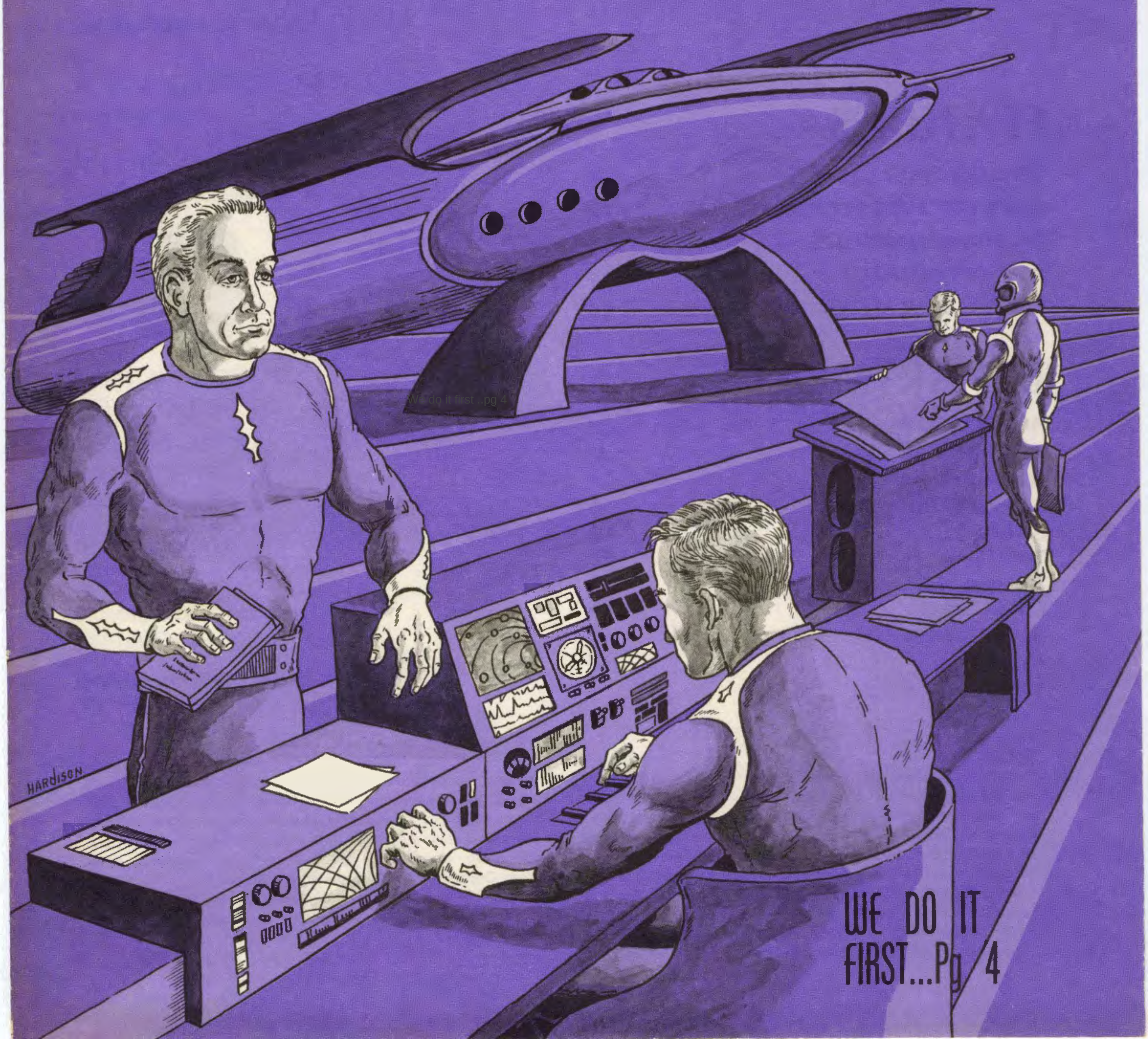
# TAC ATTACK

JANUARY 1978




WE DO IT FIRST...Pg 4

TAC ATTACK JANUARY 1978 VOLUME 18 NUMBER 1


FOR EFFICIENT TACTICAL AIR POWER

# FEATURES



# DEPARTMENTS





TACRP 127-1

# Angle of ATTACK

## 1978 -- A Year of Challenge

The New Year is a time when we make resolutions to improve ourselves, our environment, and our operations -- resolutions which begin to wane about kickoff time at the Rose Bowl. 1978 will be another challenging year for us in Tactical Air Command. Operations in many areas will continue to test our flexibility and capabilities. With the resolution to treat problems as opportunities to excel instead of irritants, 1978 can be another successful year for TAC. It has to be.

1978 will see the continuing acquisition of new aircraft, the AWACS, F-15, and A-10. We will also begin preparing to operate the F-4G Wild Weasel and the F-16 lightweight fighter. Combined with our continuing efforts to maintain maximum readiness by participation in training programs such as Red Flag, Blue Flag, and numerous joint exercises, our ability to manage these new challenges will be taxed and stressed as never before. Additionally, the pace of our TAC-gained ANG and AFRES unit conversions will increase significantly, making this a year of challenge for all personnel.

To enhance our maintenance posture, two maintenance programs completed testing in 1977. Implementation has begun at several bases with most of the command to follow in 1978. These are the Production Oriented Maintenance Organization (POMO) and the Production Oriented Scheduling Technique (POST). The tactical air forces are streamlining their organizations, operating methods, and introducing scheduling procedures which are essentially similar to what we would use during wartime. Despite new demands, quality must not suffer.

POMO includes a reorganization of the maintenance complex oriented along operational lines. It means that the operations and maintenance team which gets the job done during peacetime will go to war together should the occasion arise. Normally, separate functions like avionics, weapons, and many field maintenance tasks are combined in flightline operations under one flight. This combines the capabilities of the crew chief and the expertise of specialists into a more responsive, flexible unit. The training program required to make this reorganization go will have to be second to none. Additionally, the responsibility of making this new organization go rests squarely on the shoulders of flightline supervisors.

POST is a system which recognizes that future conflicts will not be fought on a 5-day, 40-hour basis with flying spread evenly throughout the week. Under POST, units will "surge" once a week as their particular mission requires, with residual flying the remainder of the week. In the past, we simply were not exercising our capability to rapidly shift to a wartime posture. The idea now is to train like we are going to fight.

Intense flight operations, heavier support requirements, and increased responsibilities at the lower levels in our operations will characterize TAC during 1978. The potential for mistakes and mishaps is self-evident. With sound planning, hard work, and effective execution in these areas, I have confidence that we will be able to make 1978 a year of exceptional accomplishments for Tactical Air Command. So, make your resolutions and hang on to them throughout 1978.

George M. Sauls

GEORGE M. SAULS, Colonel, USAF
Chief of Safety

# we do it first

By Maj Davy M. Bass
4485 Test Squadron
Eglin AFB, FL


**Tucked away in one corner of Eglin Air Force Base, Florida, is a unique squadron with one of the best flying missions in TAC. The purpose of this article is to expose this well-kept secret to the line fighter jock and introduce a series of articles detailing the product of the 4485th Test Squadron.**

**A**ctivated on 1 April 1971, the 4485 TESTS is located in the heart of Florida's panhandle of unbelievably white beaches, blue Gulf waters and Southern hospitality -- so the real estate brokers say. The squadron is the flying arm of the USAF Tactical Air Warfare Center (USAFTAWC) and performs Operational Test and Evaluation (OT&E) under TAWC's direction. TAWC, in turn, reports directly to TAC and responds to a variety of tasking requirements, including OT&E. Aircrew manning is set at one crew per each of the 12 unit equipped aircraft.

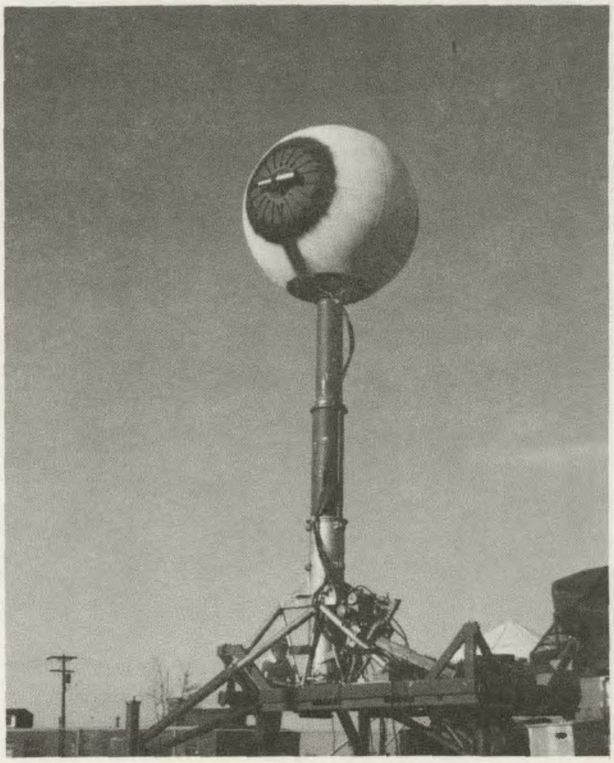
This makes for a small, close-knit group, fully aware of each other's flying skills and allows for personalized management of aircrews and test missions. The unit presently flies F-4D, F-4E, and RF-4 aircraft; and all aircrews are current in all three aircraft. Ten fighter crews, however, handle weapons delivery tests and two recce crews fly the recce tests. Our crews are drawn from USAF's line aircrew resources and are not professional test pilots. The average experience level of our crews, over 2,500 flying hours, is much higher than that of USAF's line fighter/ recce units. This enables the crews to perform the precise mission profiles demanded by time sensitive test projects with a minimum delay for additional training.

The squadron's unique mission revolves around new equipment -- the kind of gear you dream of as "it would be nice if...." As TACR 23-45 states, our main thrust is to conduct Operational Test and Evaluation (OT&E) on tactical fighter and reconnaissance systems. This phase of testing determines the operational suitability of new equipment to include development of optimum tactics, techniques, procedures,and concepts for system operation under realistic conditions. Efforts on some test projects involve initial OT&E (IOT&E) of pre-production items, so that TAWC can assist TAC and the Air Staff in making a "buy" decision. In addition, some follow-on Test & Evaluation (FOT&E) is conducted on production items to assure the quality of production equipment. Our sister squadron at Nellis AFB, the 422 FWS, has primary responsibility for follow-on tests, but we also conduct FOT&E on some systems. Finally, there are a few high priority projects that are so time critical that they require a combined IOT&E and Development Test and Evaluation (DT&E). In a joint test, this DT&E is the responsibility of the Armament Development and Test Center also located at Eglin AFB. As a result, we find our line jocks flying some of the same tests as the"golden armed" test pilots.

