS																						



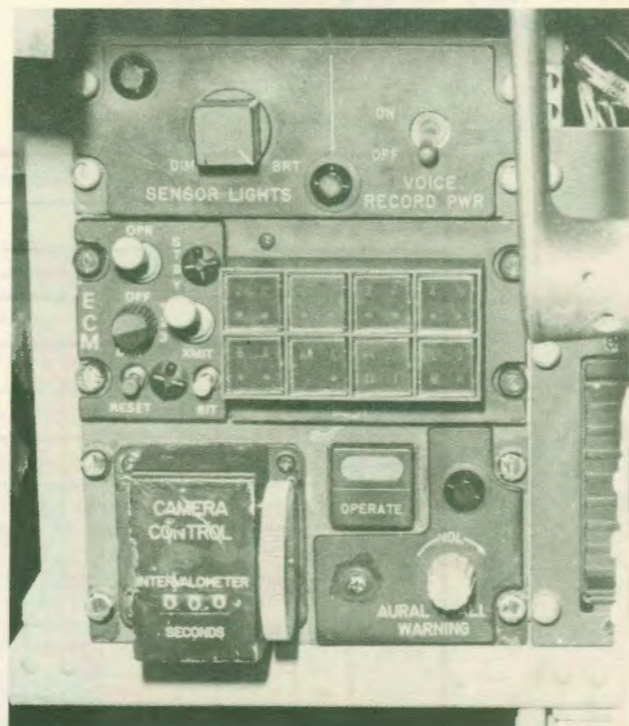


## *Taking the Worry out of Being Close*

**By Capt Terry J. Walter  
363 CRS/MACM  
Shaw AFB, SC**

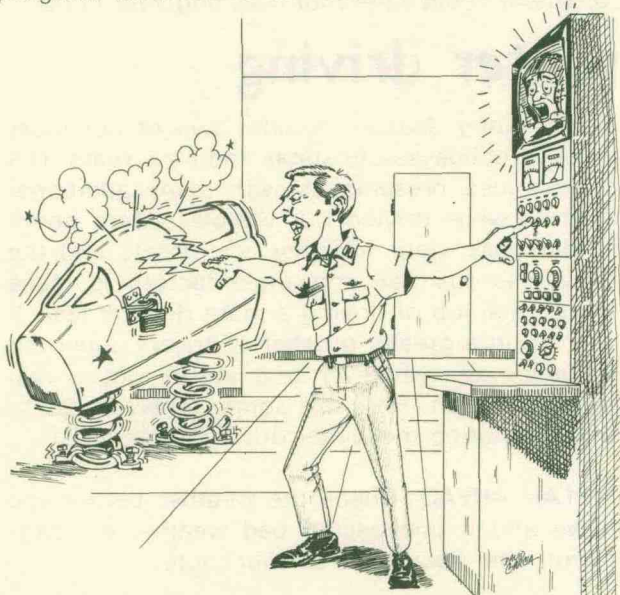
If you've ever happened over the range and been caught with your ECM down, you've probably wished you'd spent a little more time getting into your tactics and/or ECM shop. After landing, when you couldn't pinpoint what to write in the 781 about your ECM malfunction, probably both you and your crew chief wished you'd been able to "jam it." Several months ago, aircrews and maintenance folks at Shaw determined a need for more realistic and in-depth training on the use and operation of the ALQ-119 pod system. Conventional training methods (handouts, visual demonstrations, verbal abuse ...) failed to hack the program. In the spirit of the "train tuff, fight tuff" concept and prevailing desire to cover six o'clock, an idea for a quick mod to the aircraft simulator grew to be a possible answer. This article is all about the simulator ECM pod trainer, what it is, and what it does for the operator.

The system, designed and engineered by Mr. Michael E. Turner, 363 TRW Air Force Engineering Technical Services (AFETS), consists of two basic components. The cockpit component is the C-9492A pod control panel, which sits in the same position in the RF-4C simulator as in the aircraft. The control panel selects, controls, and monitors status of ECM systems installed on RF-4 aircraft and is compatible with the more sophisticated pods now in use and is designed for use with future pods. No modification is made to the control panel, so it can be pulled from the simulator and used in its primary function on aircraft without any problem.





The other half of this duo is a console panel covered with a wide variety of band, mode, and analog fault switches. This panel is deceptively innocent; it automatically decodes and displays to the console operator the selection made by the cockpit operator. Any program buttons pressed by the cockpit operator to counter a threat will illuminate corresponding lights on the console. The console knows all and tells all. The console operator, therefore, may unmercifully terrorize the cockpit operator with any one of a number of threats, pod malfunctions, and program failures. He can set the mode switches



to generate a failure in only the mode the cockpit operator selects, or he can depress the "ALL" switch (simultaneously depressing the cockpit operator) and generate failures in all modes. "BAND FAULT" switches respond in the same manner as the mode fault switches. An insidious option is the RESET/NON-RESET switch. The resettable fault can be cleared by placing the control box in standby; the nonreset position is a point of no return, unclearable fault.

Although the simulator is only the primary intended use of the mod, the beauty of the system is its flexibility. Aside from providing aircrews a realistic environment to train with countermeasures equipment, Mr. Turner built in growth options. An analog switch on the back allows dual pod simulation. The system can be used in the Field Training Detachment for training operations as well as maintenance people. Your local ECM shop can also use the system to polish troubleshooting techniques without the use of an actual aircraft or pod.



**Capt Terry J. Walter  
is this month's  
Fleagle T-shirt winner**

With the lesson plans hammered out through joint efforts of the tactics guys, the simulator operations liaison and Mr. Turner's ingenious, painstaking work, we now have another way to train as we intend to fight. Although presently the mod is only a USAF suggestion and an input for a field mod, we are confident of its current and future potential. Any units which desire any further information on this modification, please contact Captain Terry J. Walter at 965-2907 or Mr. Michael Turner at 965-3837. You're welcome to visit Shaw anytime for a firsthand look at the mod and how it works.

The bottom line in the threat scenario is survivability. Aircrew ability to effectively counter any threat through optimum use of equipment is the key. Like the man said, "... all else is rubbish."



Captain Terry J. Walter is a Maintenance Supervisor at the 363 CRS, Shaw AFB, SC. Captain Walter obtained her BA from Louisiana State University in 1973 and attended Officer Training School from Jun to Sep 74. Her assignments include a tour with AFSC at Eglin AFB, FL in 1975; USAF Academy Air Training Officer, 1976 - 77; Squadron Officer School, Sep - Dec 77.





Down to Earth

## fireplace hazards

The high cost of electricity and other methods of heating have made the fireplace more than just a decoration in many homes. It can serve as a relatively economical source of heat. But improperly operated, the fireplace can create a deadly hazard. Here are some tips on keeping the fire in the fireplace.

- Never operate the fireplace without a screen. Make sure the screen completely covers the opening. A tempered glass enclosure is better than just a metallic curtain, but the metallic curtain is certainly better than nothing at all!

- Burn hardwoods if possible. Soft woods, like pine and spruce, burn rapidly and throw dangerous sparks. They also coat the chimney with tars and resins that could easily catch fire. Don't attempt to burn green wood, it won't burn completely and will pop and snap sending sparks flying from the fireplace.

- Don't burn large amounts of Christmas wrappings in the fireplace. The roaring flames can ignite resins clinging to the side of chimney walls. Don't burn large amounts of any type of highly flammable material. The draft of the fireplace may not be large enough to handle the fire and you can end up with a room full of smoke.

- Keep flammable material away from the fireplace. Don't hang evergreens or stockings from

the mantel. Use only fire resistant rugs or carpets in front of the fireplace. If a spark does make it out of the fireplace, you'll have time to extinguish it before a fire begins.

Use your fireplace wisely and it will be a source of heat and enjoyment for the whole family. Two more points: don't retire with a fire still burning; and put a fire/smoke detector in the same room with the fireplace. That \$15 investment could save your lives and your home.

## winter driving

The winter season includes two of our most enjoyed holidays--Christmas and New Years. The season also presents us with many additional hazards while driving our vehicles. More hours of darkness, poor visibility, icy streets and the Christmas rush all contribute factors to make the normal job of driving a more difficult task. If you stir in a greater number of drivers under the influence of....whatever and you've got a real dicey situation. Here are some general rules to observe during the winter driving season:

**PLAN AHEAD**--Check the weather before you leave; and if unexpected bad weather or roads occur, alter your plans or your route.

**CHECK THE CAR'S MECHANICAL CONDITION**--Tune up the car and make sure it's winterized for your climate. Carry a shovel, snow chains, first aid kit, blankets etc. If you think you can't get caught, remember the March blizzards of last year!!

**ALLOW PLENTY OF TIME**--Get on the road early. Don't get caught short of time if traffic develops or weather causes a slowdown. Winter driving can be more fatiguing; stop for breaks or to change drivers.

**BE PATIENT**--Don't be a patient. Courtesy is contagious--spread it!

**DON'T DRINK AND DRIVE**--Intoxicants can breed sadness and mar a happy holiday and winter season. Use common sense. The losses far outweigh the gain of getting "high."

**ABOVE ALL, BUCKLE UP!**



## holiday spirit(s)

Throwing a holiday party? Good on ya'. You should be getting together with friends and enjoying the spirit of the season. But don't



equate the spirit of the season with overindulgence in spirits. As the host or hostess, it's your responsibility to see that your guests don't imbibe so freely that their lives, or the lives of others, are endangered by the drive home. If any of your guests appear too spirited, arrange for someone else to drive them home, or take them home yourself. Remember, as a host, you are morally and legally liable to take care of your guests.

Serve plenty of food with your alcoholic beverages and get the coffee out well before the party is over. Above all, if your cup runneth over, let someone else runneth the car...

## an ounce of prevention

**By Mr. R. S. WEST**  
**Fire Protection Inspector**  
**Langley AFB**

The holiday season is upon us, and some will not be singing songs of joy. There are thousands of fires and fatalities every year due to

faulty Christmas decorations. Here are several simple things to look for that will help all of us keep out of the statistics during the 1978 Holiday Season.

1. Cut a fresh tree; or when buying a tree, check for signs of dryness, such as dropping needles and dry, brittle branches. Always store the tree in a cool place with the base in water. Before setting the tree, saw the trunk off at an angle at least one inch above the original cut. Use a tree stand that will hold plenty of water. Check the water level every day. When the tree shows signs of drying out, it's time to take it down.

2. Only purchase electrical decorations certified by the Underwriter's Laboratories (UL). These products must be used according to the manufacturer's instructions to be safe. Check all electrical cords and light sets each year for frayed wires, loose connections, damaged plugs and broken sockets. Follow the manufacturer's instructions on the number of light sets that may be plugged into one socket. Don't use indoor light sets outside; they aren't properly weatherproofed. Remember to turn off lighting sets before going out or retiring for the evening.

3. Open flame/candles should be protected and not used too close to evergreens. Whenever possible, use noncombustible materials to decorate for Christmas. Any combustible decorations should be "Flameproofed."

4. When buying gifts, especially toys, always look for the UL label. This will tell you that they have been tested for fire and shock (if electrical) hazards and may be considered safe if properly handled and maintained. Don't set up electrical or gasoline fueled toys under your Christmas tree.

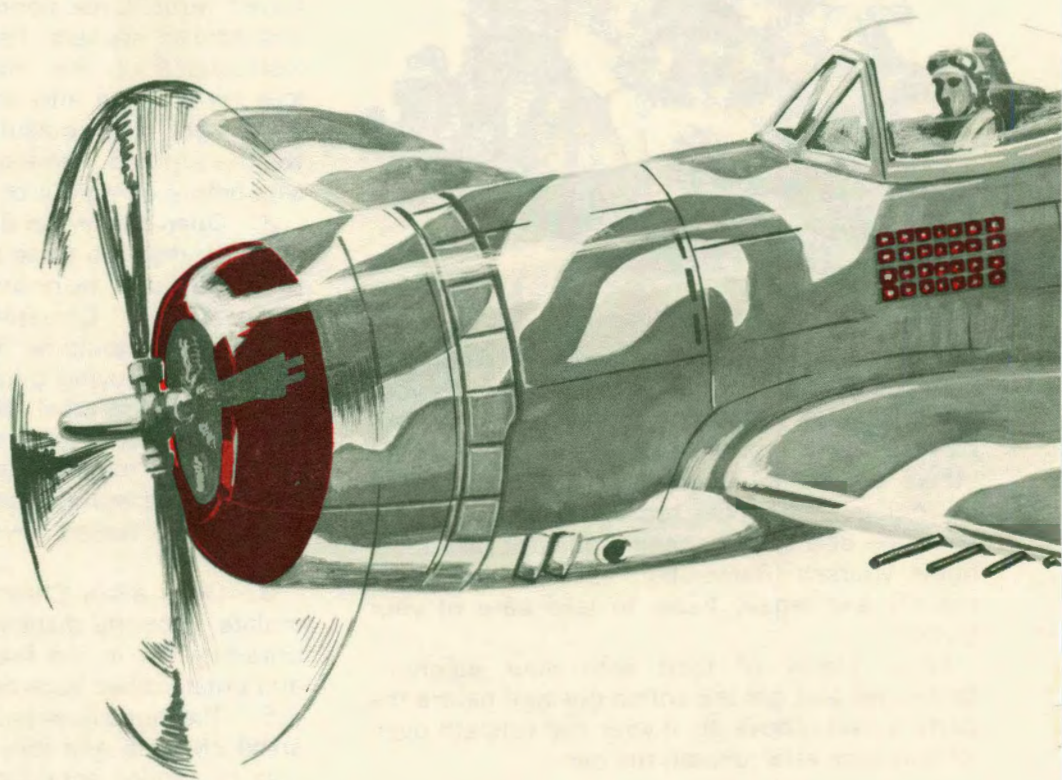
5. Don't allow Christmas wrappings to accumulate; properly dispose of them as quickly as possible--not in the fireplace, they burn rapidly and create other hazards.