To give you an indication of just what kind of test this alphabet soup describes and to enlighten you on what's coming down the pike, the following few paragraphs will cover some of our most current programs. These tests will be covered in greater detail in later articles. They are the AN/TPB-1C Ground Directed Bomb System; AN/AVQ-26 Pave Tack combination; the Guided Bomb Unit (GBU-15) Electro-Optical Guided Bomb, and Quick Strike Reconnaissance (QSR)/Strike Control and Reconnaissance (SCAR).

## AN/TPB-1C

The AN/TPB-1C Ground Directed Bombing System is an automatic tracking radar system designed to follow beacon equipped aircraft. The system also has skin track capability. The radar tracking information is fed to a digital computer and combined with manual inputs such as weapon type, wind data, etc. The computer provides vector guidance to the pilot by way of the TACAN bearing pointer and aural tones over the headset to a calculated weapons release point. Old heads will remember the "sky spot" of SEA where you had a straight and level run-in of 30+ miles and a CEP almost that big. This system gives you the capability to choose your own attack heading, altitude, and airspeed. Since it updates itself continually, your straight and level time is cut down tremendously. You can even jink to your heart's desire before you start the final delivery leg. So far, the test CEP has been about three times better than you would expect.



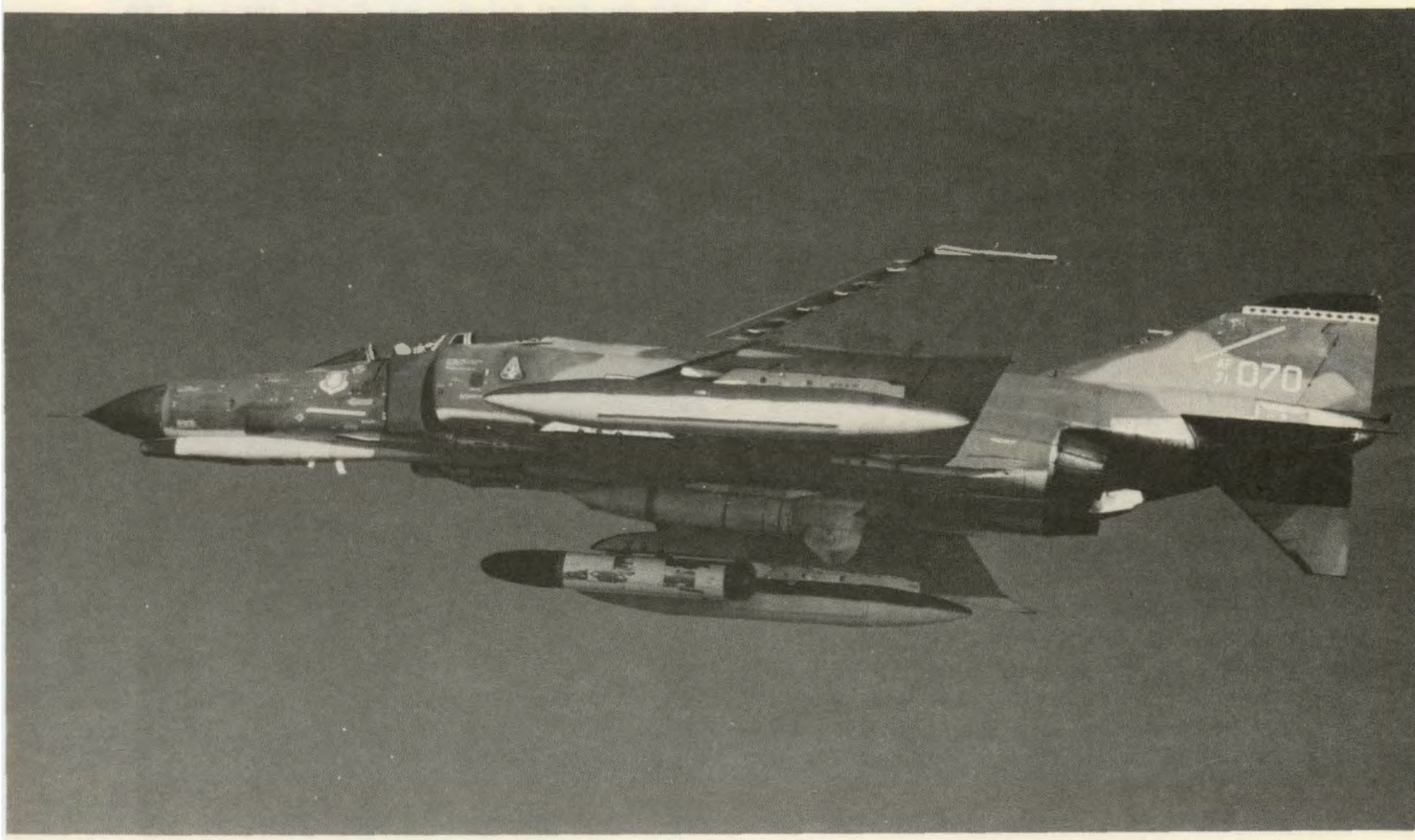
# we do it first

## AN/ARN-101/PAVE TACK

The AN/ARN 101 is a new system destined to replace the old electro-mechanical analog AN/ASN-46A Navigational Computer Set (the"inertial" for all you pilots). The system employs a digital computer for navigation and weapons delivery computations and receives inputs from the LORAN Inertial. It surpasses both the functional and accuracy performance of the old dive-toss and dive laydown modes. No preset selected altitudes, velocity, or aircraft maneuver are required. The digital method of operation enables it to be linked with many of the new designator systems requiring digital inputs. One of these is the Pave Tack System whose own digital computer "talks" with that of the AN/ARN-101.

The Pave Tack System is an externally carried pod containing an infrared detection set and a narrow beam laser range/designator slaved to a highly stabilized line-of-sight which is controllable over the lower hemisphere of the aircraft. It is designed to provide the TAF with the capability to detect, locate, and identify a target during day, night, and marginal weather conditions. The target may be engaged at once using self-designation and delivery; or the target information can be passed to the TACS or directly to a strike aircraft, which may employ conventional or laser guided ordnance.

The test conducted on this system was a combined DT&E/IOT&E. A unique feature of the test was that a simultaneous "fly-off" between two competitors for the infrared detecting set was being conducted. During the test, it was determined that the Pave Tack System is able to detect and identify tactical targets ranging in



**Major Davy M. Bass**
***is this month's***
**Fleagle T-shirt winner**

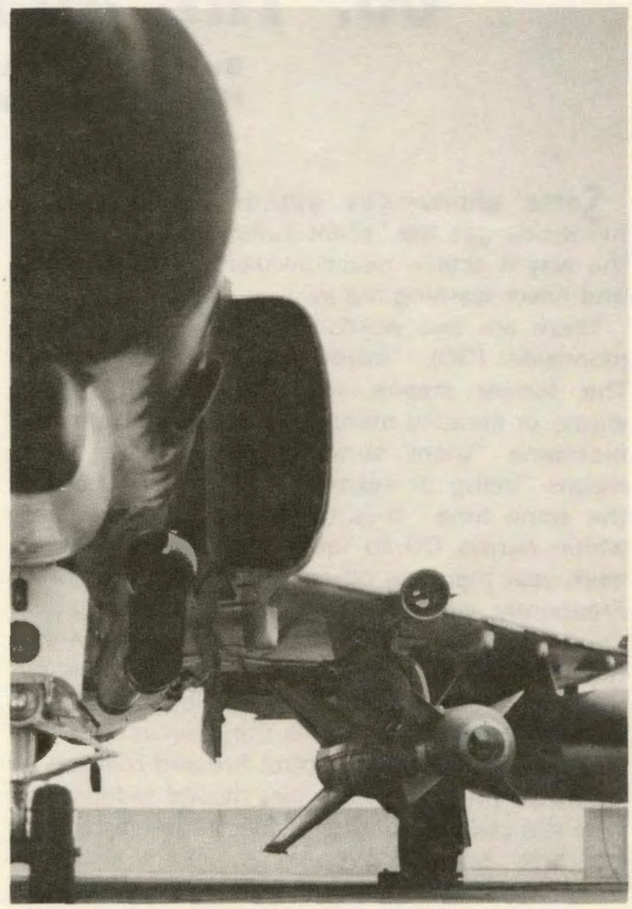
size from large power plants at long ranges to individual troops in the field at short ranges, either day or night. The Pave Tack sight line was accurately cued by the AN/ARN-101 to low-level starting points, search areas, and navigation points.

## QSR/SCAR

The QSR program puts it all together for our recce troops. A QSR aircraft is an RF-4C modified with the AN/ARN-101 digital avionics set, AN/AVQ-26 Pave Tack Pod, AN/AVG-8 Helmet Mounted Sight and much, much more. We know that enemy ground forces have the capability to move rapidly over rugged terrain, day or night, and under unfavorable weather conditions. Further, their combat effectiveness is enhanced by the use of concealment techniques. All of this makes detection by conventional recce forces difficult. To combat this, airborne QSR systems consisting of imaging sensors, cockpit displays, and data link are used to detect, locate, and identify mobile/moving and other time-sensitive targets requiring rapid response. This imagery is transmitted in near real time from the QSR sensor aircraft to a ground exploitation facility for target detection/identification. A target report, containing essential target data, is then sent to the Tactical Air Control Center (TACC) for strike decisions. When tasked for a Strike Control and Reconnaissance (SCAR) mission, the tactical commander delegates strike authority to the SCAR aircrew (flying a QSR bird) who may laser/smoke mark the target for attack aircraft, pass target information directly to them, or act in the pathfinder role for blind bombing. Finally, the QSR systems will be used to provide immediate bomb damage assessment (BDA) back to the tactical commander.