6. The holiday season is an exciting time for small children and they normally cannot recognize or ignore potentially hazardous situations. Supervise them closely, especially with new toys. Consider the age of your children when you purchase toys; follow the manufacturer's guidelines on the age group for toys, especially electrical products.

If you follow these few, simple tips and use a commonsense approach to your holiday activities, I guarantee you'll have an enjoyable holiday season. After all, that's what it's all about, isn't it?



# P-47 Thunderbolt



an article of prevention

By Mr. R. S. WEST  
For Foreign Investors  
Company Ltd.









# A-10 COMPLETES FOL VALIDATION TEST

**Lt Doc Pentland**  
**355 TFS**  
**Myrtle Beach AFB, SC.**

The 355th Tactical Fighter Squadron, Myrtle Beach AFB, SC, "Fightin' Falcons," recently achieved an unprecedented 6.0 sortie rate during 3 days of A-10 surge operations while deployed to Shaw AFB, SC. The unit of 18 A-10s from the 354th Tactical Fighter Wing, Myrtle Beach AFB, SC, was supported by the 354th Aircraft Generation Squadron, "Demon AMU" (Aircraft Maintenance Unit), the 354th Transportation Squadron, and the 354th Supply Squadron. They were testing the Forward Operating Location (FOL) concept of rearward maintenance and forward employment, designed to simulate the conditions under which the A-10 is expected to be used in Europe.

This FOL testing from 17 to 29 April was conducted as part of the A-10 Follow-On Operational Test and Evaluation (FOT&E) Phase II. To support the planned FOL basing and employment concept for the A-10, USAFE asked HQ USAF in December to validate the projected operations, logistics, and support principles involved. The Air Staff approved and recommended that TAC conduct the testing. On 24 January 1978, TAC directed the USAF Tactical Fighter Weapons Center (TFWC), Nellis AFB, Nevada, to manage and evaluate the FOL Operational Support Test. The test was closely monitored by personnel from the TFWC, HQ TAC, USAFE, and specialists from the Sacramento Air Logistics Center, which manages the A-10 system.

The FOL concept presupposed the existence of a Main Operating Base (MOB) to provide

major operational, maintenance, and logistic support for several FOLs. The MOB for the A-10 in Europe will be Bentwaters-Woodbridge Royal Air Force Station, United Kingdom, where the 81st TFW is stationed. The 81st TFW will eventually consist of 6 A-10 squadrons of 18 aircraft each, and will rotate aircraft and people into several FOLs in Germany. This will permit aircrews and maintenance personnel to train in the geographic areas where they could be tasked to fight. The FOL concept disperses





the A-10, uses its sortie generation capability more effectively, and projects close air support (CAS) anti-armor throughout the theater. Sembach, Germany, currently the only announced FOL, will commence limited operations in early 1979, and will be fully operational by mid-1979.

The 354 TFW provided all pilots, aircraft, and support personnel for the FOL test. Myrtle Beach AFB facilities were used to simulate the MOB support that would be performed at RAF Bentwaters-Woodbridge. Shaw AFB was selected as the FOL test site, with the 363d Tactical Reconnaissance Wing acting as the host unit. The FOL Operational Support Test was originally designed to resemble a peacetime deployment of 2 weeks; however, on short notice, it was expanded to simulate an FOL wartime surge scenario. The first 8 days involved 8 A-10 aircraft, 10 pilots, and only 63 logistics and support personnel. It sought to validate USAF guidelines for FOL manning, pilot workload, transportation and supply requirements, and maintenance support for the FOL aircraft. The test was shortened from the USAF FOL concept, which calls for 3 weeks of rotational training -- 1 week of munitions training followed by 2 weeks of dry CAS training with NATO ground forces. The peacetime FOL test was designed to generate a 1.25 sortie rate, or 10 sorties per day from the 8 aircraft over the first 8 days. However, the effort was 1 sortie short of the total required (79 instead of 80), because of 4 weather cancellations on the next to the last day. The ability of the FOL to provide aircraft service and limited on-equipment maintenance was demonstrated, along with the capability to supply and replace selected aircraft components.

The FOL activity changed rapidly on 26 April with the arrival of 10 additional aircraft and 131 maintenance and support personnel from Myrtle Beach. The total number of pilots increased to 31, of which 24 were line pilots including the FOL Commander and Operations Officer. Seven additional A-10 pilots were included in the Tactical Unit Operations Center (TUOC) augmentation package. The FOL now resembled a USAF squadron of 18 aircraft conducting surge operations. The original tasking message called for at least a 3.0 sortie rate (54 sorties per day), and a rate as high as 5.0 (90 sorties per day) was encouraged. The 354 TFW established its own goal of 6.0 sorties per aircraft per day.

Several additional restrictions were levied to simulate what might occur under wartime conditions. The exercise tasked an alert posture from which aircraft were scrambled at 15-minute intervals. The aircraft were physically dispersed along the Shaw flightline into four separate parking areas; and following each sortie, they were backed by tugs into simulated protective shelters where they were refueled and rearmed. An average 30 minute ground "chock time" had to lapse before an aircraft could be relaunched, and each sortie had to last a minimum of 0.7 hours. (In actuality, the average sortie length was 0.87 hours.) Only the original 18 aircraft could be used, and they could not be spared by substitutes from Myrtle Beach. BDU-33 practice bombs, 30mm target practice, and Maverick TGM-65 munitions were employed, and each aircraft was equipped with a "Pave Penny" laser seeker/tracker pod and an ALQ-119 electronic countermeasures pod. The 354 TFW added the following restrictions: Flying operations were limited from official sunrise to official sunset; pilots were limited to 4 sorties per day or their 12-hour crew duty day, whichever came first; and no single-ship missions were permitted on the pilot's fourth sortie or on any sortie off the controlled gunnery range. All sorties were flown to either Poinsett, the local air-to-ground range, or to a nearby Military Operating Area, where air support tactics were flown with FAC aircraft from the 21st Tactical Air Support Squadron, Shaw AFB, SC.

The surge operation proved once again that pilot fatigue rather than the A-10 airframe was the limiting factor in total sortie generation. Both day one and day two ended with 105 total sorties per day, and very few pilots remained within crew rest who could fill the operationally ready aircraft which were still available. The third day, 29 April, began with only 16 fully mission-capable (FMC) A-10s. A rescheduling of pilot and TUOC resources permitted the flying of 114 effective sorties. This brought the 3-day average up to 6.0 which has never before been accomplished by modern USAF jet fighters. One aircraft flew 22 consecutive sorties with no maintenance discrepancies during the 3-day surge. The maintainability of the A-10 was demonstrated when all 18 aircraft returned to Myrtle Beach in FMC status on 30 April. Normal flying operations began the next day.

The commanders, pilots, and observers



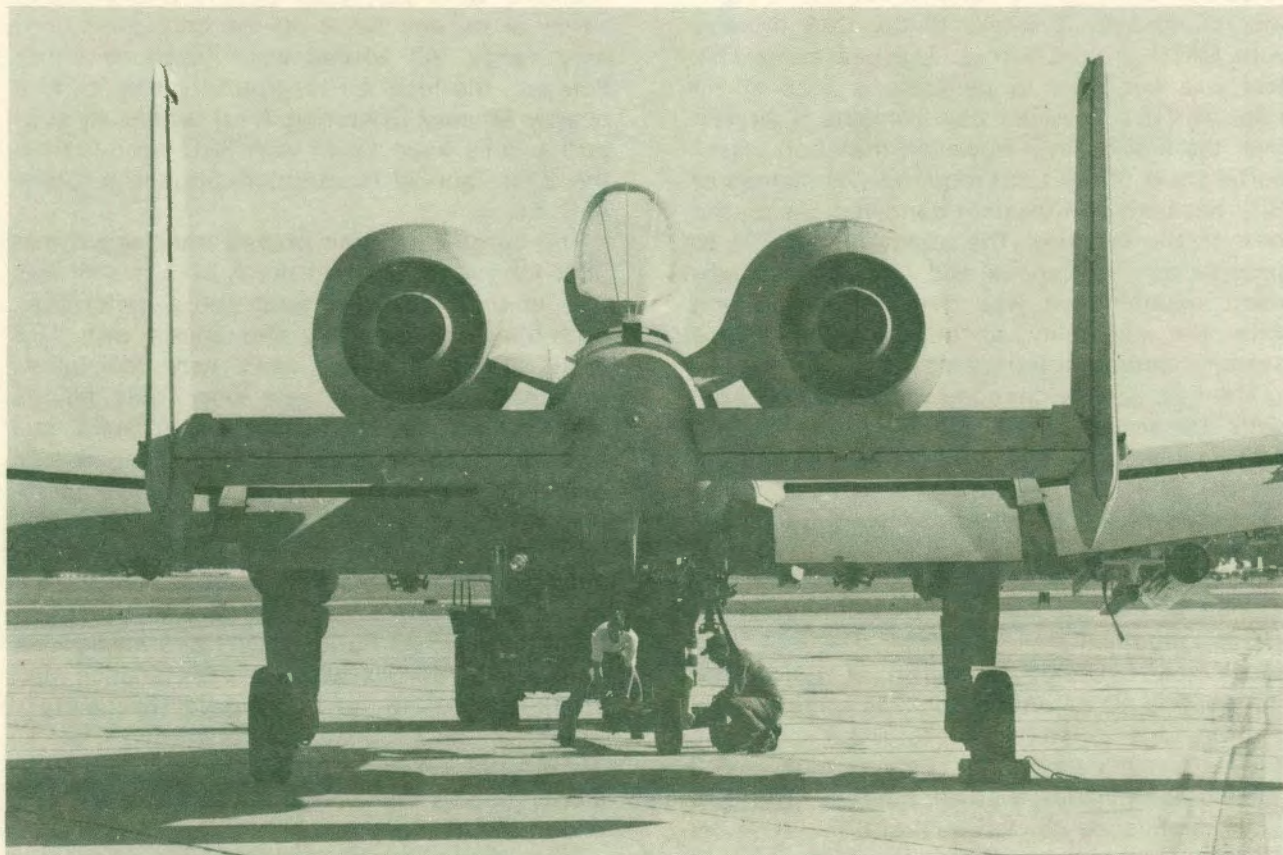
## A-10 COMPLETES FOL VALIDATION TEST

expressed praise for the maintenance efforts of the "Demon AMU." One maintenance problem in particular proved the validity of the FOL concept. On its second effective sortie of the day, one A-10 was diverted in flight because of a suspected engine problem. At 0856, the aircraft landed at Myrtle Beach for an engine change, and it was relaunched in less than 6 hours for a functional check flight and then returned to Shaw. The aircraft flew an additional effective sortie before the day's surge operations ended.

The USAFE monitors observing the A-10s surge capability for the first time described the operation as "unbelievable." They noted the minimal maintenance attrition and were impressed that the surge was accomplished with productive training sorties. The USAFE A-10 project officer noted the surge would "help USAF planning, and probably establish a data base for future USAFE Operational Readiness Inspections utilizing the rearward maintenance/forward employment concept."

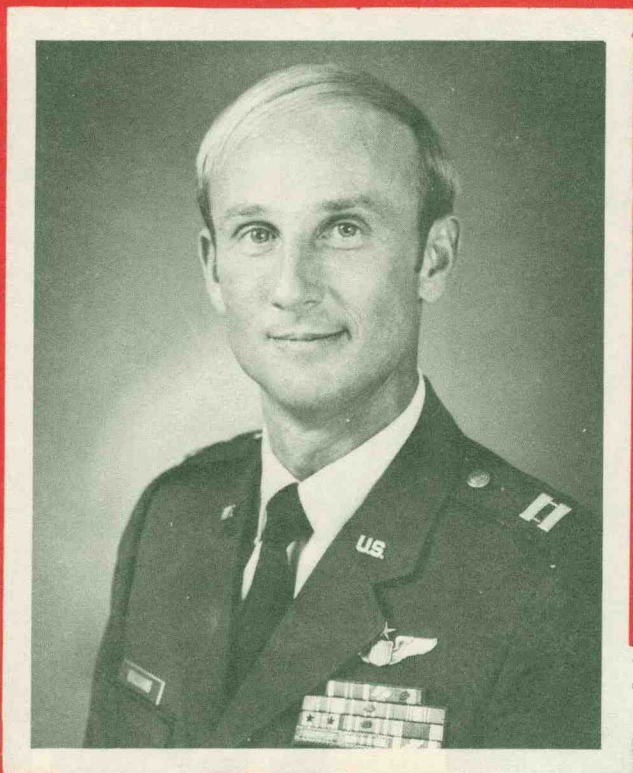
The 354 TFW possesses experience in A-10 surge operations; and it has developed new concepts for TUOC manning, maintenance/

operations liaison, and launch-ramp supervision which are necessary to command and control an A-10 surge environment. Future A-10 wings, both in TAC and in USAFE, will draw upon this experience as they operationally adopt the A-10. Through the FOL test and previous surges, the A-10 presents two major challenges in the use of tactical airpower. The first centers around the need to recognize the A-10's revolution in CAS tactics and its continuing need for adequate airspace and ranges to fully exercise its low altitude maneuverability and standoff ordnance capability. The improvement in the maintainability of the A-10 over other current fighter aircraft is the second challenge the A-10 poses to TAC, USAFE, and our tactical air control system. The total surge capability of several wings of A-10s is staggering. Conceivably, it could overtax the ability of current command, control, and communications systems to exploit rapidly and fully the sortie capacity of the A-10. Luckily for us "Warthog Herders" the uniqueness of the A-10 is being acknowledged, and its sortie generation is providing additional incentive to update our command and control system. ➤