## GBU-15

The GBU-15 is a Modular Guided Weapon System which provides the capability for standoff, television-guided, accurate delivery of the MK-84 warhead. It is primarily designed for an indirect attack using the longer range capablity provided by a video/command data link between the GBU-15 and the launch aircraft. Effective standoff is increased because it is only necessary to acquire the general target area before launch. The specific aimpoint can be located after launch and updated guidance provided to the weapon during its flight. The system has 28 possible configurations made up of interchangeable modular components, allowing it to be designed to suit the mission delivery parameters and target specifications. It will normally be employed against pre-selected, high value targets where the attack aircraft's survivability will depend on a safe standoff -- something the fighter crew can appreciate.



We know all this sounds super whiz-bang, and there are skeptics out there who basically distrust any black box. However, this is the age of Star Wars, and when Darth Vadar is breathing down your neck, you have to come up with something new -- that works. And that's the job of the 4485 TESTS -- to find out if it works. ➤

# PHYZ-BIZ

# CO: THE SILENT SUMMONS

**By Lt Col Harold Andersen**
**HQ TAC Physiological Training Coordinator**

Some anonymous author called carbon monoxide gas the "silent summons" because of the way it acts -- never awakening the sleeping and never warning the awake.

There are two words which describe carbon monoxide (CO): "insidious" and "ubiquitous." The former means "working harmfully in a subtle or stealthy manner" and gives rise to the nickname "silent summons"; while the latter means "being or seeming to be everywhere at the same time." It is these two characteristics which permit CO to take more lives in the US each year than any other poison except alcohol. Frequently, we read newspaper headlines which announce the demise of individuals and entire families due to carbon monoxide. Yet, people seem to refuse to admit that a problem exists.

The problem is as old as the discovery of fire. Once man learned to control fire and realized its desirable properties, fire was moved indoors (inside the cave, that is), and the stage was set for the first "silent summons." Campers and outdoorsmen, modern counterparts of the caveman, continue the tradition by lighting fires in hibachis and charcoal grills in tents, cabins, campers, and boats. There is even a record of CO poisoning in a foxhole covered by a poncho! The nature of the CO hazard is best illustrated by a few statistics: In 1972, there were 432 deaths attributed to CO in the US. Of these, 192 were in the home, and over 100 were in mines and industrial areas. Note the prominence of the home as the most lethal place of all, followed by the place of work. It is estimated that there are an additional 10,000 sub-lethal exposure cases each year in the US.

Carbon monoxide is generated by the incomplete combustion of any organic material. If this carbon is oxidized in an oxygen-poor environment, carbon monoxide is formed. In most instances, the incomplete combustion also produces smoke which is readily detectable. So, anytime you have smoke in your cockpit, you can be sure that CO is present and you must immediately go to a 100% oxygen setting and use "safety" pressure if available. However, don't assume that the absence of smoke is an indicator of no CO. Fumes in the cockpit can also indicate combustion and should be treated with the same respect and actions.

Gas hot water heaters are another source of CO. Whenever a flame touches a surface which is cooler than the ignition temperature of the gaseous part of the flame, such as the bottom of a water heater, CO will be formed. If the CO is not effectively vented outside, the interior room environment will be quickly contaminated. In one case, a tragedy was caused by a bird's nest built inside the vent pipe! Gas appliances and automobile exhaust are other common sources of CO. In general, you must beware of any type of burning process which takes place in a closed, poorly ventilated, or unventilated area.

The mechanism by which CO produces its lethal results should be well-known to all aircrews because it is presented as part of every discussion of hypoxia during Refresher Training. Inhaled carbon monoxide has an affinity for the hemoglobin (Hb) in red blood cells -- as high as 300 times as great as the affinity between oxygen and hemoglobin. Because of this CO-hemoglobin affinity, the compound carboxy-hemoglobin (COHb) is formed which is very stable and long-lasting. Oxygen hungry tissues are deprived of oxygen by a "double-barreled" effect. First, the hemoglobin which is carrying CO cannot carry $O^2$; and second, the oxygen which is attached to hemoglobin becomes more tightly bound and is less available to the tissues. In the first instance, there is less oxygen being circulated to the tissues. The second effect compounds the problem by reducing the availability of the oxygen which is present in the blood as $Hb\text{-}O^2$ (oxy-hemoglobin).

CO enters the body via the lungs and quickly diffuses across the alveolar membrane into the blood. The rapidity with which the blood becomes saturated with CO depends upon several other conditions such as respiratory rate, duration of exposure, concentration of CO in the air, and altitude. The increase in respiratory volume due to exercise may be as much as 10 times the resting rate. This deep breathing brings more CO into contact with an increased volume of blood, which is circulating at a faster rate due to the exercise. Simply put, a person working vigorously will experience the symptoms of CO poisoning much more quickly than one who is sedentary or at rest.

Altitude is also an important environmental cause because less oxygen is available as the barometric pressure decreases. Recognizing this effect, one author recommends that at altitudes of 5,000 - 8,000 feet, exposure standards should be lowered to compensate for the loss of oxygen saturation of the blood. In 1970, a British writer reported the deaths of 87 people in an airliner crash caused by a faulty cockpit heater. In this same context, a group of professional airline pilots, in June 1976, petitioned the FAA to "forbid all smoking in cockpits of commercial flights and to ban smoking among flight crews eight hours before takeoff..."! The pilots noted that, "exposure to carbon monoxide causes substantial impairments to vital brain and nervous system functions." It has been found that the COHb content of aircrews blood streams increased while waiting in line to take off. When smoking was permitted, the additional CO from cigarette smoke raised the crews' COHb to 20% or more. This is significant because it only takes a 2 - 5% COHb level to impair vision, judgment, and reduce attentiveness to sounds. A 10% COHb level causes a 25% loss in visual acuity and the ability to see dim lights. Vision continues to decline as COHb levels increase above 10%.

Common symptoms are other examples of the insidious nature of CO poisoning. Because early warning symptoms like headaches, dizziness, and nausea can resemble the onset of numerous diseases like the common cold, stomach flu, etc., it is little wonder that there is confusion in identifying the problem. The symptoms exhibited by 15 children exposed to a high level of CO in a Seattle ice-skating rink incident were first diagnosed as "food poisoning"! Symptoms can be correlated with the percent of concentration of CO hemoglobin as shown in Table 1.

The time required to produce an 80% saturation volume of COHb in the blood stream largely depends on the concentration of CO in the air being breathed. It may take as long as 5 or 6 hours with CO concentration of 0.02% - 0.03% or as short a time as 2 - 15 minutes at CO concentrations of 0.51% - 1.00%.

Heavy smokers may range as high as 6 - 8 or even 10 percent COHb concentrations, and everyone breathing the air of a smoke-filled room is exposed to the same hazards as the smoker, but perhaps to a lesser degree. There are also strong indications of important physical and physiological damage by low CO concentrations and these will be examined in a future article.

Oxygen is a specific antagonist to CO. In effecting the rescue and treatment of victims of CO poisoning, the first step is to remove him from the toxic environment. Second, have him breathe 100% oxygen while keeping him warm and at rest. The elimination of CO follows a "rule of halves." If the victim is breathing pure air, it will take about 320 minutes to reduce the CO level in his blood to one-half its initial value. In the next 320 minutes, half of the remainder will be dissipated, and so on. If 100% oxygen is breathed, this elimination half-time will be reduced to 80 minutes. If the victim is placed in a compression chamber and supplied with 100% oxygen at a pressure of 3 atmospheres,

# CO: the silent summons

the time required to clear one-half the CO will be reduced to 23 minutes.

NOTE: A heavy smoker with a 10% COHb load would have to refrain from smoking for about 10-2/3 hours to reduce his CO burden to 2-1/2%. Since most don't refrain from smoking that long, they probably never clear their blood streams of CO.

Prevention of CO poisoning requires attention to those areas which have been shown to be hazardous, such as the home, work place, and automobiles.

## THE HOME

With all the emphasis on saving energy, homes with storm windows and insulation are more air tight, increasing the possibility of CO poisoning. Heating equipment should be inspected periodically; all gas and oil burners must be properly vented and adjusted; and chimneys and flues must be checked for blockages, and defects promptly repaired. The same holds true for appliances such as gas water heaters, stoves, and refrigerators. If gas, coal, or wood stoves are used for heating, especially if they have been recently installed to augment the original heating plant, or if oil space heaters are used, ventilation must be maintained at proper levels in working and sleeping areas. Sufficient draft is a must for fireplaces.

## AUTOMOBILES

Focus on the exhaust system; check and repair defective systems immediately; avoid indoor operation of gasoline engines -- open the garage door before starting the engine to warm it on a cool morning; be careful not to block the tailpipe with mud, snow, or water.

Finally, one writer suggests, "stop smoking tobacco products, or try to cut down on their use." Following these suggestions should preclude the presentation of a "Silent Summons" to you or your family.

SYMPTOMS CAUSED BY VARIOUS AMOUNTS OF CARBON MONOXIDE HEMOGLOBIN IN THE BLOOD

| Blood Saturation, % CO Hemoglobin | Symptoms |
|---|---|
| 0 - 10 | No symptoms. |
| 10 - 20 | Tightness across forehead; possibly slight headache, dilation of cutaneous blood vessels. |
| 20 - 30 | Headache and throbbing in temples. |
| 30 - 40 | Severe headache, weakness, dizziness, dimness of vision, nausea, vomiting, and collapse. |
| 40 - 50 | Same as previous item with more possibility of collapse and fainting, and increased respiration and pulse. |
| 50 - 60 | Fainting, increased respiration and pulse, coma with intermittent convulsions, and intermittent respiration. |
| 60 - 70 | Coma with intermittent convulsions, depressed heart action and respiration, and possibly death. |
| 70 - 80 | Weak pulse and slow respiration, respiratory failure, and death. |

TABLE 1


# Horseplay doesn't PAY!

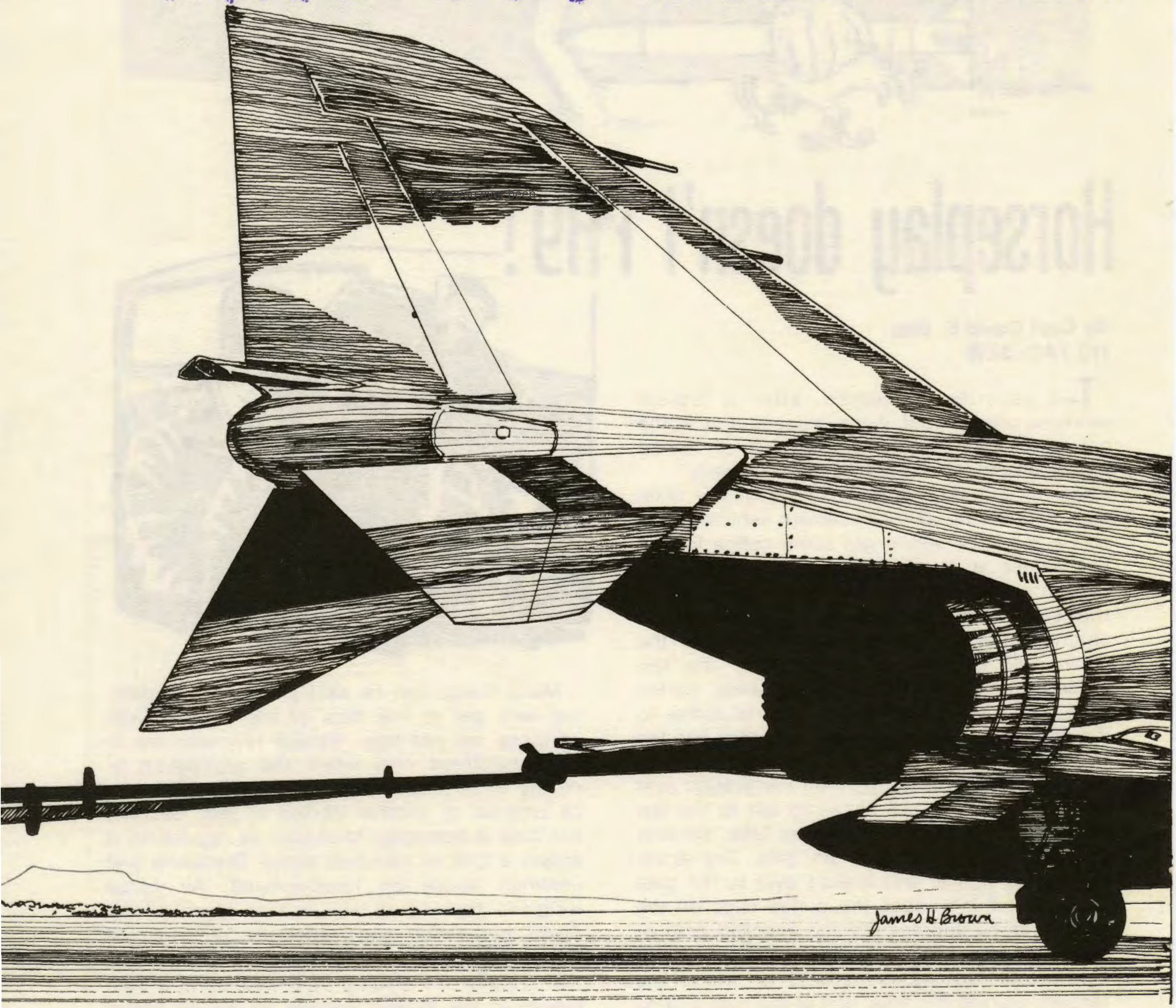
**By Capt David E. Ellis**
**HQ TAC/SEW**

Two security policemen, after a typical weekend guardmount, were assigned duty at the main gate. The events which followed turned their weekend into an unforgettable tragedy.

During a routine security check of the main gate, the roving law enforcement vehicle driver was asked if he would get some coffee for the two airmen at the main gate. Since he was by himself and could not drive and carry coffee at the same time, he requested another law enforcement team, which was already at the chow hall, deliver the coffee. After the law enforcement team had finished their coffee break, they delivered the two cups of coffee to the main gate. When they arrived, they handed the coffee cups through the driver's window to the gate guard. He set them on the ground next to the gate shack and began to talk to the law enforcement team. A few minutes later, the first vehicle returned to the main gate. The driver parked his vehicle and walked over to the gate shack. He didn't notice the coffee cups on the ground as he approached and knocked both of them over. The ensuing moments brought about light-hearted joking and efforts to relieve the tension. During this time, one of the gate guards unholstered his revolver and pointed it through the window of the law enforcement vehicle. The next voice that was heard was the passenger of the law enforcement vehicle who shouted, "I've been shot." He was dead on arrival at the USAF hospital.

Many things can be said about this incident, but let's get to the crux of the matter. First, weapons are not toys. Service revolvers are to be unholstered only when the application of deadly force is required, and they should never be pointed at another person in jest. Second, not only is horseplay forbidden by regulation, it shows a lack of common sense. Discipline and common sense go hand-in-hand. Air Force weapons training is designed to teach all Air Force personnel, and especially security policemen, how to respond during a crisis situation. Finally, the issuing of a weapon is a trust placed in the service member by the Air Force. This trust, in part, demonstrates how important security forces are to the Air Force mission. We are all a part of the team and must realize how our actions can destroy material and even kill. Don't let a similar circumstance make you or your friend a statistic.

# HAVE YOU EVER BEEN




**By Capt Pete Abler**

The first arrested landing probably occurred when a pterodactyl, or a close relation, snagged his leg on a vine, tree branch, or other obstacle. Since then, the systems have improved considerably to the point where the barrier has saved many an aircraft and aircrew. Barriers also permit high-speed aircraft to safely land on boats (ships?) giving our Navy and Marine counterparts, and a few insane AF members, vi-

# ARRESTED?

carious thrills and a sense of disdane for "landlubbers." Their systems, however, are a bit more exotic than those in the USAF.[1]

Basically, there are three types of barriers in use at TAC bases today. The following is a brief discussion of each system and its capabilities. An overall comparison can be found in Fig 1 .

The MA1A was designed in the days of the 15,000 - 20,000 pound fighters for engagement speeds below 150 Kts. The MA1A has an incremental mass (anchor chain) to stop the aircraft. It is located in the overrun, is unidirectional, and designed specifically for departure engagements. In operation, a nylon webbing raises a cable to catch your bird around the main gear. If you are within weight and speed limitations at engagement, you will stop within 1,000 feet. A modification to the MA1A added a tailhook pendant 35 feet ahead of the barrier webbing. For tailhook aircraft, it reduces cable dents in gear doors and the danger of single-gear or missed engagements. Capacity of the system is 12,500 lbs at 150 Kts or 40,000 lbs at 82 Kts. Several TAC bases have an MA1A/BAK-9 interconnect discussed under the BAK-9.

The BAK-9 was the first truly bidirectional barrier system that comes closer to handling the weight and speed of current fighters. The arresting cable is attached to a heavy nylon tape that is stored on reels at either side of the runway. The energy absorption system consists of two self-energizing rotary friction brakes (B-52 wheel brakes). The BAK-9 is designed for tailhooks only and has a capacity of 190 Kts at 28,000 lbs or 117 Kts at 80,000 lbs. The BAK-9 is usually located in the overrun, but can be

**FIGURE 1**

| | MA1A | Modified MA1A | BAK-9 MA1A | BAK-9 | BAK-12 |
|---|---|---|---|---|---|
| Runout | 1,000' | 1,000' | 950' | 950' | 950'/ 1,200' |
| Max Engage Speed | 150 Kts @ 12,500 # | Same as MA1A | 190Kts @ 28,000 # | 190 Kts @ 28,000 # | 190 Kts @ 42,000#/ 60,000 # |
| Arresting Device | Chain | Chain | Rotary Brakes | Rotary Brakes | Rotary Brakes |
| Reset | Manual | Manual | Electric | Electric | Gasoline Engine |

1. Consult your FLIP IFR Enroute Supplement for Navy/Marine land base equivalents to USAF systems.

# have you ever been arrested ?

located on the runway. Tape runout is designed to be 950'. NOTE: The BAK-9 barrier is usually stressed to the limits of its performance envelope during the approach-end engagement of heavier aircraft such as the F-4.

The BAK-9/MA1A interconnected system has the same capacity as the basic BAK-9. It provides dual engagement potential in the event of hook bounce. The system does have some disadvantages: The webbing must be removed to allow approach-end engagements and minor aircraft damage is likely to result from dual engagement. This interconnect also allows the BAK-9 to stop non-hook aircraft.

The BAK-12 is an improvement over the BAK-9; and the latest model (1,200 ft runout) provides approach-end arrestment capabilities for all aircraft, including the F-111 at all but extreme weight/speed combinations. The BAK-12 uses four B-52 brakes to develop its energy absorbing capability. The standard barrier has a tape runout of 950 feet and is capable of absorbing 65 million ft/lbs of energy. The BAK-12 with the 1,200 foot runout can handle the F-111 and has a capacity of 85 million ft/lbs of energy. The barrier is usually located 1,000-1,500 feet into the runway to allow touchdown for approach engagement on smooth, lighted pavement, and is usually bidirectional. The BAK-12 has the fastest reset capability of all barriers and can be reset in 5 minutes by an experienced crew.

The preceding is not designed to make you an expert. It should give you a good general knowledge of the arresting systems at stateside TAC bases. It's up to you to compare this capability to the specifics listed in your aircraft's flight manual. Combine this with information about your home base and divert or X-country airfield's barriers and you'll feel a bit more comfortable should an arrested takeoff/landing be required.