# AIRCREW of DISTINCTION



**Capt Robert D. Williams**  
**461 TFTS/58 TTW**  
**Luke AFB, AZ**



**O**n 3 August 1978, Captain Williams briefed to lead a three-ship ACM mission. After a normal runup, takeoff, and climb to approximately 100 feet, Capt Williams' aircraft developed a critical loss of thrust and began settling back toward the ground. Quick examination of RPM gauges revealed both engines winding down. Suspecting double engine stagnation, Captain Williams rapidly retarded both throttles to idle and readvanced them to check for any response. The left engine had stagnated and did not respond; the right engine accelerated to 85% and began surging violently. To further complicate matters, the control augmentation system (CAS) had disengaged and attempts at resetting it were unsuccessful. By this time, his aircraft had settled to an altitude of 50 feet above the ground. He retarded the right throttle once again; and by carefully

advancing it, he was able to coax 83% power from that engine. Captain Williams played his pitch attitude to maintain 160-165 KIAS. Once achieving 83% on the right engine, he was able to level the aircraft and accelerate to 170-175 KIAS. He then initiated a slight climb and a right turn to downwind. After locating a clear area, he jettisoned the centerline fuel tank. The reduction in weight enabled Captain Williams to accelerate to 190 KIAS and climb still further to 200 feet AGL. As he turned to final approach, Captain Williams lowered his landing gear and completed an uneventful landing.

The superior airmanship, prompt reaction to a critical emergency, and professional competence demonstrated by Captain Williams resulted in the saving of a valuable tactical fighter, and averted possible injury or loss of life. His actions qualify him as the Tactical Air Command Aircrew of Distinction.





# TAC SAFETY AWARDS

## Crew Chief Safety Award

During the month of August 1978, Staff Sergeant Oral V. Exline, 24th Consolidated Aircraft Maintenance Squadron, Howard AFB, Canal Zone, maintained his UH-1N aircraft completely free of delayed discrepancies. Additionally, his aircraft had no maintenance delays or aborts for this entire month. His outstanding efforts produced a safer aircraft and qualifies Staff Sergeant Exline for the Crew Chief Safety Award for December 1978.



SSgt Oral V. Exline

## Individual Safety Award

On 27 August 1978, Airman First Class Thomas A. Christian, 363d Equipment Maintenance Squadron, Shaw AFB, South Carolina, was en route to his quarters when he witnessed a bolt of lightning strike near the contaminated fuel pit. As he approached the area, he noted smoke coming from a centerline fuel tank and other containers. Airman Christian directed another individual to notify the fire department, obtained a fire extinguisher, and put out the fire. His prompt action prevented a serious explosion and damage to mission-essential equipment and qualifies Airman First Class Christian for the Individual Safety Award for December 1978.



A1C Thomas A. Christian

## Ground Safety Award of the Quarter

Captain Scott Eyestone, additional duty ground safety officer, USAF Clinic, Howard AFB, Canal Zone, has been selected to receive the Quarterly Ground Safety Award for third quarter 1978. Captain Eyestone developed an exceptional safety education program for his unit which includes personalized newcomer orientations and periodic visits and inspections of unit work centers. His unit has accumulated over 200 days without any lost-time injuries.



Capt Scott Eyestone



# FSO end of tour report

Capt Terry Schwalier  
309 TFS/31 TFW  
Homestead AFB, FL



"Safety School! Whaduya mean? I didn't ask for that! Brother ...." And so went my first thoughts when notified of the TDYs MPC had lined up for my transition from ATC to TAC.

The comments from my squadron commander about the safety job being a "good step" did little to console the initial bewilderment. (I had

heard the "good step" approach before.) Suddenly an option never really before considered was staring me in the face.

I thought about the wing FSOs. They were decent enough guys, seemed to enjoy their work -- and were good sticks too. Maybe I should keep an open mind. Ten weeks in Southern Cal can't be all bad.

## SAFETY SCHOOL--UNIVERSITY OF SOUTHERN CALIFORNIA

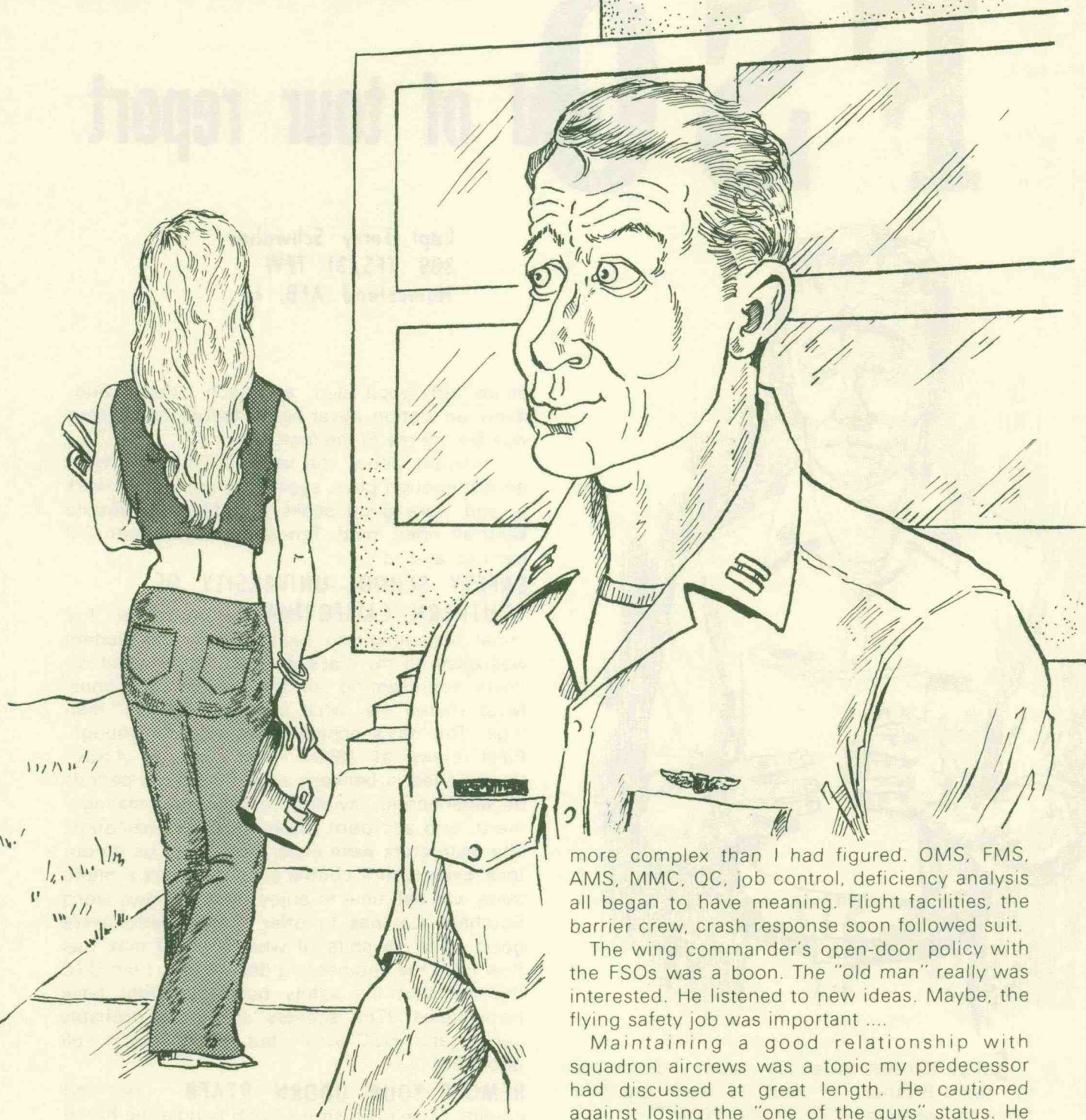
A good deal. The initial adjustment to being a full-time student was easy. In my class were 50 other rated officers representing all the major commands. Most shared my "what am I getting into" feelings. The day's schedule was simple enough. First class at 0800, last bell at 1530. Sandwiched in between were 50-minute periods of engineering, aviation psychology, management, and accident prevention/investigation. The instructors were experts and kept us on our toes. Even with a couple of study hours a night, there was still time to enjoy the many diversions Southern Cal has to offer. Those weeks were good ones; in spite of what seemed max fuel flow from the engineering department, I left USC thinking that the safety business might have possibilities. (The scenery at Norton probably can't match USC at all, but the course is still good. Ed)