See you at the next engagement.

| BASE | PRIMARY RUNWAY | BAK 12 | BAK 9 | MA-1 | SECONDARY RUNWAY | BAK 12 | BAK 9 | MA-1 |
|---|---|---|---|---|---|---|---|---|
| BERGSTROM | 17R/35L --- 300 X 12,250 | | | | 17L/35R --- 150 X 10,000 | Jets Prohibited | | |
| CANNON | 03/21 --- 150 X 10,000 | | | | 12/30 --- 150 X 8,200 | | | |
| DAVIS MONTHAN | 12/30 --- 200 X 13,645 | | | IC | | | | |
| EGLIN | 01/19 --- 300 X 10,000 | | | YES | 12/30 --- 300 X 12,000 | | | 30 |
| ENGLAND | 14/32 --- 150 X 9,350 | | | IC | 18/36 --- 150 X 7,000 | | | TH |
| GEORGE | 16/34 --- 150 X 10,050 | | | IC | 03/21 --- 150 X 9,130 | | | IC |
| HILL | 14/32 --- 150 X 13,500 | | | | | | | |
| HOLLOMAN | 16/34 --- 150 X 12,160 | | | YES | 07/25 --- 150 X 8,140 | | | 07 |
| | | | | | 04/22 --- 300 X 10,580 | | | 04IC 22TH |
| HOMESTEAD | 05/23 --- 300 X 11,200 | | | YES | | | | |
| HOWARD | 18/36 --- 150 X 8,500 | | | | | | | |
| HURLBURT | 17/35 --- 150 X 9,600 | | | YES | | | | |
| LANGLEY | 07/25 --- 150 X 10,000 | | | YES | 17/35 --- 150 X 5,840 | | | YES |
| LUKE | 03L/21R --- 150 X 10,000 | | | YES | 03R/21L --- 150 X 9,910 | | | YES |
| MACDILL | 04/22 --- 500 X 11,420 | | | IC | | | | |
| MOODY | 18R/36L --- 150 X 8,000 | | | YES | 18L/36R --- 150 X 8,000 | | | YES |
| MT HOME | 12/30 --- 200 X 13,500 | | | | | | | |
| MYRTLE BEACH | 17/35 --- 150 X 9,500 | | | | | | | |
| NELLIS | 03R/21L --- 150 X 10,050 | | | IC | 03L/21R --- 200 X 10,120 | | | IC |
| SEYMOUR JOHNSON | 08/26 --- 300 X 11,760 | | | IC | | | | |
| SHAW | 04L/22R --- 150 X 10,000 | | | IC | 04R/22L --- 150 X 8,000 | | | TH |

950 Ft Runout  1200 Ft Runout  TH - Tailhook Only  IC - MA-1/BAK-9 Interconnect

ating envelope?", it may be of interest to first say what this envelope is not. It is not exclusively a simple line perimeter on a graphical plot of altitude versus flight Mach number. This oversimplified definition exists only in the engine model specification and in the pilot's handbook for one-G flight. This one-G perimeter is made as large as possible to provide maximum utility of the weapons system within operating limits. Some of these limits are depicted on the envelope in the illustration.

These limits usually create little problem for the pilot since they are defined in terms of altitude and Mach number (or airspeed), standard flight parameters readily available to and continuously monitored by the pilot. However, a significant percentage of flight time is spent at other than one-G conditions where additional limits effectively reduce the flight envelope. These limits are not so readily monitored by the pilot.

The most notable example of this type of limit is inlet distortion. This compressor stall limit can be reached at many combinations of aircraft angle of attack (AOA), sideslip, yaw, altitude, airspeed, corrected engine speed, bypass and bellmouth settings, Reynold's Numbers, and hot gas ingestion. Compressor stall margin is further reduced during transient acceleration on the MFC acceleration fuel schedule. This multitude of variables makes it virtually impossible to establish a simple limit.

The airframer establishes maneuver limits aimed primarily at avoiding departure from controlled flight. Difficulty occurs when the aircraft can maneuver to higher levels of inlet distortion than can be tolerated by the engine. This can result in compressor stall, sometimes accompanied by engine flameout. This leads to handbook warnings regarding possible stall-flameout at high AOA's, etc. From this discussion, it can be seen that the "flight envelope" can be influenced by a variety of factors beyond altitude and Mach number:

1. **What is an envelope?**
   Aircraft and engine constraints which limit operation to a flight region within the prescribed envelope perimeter.
2. **What does it represent?**
   Low airspeed—no engine limit so long as aircraft inlet distortion is maintained at acceptable levels.
   High airspeed, high altitude—T2 limit on engine inlet components (front frame, T2 sensor, etc.).
   High airspeed, low altitude—High "Q" combustor blowout and tailpipe pressure limits.
   High altitude—afterburner and main engine combustor blowout. Overspeed and overtemperature at MFC minimum fuel flow setting.
3. **What are the effects of temperature, altitude, and Mach numbers on the engine/envelope?**
   Temperature changes cause variations in engine speed and airflow. These changes are effectively offset by scheduling engine speed, variable stators, and acceleration fuel flow as a function of T2 to maintain relatively constant corrected engine parameters.
   Altitude and Mach number both influence engine inlet temperature and pressure. As noted above, inlet temperature changes are offset by the engine control schedules. The same is true for inlet pressure. This is accomplished by scheduling engine afterburner fuel flow and transient main fuel flow as a function of compressor discharge pressure which is directly affected by inlet pressure.
4. **Is the envelope as portrayed in the pilot's operating handbook for a one-G altitude or is that only the left-hand margin?**
   The one-G designation applies to the entire flight envelope. The parameter most greatly affected by operation beyond one G is inlet distortion.
5. **Why can one engine operate outside the envelope while another may not?**
   Assuming this refers to the low airspeed envelope boundary, the answer is normal variation in aircraft inlet distortion and engine stall margin. These normal variations comprise a stack-up of tolerances on bellmouth schedule setting, bypass door position, compressor stall margin, acceleration fuel schedule, etc.
6. **What happens inside an engine in flight when it is starved of air?**
   Fuel-air ratios increase. Combustor may blow out. Compressor discharge pressure decreases. Inlet distortion increases. Compressor may stall. This is particularly true if the airflow is restricted by reduction in aircraft inlet capture area caused by maneuver where the inlet is partially "blocked out".

I hope the foregoing has helped you understand some of the problems in defining what constitutes the operating envelope. Probably the most significant point of the whole article is that inlet distortion is the number-one cause of abnormal engine operation. As we said before, high AOA and yaw or sideslip can easily lead to a compressor stall. Do your best to fly the aircraft within reasonable parameters and the engine should operate properly. However, since the envelope is difficult to properly define, any indication of abnormal operation should be cause for an expeditious RTB. Don't assume you flew the engine out of the envelope. You don't have the expertise to determine whether you did or not.

Keep 'em flying.

# TAC TIPS

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

> Ours is the age which is proud of machines that think, and suspicious of men who try to.
>
> H. Mumford Jones


For those of you who labor under the delusion that the Mark III Anti-Skid System (otherwise known as TCTO 1062) has solved all the F-4 brake problems, please read on ....

In PACAF recently, a Mark III equipped F-4D was returning from a routine exercise mission. On touchdown, the backseater checked for good chute deployment and noticed smoke blowing over the right wing. The aircraft started tracking right, so the pilot engaged nose gear steering and used the paddle switch to disengage the anti-skid. By this time, the aircraft was pulling violently right, so left rudder was applied. The aircraft did a hard left turn and tracked toward the left side of the runway. Although the controls were reversed, the left main gear departed the runway as the nose of the aircraft arced back to the right. The left main tire remained off the runway for about 400 feet. The aircraft was finally brought to a stop on the hard surface.

Aircraft touchdown was normal, 1,000 feet from runway threshold, and the tire marks did not indicate any problems at that time. Approximately 1,000 feet later, the right main tire began a heavy skid and failed 350 feet later. Marks following the blowout indicated the wheel was turning. About 1,300 feet later, the left main tire also started a light skid, followed by a heavy skid, and then blew out.

Because maintenance troubleshooting could not determine the cause of the right main tire going into a skid, a materiel deficiency report (MDR) was submitted on the anti-skid control box.

The new Mark III anti-skid system is a heck of a lot better than the Mark II system -- but don't let it lull you into a false sense of security. The system can, and has, failed, so know the emergency procedures and be prepared for the worst. Who knows what evil lurks .....

## LOOK OUT BELOW ...

Whenever cockpit FOD is discovered, usually during extension maneuvers, stab aug checks, etc., the initial reaction is to capture same and return it to a more secure place. At times, this initial reaction may be inappropriate. Consider the following:

On the second leg of a 100 foot low-level, while executing a negative G maneuver over a ridge, the pilot was distracted by a control lock device which floated to the top of the canopy. The pilot reached for the device and apparently diverted his attention inside the cockpit long enough for the aircraft to descend below treetop level. The aircraft impacted trees about 10 feet below the tops (according to pilot). He executed an immediate max-G pull and recovered from the trees. The pilot was unhurt and the aircraft recovered at home station without further incident. Estimated damage was $8,000.

Every individual desires to increase his "visibility." This, however, is not one of the recommended methods.

## THUD SCRAPES TAIL

A recent F-105F incident demonstrated, once again, the hazards involved during the transition from an instrument approach to a visual landing.

The mission was an instrument/proficiency check being conducted during a unit inspection. An FE was in the front seat and the checkee in the rear. Everything was SOP until the final GCA which was to terminate in a full-stop landing. At approximately one-half mile, with the aircraft on glide path and slightly right of centerline, the jock in the rear cockpit transferred control of the aircraft to the FE in the front seat. The FE initially reduced power, banked left to align the aircraft with the runway and lowered the nose of the Thud in order to accomplish a landing in the VFR touchdown zone. As he raised the nose of the aircraft to establish the landing attitude, the aircraft entered a nose-high sink rate. Although the pilot applied more aft stick and full military power, the aircraft contacted the runway aft section first. The Thud bounced and remained airborne as a go-around was initiated. The gear was left down, and the aircraft landed from a straight-in approach. Cost? $7,362.79.

"Ducking" under GCA glide path to establish a normal VFR final approach and landing has led to many an unhappy ending. The touchdown zone for an instrument approach is well down the runway from the VFR touchdown zone, and it's very easy to get in a high-sink rate from which you will be unable to recover if you try to achieve the normal VFR glide path. The best solution to the whole problem is to fly the instrument approach glide path to touchdown if you're executing an instrument approach. Besides being safer -- it's also less expensive.

## DOWN WHERE THE GOPHERS PLAY

Flying at low altitude can be fun. However, due to the unforgiving nature of your average rock, tree, or other earthly outcropping, it can also be a tad hazardous to your health -- and to the structural integrity of your basic aerospace vehicle. Two recent mishaps prove this point ....

The first occurred to an F-100F. The Hun was number two in a flight of two on a 100-foot low level checkout flight. The aircraft was flying chase on the lead aircraft, and while maneuvering over a ridge line, struck a tree with the right wing and right fuel tank. Fortunately, the aircraft was flyable and landed OK.

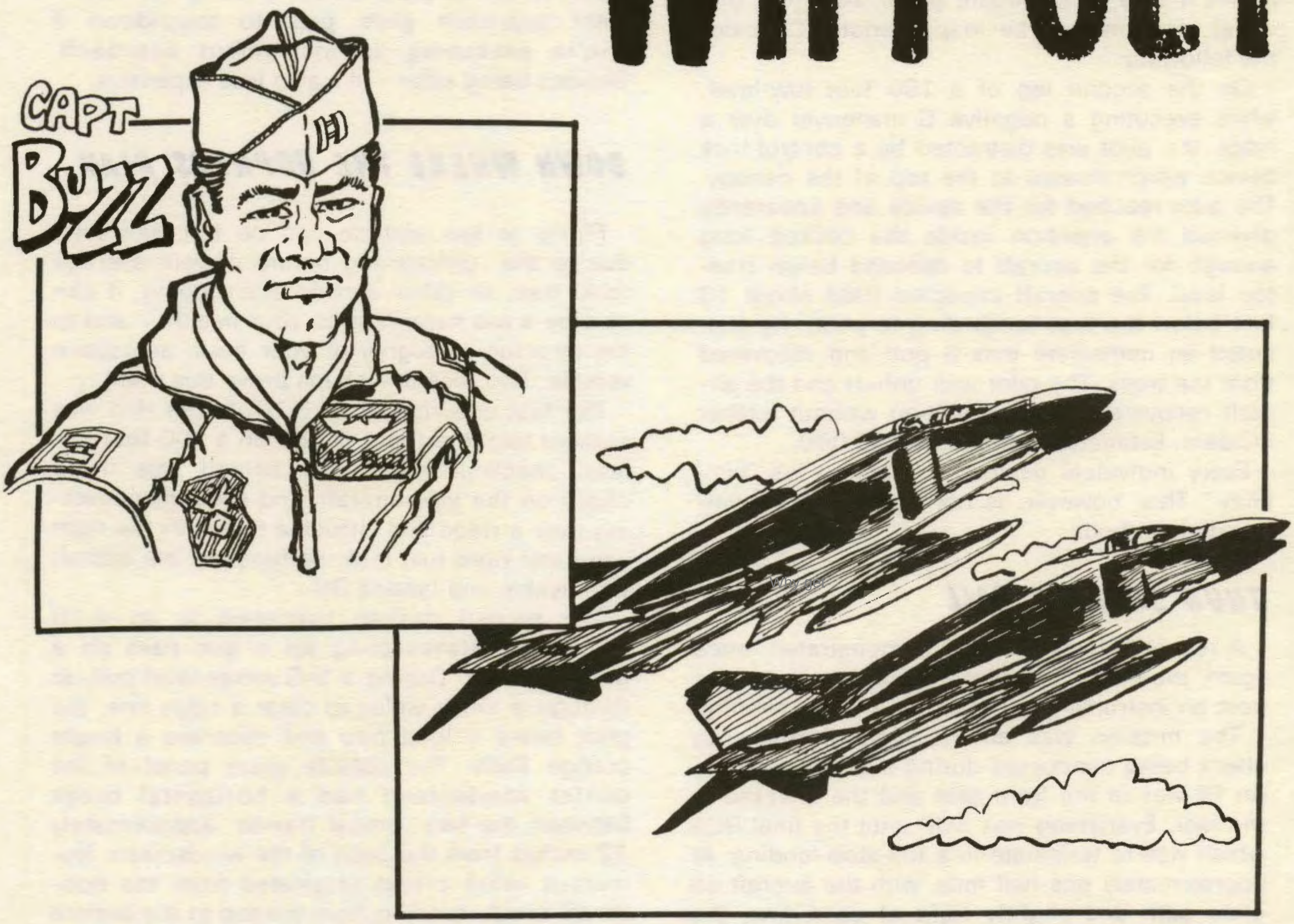
The second mishap happened to an A-10 which was maneuvering for a gun pass on a ground target. During a 5-G wings-level pull-up through a small valley to clear a ridge line, the pilot heard a loud pop and observed a bright orange flash. The outside glass panel of the center windscreen had a horizontal break between the two vertical frames, approximately 12 inches from the base of the windscreen. Numerous other cracks originated from the horizontal break, running from the top to the bottom of the windscreen. The pilot terminated the mission and landed.

What happened? The jock flew into an electrical power cable which first contacted the nose of the aircraft just forward of the air refueling slipway door. The cable then slid aft towards the front windscreen where it struck the protruding rain removal duct, jumped the duct, and struck the windscreen where the break occurred.

The Army had provided the A-10 driver with a map plot depicting electrical wires and cables in the target area. Unfortunately, this cable was not depicted.

As you can see, flying among the gophers isn't easy. Even if you've planned the mission well, someone or something may foul it up -- sounds like what could happend in combat, doesn't it?

# WHY GET

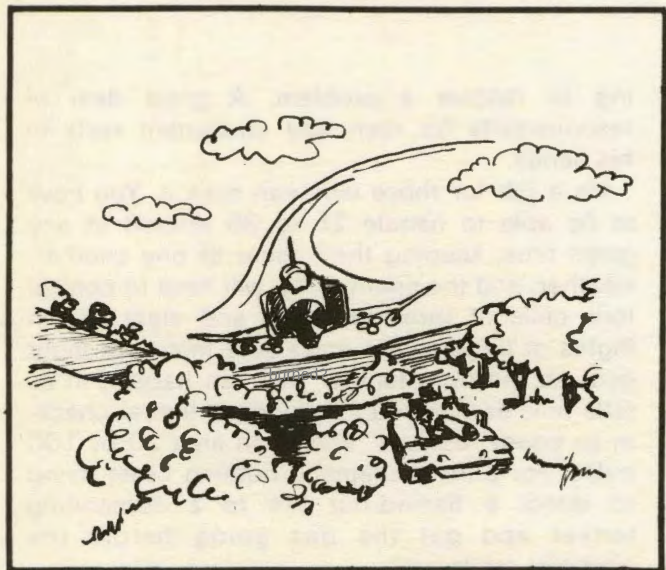


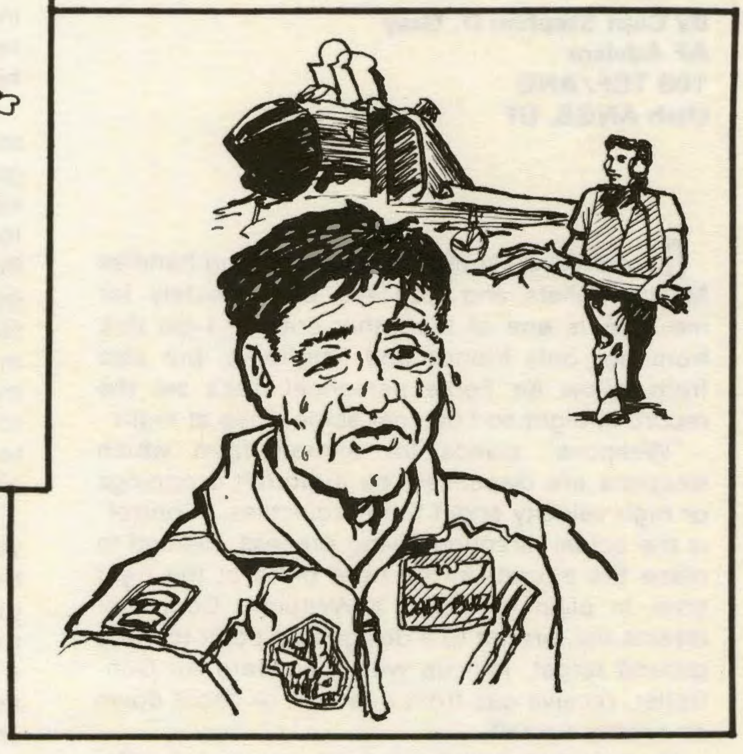

Children sometimes have to touch a stove before they learn that it's hot. Unfortunately, pilots sometimes also get burned needlessly. Learning doesn't have to come that hard for professionals. Safety is given high priority in the Air Force. Even if you ignore the flying safety meetings, accident reports, bulletin boards, safety magazines, and countless other accident prevention materials, there is another source of information that is often overlooked. That source is the harrowing experiences of other pilots. These occur more frequently than many realize and are often not reportable.

A case in point occurred with an over zealous pilot we'll call Captain Buzz. Buzz is the type pilot who always has to prove himself flying lower, faster, farther, and pulling more Gs than anyone else. The moment of truth came one day on a close air support mission in support of an Army exercise. Buzz bragged to his crew chief about getting down in the mud and picking off the "Grunts." On his third mission, a ground FAC called an air strike against a tank hidden along a ridge line. Buzz ordered his wingman to orbit high while he bent his aircraft around for a slicing low-angle bomb pass. Little things like delivery parameters, dive angles, airspeed, or altitude didn't enter Buzz's mind. As it turned out, altitude available was almost exactly the same as altitude required, and Buzz missed the

# BURNED?

**By Maj E. E. "Gene" McVay**
**188 TFG/Chief of Safety**
**Ebbing ANGB, AR**






ground by only inches. Earth, trees, and tanks went flashing by faster and closer than Buzz could ever have imagined. The pucker factor had reached an all-time high as he maneuvered his craft skyward again. Buzz's wingman had seen the shadow and aircraft merge and the cloud of dust kicked up as it almost impacted the ground. Buzz's whole life flashed before his eyes, and he saw ghost riders in the sky; but he made it. No accident investigation this time. The commander and chaplain were spared the unpleasant duty of notifying the next of kin.

There was a long silence on the radio as the flight returned to base. Buzz's crew chief had cut a tree limb as a joke, although he didn't know what had just happened. The expression on Buzz's face told the whole story as the crew chief came out from under the aircraft carrying the limb.

Buzz is now a new man. He understands and preaches abort parameters. He does his job as well as he ever did but not as recklessly as before.

It's not necessary for pilots to come that close to disaster to learn. Next time you're briefed on an accident or a fellow flyer tells you of his harrowing experience, listen and learn. Ask some of the more experienced pilots about their mistakes and profit from them. It is far better to touch the stove by proxy.

# WHAT IS A WEAPON'S CONTROLLER?

**By Capt Stephen D. Gray**
**AF Advisor**
**109 TCF/ANG**
**Utah ANGB, UT**

Oh, didn't you know, it's a person who handles M-16s, bullets, and bazookas. Unfortunately for me, who is one of them thar critters, I get this from not only friends and neighbors, but also from fellow Air Force personnel. Let's set the record straight so I can get some sleep at night.