**REMOTE TOUR - UDORN RTAFB.** Hot and humid. Wasn't too sure I could handle the Klong aroma for a full 12 months. I remember hoping the "it grows on ya" expression was figurative only.

Didn't take too long to realize that I had plenty



## FSO-- end of tour report



to learn. Safety school certainly didn't make me an expert. Being a squadron jock the first 6 years of my AF career had me fairly narrow-minded. The maintenance organization proved

more complex than I had figured. OMS, FMS, AMS, MMC, QC, job control, deficiency analysis all began to have meaning. Flight facilities, the barrier crew, crash response soon followed suit.

The wing commander's open-door policy with the FSOs was a boon. The "old man" really was interested. He listened to new ideas. Maybe, the flying safety job was important ....

Maintaining a good relationship with squadron aircrews was a topic my predecessor had discussed at great length. He cautioned against losing the "one of the guys" status. He suggested never turning down a sortie offered -- regardless of the time or type mission -- without a valid (and he meant valid) reason.

The real safety problem -- how to prevent an



accident. The hours spent theorizing on this subject while in safety school didn't seem to help. The program requirements laid forth in AF safety manuals and the MAJCOM supplement seemed like pretty flimsy strawmen. Checking squadron bulletin boards and management books didn't seem to home-in on the problem. Sitting at a desk shuffling paper from the in-basket to the out-basket didn't either. I figured I'd better get out and see what was going on.

A few minutes with the fuel shop NCOIC, a few with the line chief, a few with the tower controllers taught me a lot about what went on to get that sortie airborne. It showed me that aircrews weren't the only people working hard to get the job done -- maintenance and RAPCON really weren't out to get them. I listened, I learned.

The payoff. A few weeks later the fuel shop NCOIC called me to talk about aircrew write-ups. Shortly thereafter came some calls from the flightline OIC, the night tower supervisor, and others. Solutions came easily. Most of the time they simply involved getting the right people together. On occasion, the problem was resolved with a little help from the "Old Man." There were many approaches available -- and, the great thing was that most of them worked.

The wing kept their accident slate clean, passed an MEI -- and the months went too quickly.

**SHAW AFB, SOUTH CAROLINA** Not exactly an F-16 to Aspen, Colorado -- but it's flying.

The first day showed me once again the importance of being flexible. The FSO that was to replace me at Udorn got shortstopped at Shaw --

and was filling the position I had figured on moving into. Now what? When the wing seemed a little noncommittal on my future, I got antsy and started to look around. A slot was opening at 9 AF, and it began to look attractive. I took it. A week of "cauliflower ear" from being on the telephone showed that this was a slightly different type of safety job. I missed the involvement with the real workers (and began to wonder if the wing would have me back).

On the first staff visit, I picked up some ideas and felt as though I passed on a few. That "trading" continued during subsequent trips. The wings' MEIs became my test too. Accidents became very personal. While an area I preferred to avoid in the first place, accident investigations were fascinating. The effort expended each time



an aircraft/aircrew was lost showed me that our leaders do care. Every possible cause was investigated. No efforts were saved -- all the way to the many hours spent milling over the findings and recommendations -- trying to get just the right words. Watching a numbered air force staff function was another new experience. Advising, suggesting, soliciting -- all required a different style -- especially when caught between the wings and MAJCOM! More than once I felt like I was prime for the lead in "Three Faces of Eve." Two and a half years passed -- and the decline in the accident rate and better MEI results seemed to make things worthwhile.

**REFLECTIONS** Now the future holds an RTU and a new airplane. I look back on my tour in safety (from its reluctant beginning) with genuine appreciation. Maybe that ATC squadron commander knew what he was talking about when he said something about the FSO job being a "good step." You might want to give it a go.





**Lt Col Henry M. Crook, Jr.**  
**421 TFS/388 TFW**  
**Hill AFB, UT**

The silver bullet -- fact or fiction. To some it is a matter of fact, to others, an unknown commodity. As light as half a pound and only about 7 inches long, the 20 millimeter cartridge has been one of the most used and least understood of any munition we have in our weapons inventory. It is both the fighter pilot's tool and the munition man's forte. Unfortunately, we sometimes take its safety measures for granted.

Almost every front line fighter in Tactical Air Command has the capability to fire the 20mm shell. The two gun systems most commonly utilized are the M39 and M61. These systems may be internally mounted (as in the F-4E, F-15, etc.) or carried within an external pod such as the SUU-16 or SUU-23.

Each 20mm round is composed of a cartridge case, primer, propellant powder, and the projectile. In the case of the M39/M61 series systems, when an electrical pulse is applied to the primer, the projectile is fired. The resulting flame passes through a gas vent leading to the propellant chamber, igniting the propellant in the cartridge case. Gas is produced from the burning propellant which forces the projectile through the gun barrel. Simple? You bet! But it's the simple things that can cause the most damage to handlers and users. Let's examine the various types of cartridges in use Air Force-wide today.

Generally, the type of cartridge depends on the projectile. Explosive-loaded cartridge types include high explosive (HE), high explosive tracer (HET), and high explosive incendiary (HEI). Other cartridge types include armor piercing (AP) models for incendiary (API) and tracer (APT), target practice-ball (TP), and target



practice-tracer (TPT). In all, we have 10 types in common use today in the modern tactical fighter fleet. All are electrically detonated and have the same physical characteristics.

An indication of type and quantity carried should be marked on the armament placard of the aircraft or, in some cases, in the aircraft forms. But this does not tell the whole story. The 20mm projectiles themselves are painted for identification of type in accordance with the applicable color code in effect at the time of manufacture. Cartridge cases are unpainted but may have nomenclature stamped on the base or stenciled on the side. The accompanying chart goes into more detail on the various colors and codes. Regardless of color, all are explosive items and even small amounts of static electricity can set them off.