"Weapons" stands for aircraft from which weapons are dispensed, be it aircraft droppings or high velocity snout fired projectiles. "Control" is the actual direction-giving process, needed to place the aircraft in the right place at the right time. In plain language, a Weapon's Controller directs the aircraft to a designated point to: hit a ground target, join up with a Forward Air Controller, receive gas from a tanker, or shoot down an enemy aircraft.

He accomplishes these tasks by use of radar and radio communications. His job requires knowledge of: aircraft and their associated weapons capabilities; defensive and offensive tactics and options; intelligence evaluation, reporting, and dissemination; refueling operations; air route traffic control procedures; airspace management and handoff procedures; search and rescue operations; and most important, how to treat an ulcer (our civilian counterparts, the FAA controllers have the highest incidence of ulcers in any profession).

The controller keeps the pilot informed of any incoming enemy aircraft and artillery and missile threats while performing his other functions. He must be capable of instantaneous decision-making to resolve a problem. A great deal of responsibility for men and equipment rests in his hands.

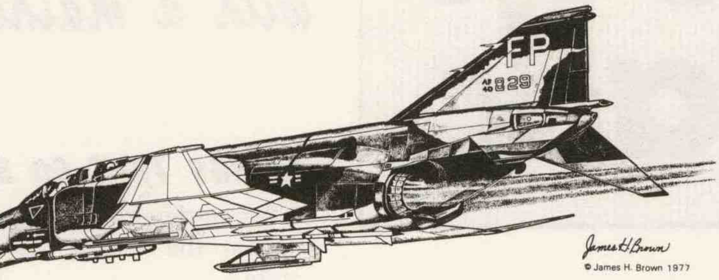
It's a job for those who can hack it. You have to be able to handle 25 to 30 aircraft at any given time, keeping them clear of one another, weather, and the enemy. You will have to control four cells of three KC-135s and eight to ten flights of fighters and make sure that each flight gets on the right tanker. This can happen in as little time as 7 minutes from initial fighter check-in to boom "contact" and in an area 20 by 100 miles. For pure excitement, nothing beats trying to direct a flamed-out F-4 to a descending tanker and get the gas going before the altimeter reads zero.

Imagine the feeling of helplessness when you're talking to an OV-10 Forward Air Controller who is trying to use his rockets and minigun to hold down 3,000 enemy troops surrounding a friendly compound of 120 men and a typhoon has forced a move in fighter operations. You search half a continent trying to find any aircraft with ordnance that can make it; for, in this case, you don't care if the bombs come from Air Force or Navy or whatever.

When it's finally over and the FAC got shot down; and you've coordinated the Navy strike and Army choppers in to pick up the crew in the paddies, you feel it's worth the frustration and thanklessness of being a controller, especially when 108 of the 120 friendlies made it through the night.

I'm not saying that we are indispensable in any situation. However, I would hate to be in the fighter trying to do the job all on my own -- think about it. So, the next time you complete all your intercepts "mike alpha" -- just give us a word of thanks as you're checking out -- it'll do a world of good.

# F-4 Emergency Situation Training




**By Capt Pete Abler**

**SITUATION:** You're number two on a ground attack training mission. During takeoff, as you terminate afterburner, you hear a muffled "bang" and observe high EGT on the number-one engine. Number three reports that you have flames coming out of your left tailpipe. What are you going to do?

**OPTIONS:**
A. Zoom the aircraft and prepare to eject.
B. Shut down the engine and attempt an immediate airstart.
C. Reselect afterburner to insure you remain airborne.
D. Shut down the left engine, reduce gross weight and land.

**DISCUSSION:** Option A is OK if you're faint of heart and convinced that everything else is going to quit in the next 10 seconds, which is not very likely. Besides, you're safely airborne and presumably still climbing, so forget this option for now. However, do continue your climb to a safe ejection altitude. Shutting down the engine is OK, but do you need an immediate airstart? Probably not -- even if you are an ex-Thud driver. You need to concentrate more on flying the aircraft at this point anyway, so Option B is out. As for Option C, reselecting AB will most likely only aggravate your problem. Also, since you terminated AB to begin with, I would assume you had flying airspeed and were climbing safely when all this began. By process of elimination (and since we always seem to put the correct answer last), you discover that Option D must be right. With the bang, high EGT, and flames (even though you don't have a fire light), you are probably obligated to shut the engine down. You could try bringing the engine to idle before shutting it down as in the case of a fire or overheat light. Remember though, you do have definite flames and engine shutdown is probably your best option. Having done that, you are now single-engine and preparing for a single-engine landing. While you're attempting to burn down gas, you notice that the aircraft will not maintain level flight and airspeed without afterburner. (Which is to be expected if you are at high gross weight on a hot day or if there are other problems.) You have two choices: (1) Reduce gross weight immediately by jettisoning the external tanks and dumping internal wing fuel. (2) Burning the gas down until the externals are dry and then dumping the internal wings. In either case, you must have the external tanks dry before you dump internal wing fuel to keep the CG in an acceptable position. As you accomplish the second step of the single-engine landing checklist, you notice that the right engine ramp is extended, and so is the left one. This was probably the cause of your compressor stall on the left engine and also the reason that you couldn't maintain level flight on one engine without the afterburner. You might try cycling the ramp control circuit breakers, G6 & G7, number two panel, in an attempt to close the ramps. However, if the CADC is the source of the malfunction, this action will not work. In making up your mind as to how soon you have to land, you have to consider the electrical system, i.e., if the Bus Tie should open, what would your next move be? Getting back to basics, your problem is to safely and expeditiously get the aircraft back on the ground. Only you can decide if you'll jettison the tanks and land immediately, or if conditions allow you to burn down fuel. Keep the SOF current on the situation. He can provide the information you will need to make your decisions.

It would be wise to make a mental note to check the ramps whenever you have an engine malfunction, especially if the aircraft doesn't seem to have the thrust it should. Most likely, the ramps or a nozzle has failed. In either case, it would be nice to know what's wrong so you don't fly yourself into a situation where you don't have enough thrust to recover. →

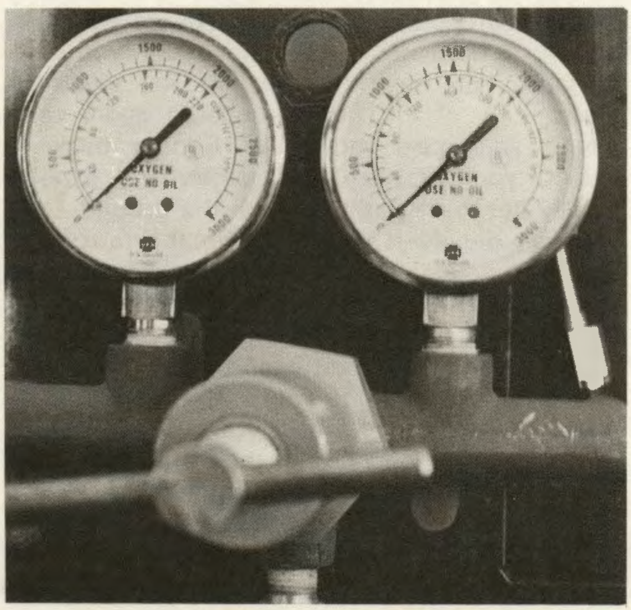
# chock talk

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

### A REAL BLAST

An airman was completing the purging operation on a T-38 LOX system, using a multipurpose double-tank oxygen cart. The cart was equipped with two dual-reading type gauges (Fig 1). The inside scale was for cubic feet of oxygen while the outer scale was for PSI. The tech order called for 80-100 PSI pressure for the operation. The airman adjusted the left gauge to a reading on the inside scale of 90, equalling an actual pressure of 830 PSI. The LOX converter ruptured sending the top half through the upper forward aircraft skin.

The outer scale on the gauge didn't have any indication that it was for PSI. The unit's corrective action was to replace these gauges with a 0 - 500 PSI reading gauge. An examination of your unit's gaseous oxygen equipment might reveal similar gauges. Replacement of the gauges, and detailed training of environmental systems personnel should preclude recurrence of this type of incident, especially where a requirement for relatively high pressure oxygen doesn't exist.



### THINGS THAT GO BANG IN THE NIGHT

A combination of factors and errors led to 16 days in the hospital for a weapons loading crew chief ....

Four men reported for duty on the swing shift and received all required briefings. Two hours later, the number-three man was released to go to the hospital. At 0230, the undermanned crew was in the process of loading its fourth aircraft. The number two and four man were loading a SUU-20, while the crew chief proceeded to the TER by himself. The crew chief stated that the BDU-33 safety pin felt loose during loading of station number three. He heard a click and assumed the bomb rack was locked but did not use the positive locking tool. While he was reaching for a TER bomb rack safety pin, the bomb fell, glancing off the toe of his right foot and impacting the ramp. In his attempt to catch the bomb, his left hand was in the immediate vicinity of the bomb tail when it impacted the ramp. For an undetermined reason, the BDU-33 safety device was not installed, allowing the spotting charge to function as designed. The crew chief suffered burns, lacerations, and fractures to his left hand; and his field jacket caught on fire.

Proper preparation and loading checklists were available but not used. The wing changed its procedures and will now only use undermanned crews for loading during mission-essential situations when full crews are not available. I'm certain members of this crew will pay much closer attention to tech data and details.

### JP-4 STATIC ELECTRICITY HAZARDS

During the winter months of last year, TAC experienced a number of JP-4 flash fires in aircraft and ground equipment. The cause of these fires has been identified as static electricity discharging from the fuel to the surrounding metal objects inside the tanks.

Atmospheric conditions that are most conducive to cause ignition are low relative humidity and low air temperatures. Although this problem has always been with us, the addition of polyurethane foam combined with the location of fuel outlet nozzles in the fuel tanks have compounded the problem. Aircraft which seem to be the most susceptible are the F-105D/F, the A-10, and UH-1 helicopter.

AFSC has a combined command study in being to resolve the problem. One possible solution is a fuel additive which raises the conductivity of the fuel allowing the static charge to bleed off. A field test program of additives is presently being conducted at Carswell, Davis Monthan, Griffis, McChord, Mt Home, Myrtle Beach, Nellis, and Travis AFBs. The fuel additive appears to be the only promising solution.

Those bases not involved in the additive test program will be more susceptible to fuel tank fires during the coming months. All personnel involved in fueling operations should be made aware of this hazard. It is particularly critical during air temperatures between plus 15 and plus 40 degrees fahrenheit when low humidity conditions exist.