Let's explore the safety aspects of the 20mm shell. Generally, you can assume that the cartridge is safe until an electrical charge is applied. This is excellent as long as the rounds remain in the gun system. When fired in the Auto-Clear mode of the SUU 16/23 gun pod, approximately four to six live rounds are ejected overboard. Additionally, the physical characteristics of the pod make it easy for live rounds to fall clear during normal loading, taxi, and flight. This is where the greatest hazard lies. Easily accessible, small, light, and desirable as a trophy, the 20mm has become a trademark in fighter aviation. So much so that it has become a hazard. A check of the safety files will reveal cases of mishaps directly related to improper handling or unauthorized use. An individual recently received a serious injury while drilling a hole in the case in an attempt to remove the



# VER BULLET

powder. This type of incident happens frequently.

The greatest hazard in the 20mm cartridge is the electric primer. The "book" voltage required for sure-fire initiation is 160 volts DC. The electrical path is from the hole in the brass cup, through the button, through the conductive composition to the cap. All primers are initiated

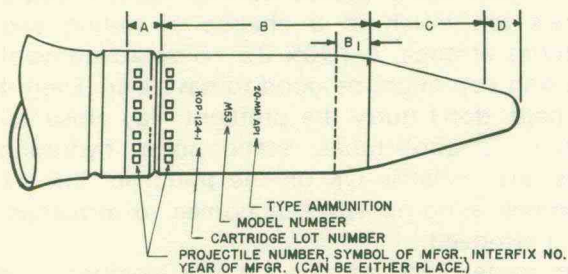
by some sort of electrical energy. This application ignites the composition and provides the flash necessary to ignite the propellant. What type of energy can set these things off? For the unwary handler, I would say any type of electromagnetic generating device. This could be a transmitting antenna of a radio or radar, types of static electricity, or just a hard blow from a hammer.

Are safety precautions necessary? You bet! The maintenance guys do not allow any conductive material to contact the electric primer. When transported, the primers are shielded from any source of electromagnetic radiation. They follow detailed guidelines on packing, linking, and loading. Every precaution is taken to insure that no conductive material is allowed to contact the electric primer.

Recently, very strict measures have been taken to insure control and full accountability of 20mm ammunition. Sniffer dogs trained to detect explosives are being utilized at many TAC bases during random vehicle checks. Dormitory inspections are revealing rounds of 20mm being used as paperweights and trophies.

The live 20mm round, whether it be TP, or practice, or HEI explosive, is equally dangerous. Next time you pick one up in the parking lot or find one in the trunk of a car, realize the explosive potential you are holding. Before you take a shell from the shop or pick it up lying in the desert, call someone who knows. Most bases have trained Explosive Ordnance Disposal (EOD) personnel who can readily determine its characteristics. Remember, any source of static electricity can be as lethal as the electric chair or a MIG at 6 o'clock. ➤

PROJECTILE TYPE	COLOR OF PAINTING				COLOR OF MARKING
	LOCATIONS (See Figure Below)				
	A	B	C	D	
Dummy	No paint	Chromate finish	Chromate finish	Chromate finish	Black
Armor Piercing Incendiary	No paint	Black Red Band in B 1 area	No paint	No paint	White
High Pressure Test	No paint	Purple	Purple	Purple	Black
Target Practice	No paint	Blue	Blue	Blue	White
High Explosive Incendiary	No paint	Yellow Red band in B 1 area	No paint (Chromate)	No paint (chromate)	Black
Target Practice Tracer	No paint	Blue	Blue	Blue	White stenciling Red T's (location B 1)
High Explosive Incendiary Tracer	No paint	Yellow red band in B 1 area	No paint (chromate)	No paint (chromate)	Black stenciling Red T's (below B 1)
Plastic Dummy Cartridge	No paint (natural plastic)	No paint (natural plastic)	No paint (natural plastic)	No paint (natural plastic)	Black





# TAC TIPS

Peace comes not from the absence of conflict  
in life but from the ability to cope with it.

Pan Am CROSSCHECK

...interest items,  
mishaps with  
morals, for the  
TAC aircrewman

## 'TIS THE SEASON TO WEAR LONG JOHNS

### I THINK I SMELL SMOKE

During a low-level navigation mission, the WSO in a Photo Phantom noticed an oil-like smell which disappeared as soon as he went to 100%. Shortly thereafter, he went off 100% and all appeared normal. Five minutes later, both crewmembers smelled fumes again and went to 100%. The low-level was aborted, and the crew began to RTB.

The pilot soon smelled strong fumes and experienced running eyes, loss of feeling in his extremities, and tunnel vision. The WSO took control of the aircraft and flew until the pilot recovered sufficiently to land the bird.

Findings? Well first, the cabin cooling turbine bearing failed, allowing oil to enter the air conditioning system. The front cockpit oxygen regulator normal/100% switch was broken internally, so the pilot was breathing ambient air no matter what was selected on that switch. The pilot may have suffered hypemic hypoxia or perhaps he hyperventilated.

Lessons? Several come to mind. The pilot "assumed" he had 100% oxygen when he threw the switch. Other positive ways of assuring that you get 100% are to use the regulator "emergency" position or to actuate the emergency oxygen bottle. If the emergency vent knob had been pulled, the fumes might have cleared faster. If the WSO had been unable to fly the aircraft while the pilot was incapacitated, things could have gotten really sporty.

Spring has sprung  
Fall has fell  
Winter's here  
And it's colder than it was  
a few days ago.

If it's not cold, windy, and snowy outside, it soon will be -- except for the folks who are fortunate enough to be stationed at southern bases. A few moments of preparation can make your winter flying experiences safer and a lot more enjoyable.

Número uno, try to keep fit and well-rested. These two things will go a long way in helping you avoid a cold and the other maladies of the season. Consider the terrain and weather conditions you'll be encountering. If you aren't prepared to spend the night in the worst possible spot on your route, you aren't prepared.

As a minimum, wear long johns and bring an extra pair of heavier gloves for preflighting, etc. Don't wear bulky gloves during flight, though, there's too much of a chance of hitting two switches at once. A 100% 35-10 approved wool stocking cap might be good to have also. Even if it's cold, don't hurry the preflight. Pay close attention to pitot tubes, static ports, hydraulic lines, etc. Frost is OK on the pumpkin, but it's definitely a no-no when it comes to airplanes. Get it removed.

En route, keep an eye on the weather -- it





## GOING...GOING...GONE

An F-4D in another command was number two in a three-ship training mission. Configuration included three external tanks. During the trail departure, 30 seconds after takeoff, the master caution and CNI cool light illuminated. After resetting the system, the pilot noted the fuel gauge tape and counter rapidly decreasing. The IFR door was opened to depressurize the tanks, and the fuel decrease stopped at 3.7 over 7.0. The tape and counter gradually equalized at 5.0 over 5.0 with the tanks depressurized.

Tank 5/6 lockout was used, and the pilot selected internal wing dump to reduce weight for landing. When the pilot closed the IFR door to enable dumping the fuel, the tape and counter decreased rapidly again. The IFR door was immediately extended. Since the aircraft was IFR from shortly after takeoff, the crew could not determine if fuel was being lost through the main dump mast. A safe landing was completed, and the wing tanks were found to be full with the centerline three-fourths full.

Wha' happened? Well, number one -- the number five fuel quantity probe had an intermittent short; and an associated wire bundle was shorted, causing the fuel quantity gauge to give its erroneous indications. When the aircraft was refueled, it was determined that the internal wing tanks were empty -- which no one expected them to be. The crew assumed that the dump rate was insignificant when the tanks were depressurized. The Dash One fuselage fuel leak guidance and T.O. 1F-4C-55-272 both lead crews to believe that little or no fuel will be dumped if the dump switch is activated with the IFR door open. But a maintenance reg. T.O. 1F-4D-2-10, indicates that the fuel dump will be significant under these conditions.

What's the bottom line? The fuel indicator system was bad which is no big deal, and the crew ended up dumping internal wing fuel which was their intention anyway. But, if you think that the dump switch won't dump fuel with the IFR door open, you're wrong. Strange fact #2764 for your on-board data bank ....

changes a lot faster during the winter. It's not much fun to arrive at the IAF only to find out for the first time that the field is below minimums. Along with those fast-moving cold fronts, icing conditions, and low ceilings are more prevalent.

Water, snow, slush, or any other moisture will lengthen your landing roll. Know what the RCR is and also the crosswind component -- together, they can put you off the runway -- one of those places guaranteed to gain you a lot more attention than you care to have.

Approach the winter weather flying with a bit of preparation and common sense, and you'll have all your weekends free to impress the snow persons on the slopes ....





## Editor

In the Oct 78 issue of TAC ATTACK, page 8, is an article on hypoxia. Investigators in the hypoxia incident found few aircrews could associate a given cabin altitude with an appropriate pressure altitude. The solution given of multiplying .4 times the first three numbers does not give the answer indicated in the article. A much simpler solution can be obtained by subtracting 6 from the first two numbers of indicated altitude and then divide the result by two. Example: FL 350 minus 6 equals FL 290 divided by 2 would be a cabin pressure altitude of 14,500 or 14.5. Example: FL 335 minus 6 equals FL 275 divided by 2 would be a cabin pressure altitude of 13.8. Simple rule of thumb subtract 6 and divide by 2. This rule only works for altitudes above 23,100 feet where 5 psi pressure differential is working. This method was taught by a crusty old major in pilot training 11 years ago and still works as near as I can tell.

Capt David A. Rasband  
49 CSG/SV  
Holloman AFB, NM

*Well folks, the editor made another math error. How many of you out there are concerned about decimal points? I thought so. Actually, the method works if you multiply the first two digits by .4, or you could multiply the first three digits by .04 or multiply by 4 and divide by -- aw forget it. Either method works for parameters stated. The lesson is still there -- you ought to at least have an idea what the cabin altimeter should read. Thanks for the letter and the new method. Has anybody come up with a formula that uses the sine of the bank angle? I'm looking for one.*

ED

# LETTERS

## Editor

Thanks first for the mighty fine articles in your September issue. It was interesting to note in Figure 6 that the A-10 leads the way in kills per flying hour; this is not surprising considering that the bulk of their mission consists of low altitude work. However, a point for the rest of us to ponder is why the F-15 is second in strike percentage. It only points out that be you low and slow or high and pressing the Warp Factor, Fleagle's relatives are out to get ya!

And thanks also for your determination not to title one of your articles "Close Encounters of the Bird Kind." I can just bet that it crossed your mind more than once.

Maj Paul E. Morrow  
57 TTW/DOV  
Nellis AFB, NV

## Maj Morrow

*Actually, it never entered my mind. The term was used in one of the articles but not by me. (Someone else edits the Editor's work.) I personally would never stoop to the level of making foul comments such as that.*

ED

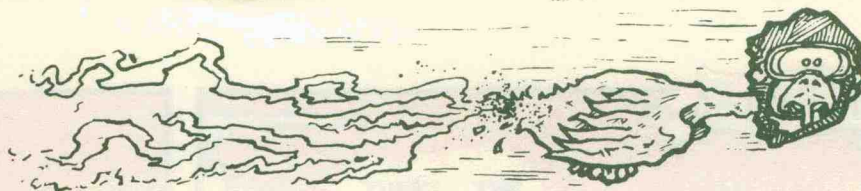
## Editor

For those of you readers who may have missed the Nov 6, 1978 issue of AIR FORCE TIMES I would like to call their attention to an item of great sorrow to all members of the tactical aviation community -- the untimely passing of Captain Nino Baldachi. Nino was a true fighter pilot, friend, and comrade to all; one whose exploits in the arena of combat are legendary. I know all who knew him and were touched by his presence will miss him as much as I do. The world is a lesser place today -- farewell, Nino.

Lt Col Humphrey R. Glocko  
433 TFS/WLO



# TAC TALLY



CLASS A MISHAPS ➡
AIRCREW FATALITIES ➡
TOTAL EJECTIONS ➡
SUCCESSFUL EJECTIONS ➡

TAC		
OCT	thru OCT	
	1978	1977

ANG		
OCT	thru OCT	
	1978	1977

AFR		
OCT	thru OCT	
	1978	1977

## TAC'S TOP "5" thru OCTOBER

TAC FTR/RECCE	
class A mishap free months	
22	347 TFW
19	49 TFW
17	363 TRW
12	27 TFW
11	366 TFW

TAC GAINED FTR/RECCE	
class A mishap free months	
45	156 TFG (ANG)
34	434 TFW (AFR)
26	184 TFTG (ANG)
25	123 TRW (ANG)
10	116 TFW (ANG)

TAC/GAINED Other Units	
class A mishap free months	
135	182 TASG (ANG)
104	193 TEWG (ANG)
96	110 TASG (ANG)
91	USAFTAWC (TAC)
87	919 SOG (AFR)

## CLASS A MISHAP COMPARISON RATE 77/78 (BASED ON ACCIDENTS PER 100,000 HOURS FLYING TIME)

TAC	77	0.0	5.3	5.8	5.4	5.1	5.0	5.6	5.1	5.9	5.6		
	78	16.0	12.4	8.3	7.5	5.8	6.3	6.1	6.7	6.5	6.3		
ANG	77	0.0	3.1	1.9	5.7	4.4	5.4	5.4	5.4	5.3	4.8		
	78	0.0	3.4	4.0	5.8	8.1	7.4	7.9	6.9	6.7	6.6		
AFR	77	0.0	0.0	10.1	7.4	5.8	4.7	4.0	3.5	3.0	2.7		
	78	0.0	0.0	10.9	7.8	6.0	4.8	8.1	7.1	6.3	5.7		

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



FLEAGLE