For F-105D/F units not involved in the additive test program, it is recommended that refueling be accomplished at 20 - 25 PSI during winter months when mission workload permits. This can be accomplished by controlling the pump speed with the engine throttle while monitoring the pressure gauge on the refueler control panel.

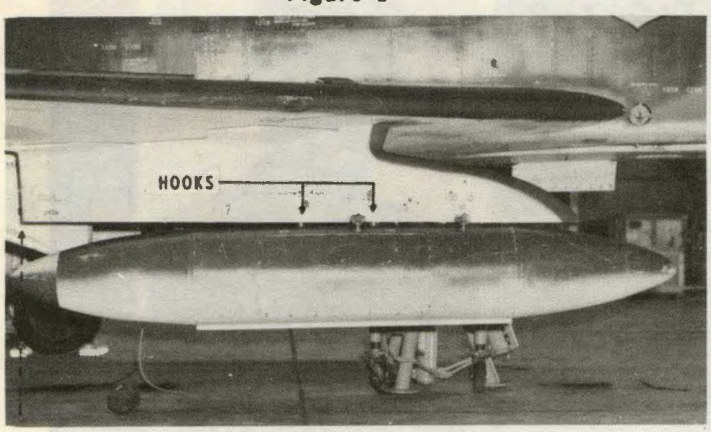
By next summer, the additive test program will be completed and we should have an Air Force-wide solution accomplished prior to the fall months of 1978.

## *HOW NOT TO HANG A BAGGAGE POD-CHAPTER 237*

After takeoff, on its first leg of a cross-country, an F-4D experienced an unsafe indication on the right main landing gear. A chase aircraft confirmed that the right main gear was not fully retracted. As the gear was lowered, the forward section of the travel pod fell off; the remainder of the pod lodged against the leading edge of the wing, external tank and landing gear. The pod fell off the aircraft during landing.

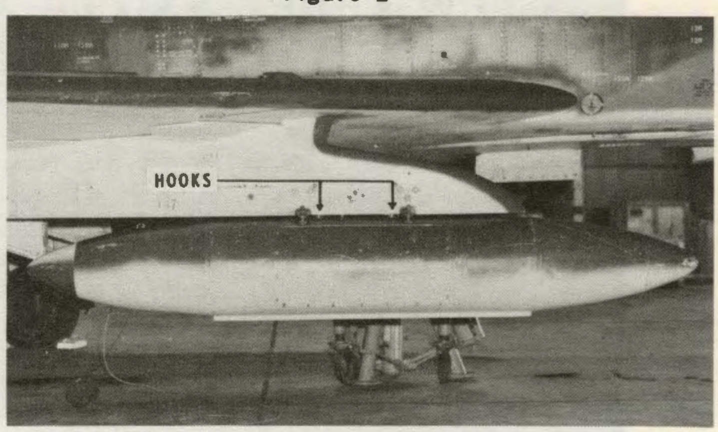
Postflight analysis revealed -- you guessed it. The pod had been improperly hung. The forward attaching point was connected to the rear mounting lug of the pylon. The rear attaching point aligned with a hole in the pylon and appeared to be properly hung except for a 2" overhang to the rear (Fig 1) which obviously went unnoticed by maintenance and the aircrew. Another clue was provided but went unheeded: the front sway braces had to be tightened all the way, while the rear braces had one inch of thread still showing. Figure 1 shows the overhang on the pod directly in line with the gear doors -- after takeoff, when the gear is raised, the wheel hits the pod and usually jams short of full retraction. The danger to personnel on the ground should the entire pod fall off the aircraft is obvious. So is the chance of losing an aircraft over a small item. A lot of people had a chance to catch this one ... but no one did.

**Figure 1**




**POD LOADED INCORRECTLY**

**Figure 2**

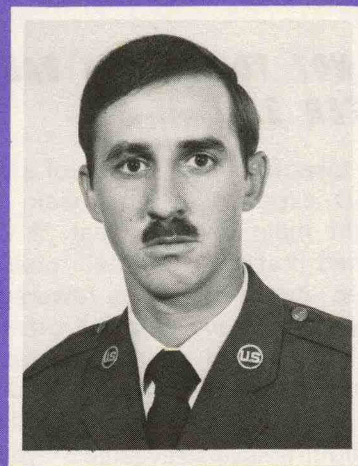



**POD LOADED CORRECTLY**

# TAC SAFETY AWARDS

## Individual Safety Award

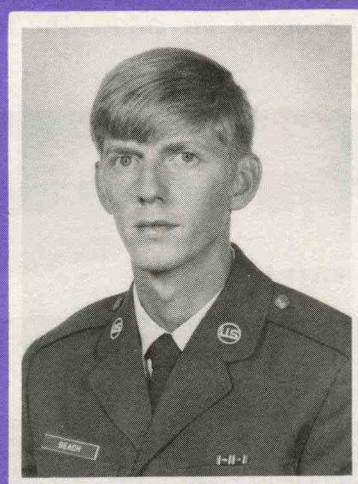
Airman First Class Bernard C. Gontko, 347th Munitions Maintenance Squadron, 347th Tactical Fighter Wing, Moody Air Force Base, Georgia, has been selected to receive the Tactical Air Command Individual Safety Award for this month. Airman Gontko will receive a desk set and letter of appreciation from the Vice Commander, Tactical Air Command.



A1C Bernard C. Gontko

## Crew Chief Safety Award

Sergeant Preston W. Beach, 354th Organizational Maintenance Squadron, 354th Tactical Fighter Wing, Myrtle Beach Air Force Base, South Carolina, has been selected to receive the Tactical Air Command Crew Chief Safety Award for this month. Sergeant Beach will receive a desk set and letter of appreciation from the Vice Commander, Tactical Air Command.




Sgt Preston W. Beach

# LETTERS


© Stan Hardison, 1977

Editor

Re your article, entitled "Emergency Situation Training -- A-7," in the September issue of TAC ATTACK. It has been our experience in the Navy A-7 community that cycling the landing gear in an attempt to obtain an up-and-locked indication can compound the problem. If the unsafe up indication is due to an uplock malfunction or misrigging, there exists a distinct possibility that upon recycling, the uplock mechanism will break and that particular gear will become stuck in the up position.

I have personally witnessed such an "incident," and the flight terminated in a nose gear up landing. In recognition of the hazard, our NATOPS manual now instructs us not to recycle our landing gear in the event of an unsafe up indication but to lower the gear and land. Therefore, the Navy as well as the Reserves will go with Option "B."

I enjoy TAC ATTACK and find many of your articles relevant to our community. Keep up the good work!

Lt Robert C. Rubel
Attack Sq 174
NAS Cecil Fld, FL

*Bob*

*The reason NATOPS procedures differ from USAF procedures is your Corsairs are equipped with a CAT launch bar on the nose gear. The particular incident you witnessed which resulted in a nose gear up landing most likely resulted from a malfunction of the CAT launch bar. The bar did not retract when the wheels were raised, and the nose gear doors closed on the bar. This could break the gear door actuators allowing them to flail around and foul up the uplock mechanism.*

*Our A-7Ds don't have the launch bar. So we'll stick with Option "D."*

*ED*

Editor

In reference to the article, "Flying the E-3A," in the Nov 77 issue of TAC ATTACK, I wonder if Maj Tagnesi has ever flown with a professional flight engineer from the quote other command unquote. I think if he does a little research he will probably find that his TAC-trained engineers were really once in MAC. They have probably flown C-124s, C-141s, or C-5s. I believe the remark about wiping his mouth on his sleeve belittles the finest people in the Air Force, MAC flight engineers.

I see from his profile that he has flown with SAC gunners and TAC flight mechanics but not with the best. I flew with MAC for 12 years for over 6,000 hours. I am now a maintenance supervisor with an F-4 TFW, as are two other ex-MAC engineers; and I'm junior to them, as they have over 12,000 hours and over 20 years in MAC. Maybe the Major should drive 100 miles southwest to Altus AFB, OK, and observe the University of MAC train real professionals before he makes slurs again.

SMS Arthur M. Fowler
31 OMS/MAOF
Homestead AFB, FL

*"Men will confess to treason, murder, arson, false teeth, or a wig. How many of them will own up to a lack of humor?"*

*Colby*

*Sarge*

*Major Tagnesi's tongue-in-cheek style of writing was a refreshing way to maintain reader interest and was not meant to slur anyone ... but try as we may, it's impossible to please all of our 180,000 readers.*

# LETTERS

*Inter-command jesting promotes healthy competition. We in TAC know we are the best. As for those who are in MAC ... well, if the spoon fits ....*

*ED*

In an effort to promote harmony with our sister service, and to help you understand APPROACH magazine, we humbly offer the following ...

| AIR FORCE | NAVY |
|---|---|
| Alert | General Quarters |
| Approach End Engagement | Short Field Arrestment |
| Assignment | Billet |
| Barrier Engagement | Long Field Arrestment |
| Bold Face | No Navy Equivalent |
| Bounce | Bolter |
| Broad | Broad |
| Cable | Pendant |
| Class 26 | Strike |
| Controlled Crash | Normal Carrier Touchdown |
| Crew Chief | Plane Captain |
| Dash One | NATOPS |
| Divert | Bingo |
| Element | Section |
| Field Grade Weather | Commander's Moon |
| Flight Commander | Division |
| FNG | Nugget (Ensign) |
| FSO | ASO |
| GIB | RIO |
| Go Around | Wave Off |
| Many Motor Puke | Many Motor Puke |
| Non-Rated | Blackshoe |
| RAT | EPP |
| Rated | Pilot |
| 4 Ship | Division |
| Short Runway (6,000') | Short Runway (600') |
| SOF | ODO |
| Stan Eval | Natops Check |
| TFS | VA Squadron |
| TFTS | Rag Squadron |
| TFTW | RAG |
| Touch and Go | Bounce |
| Transition Tng | FAM Stage |
| UPT | Flight Training |
| USAFA | Boat School |
| Wing Commander | CAG |

It has come to our attention that the November 1977 Thanksgiving Centerspread offended some of our native born American readers. It certainly was not our intention to defame anyone. To those individuals, and any others who may have been offended, we offer our apologies.

Editor

Your November article, entitled "TAC Professionals," contained an account of the Thud with control problems. The calm, cool manner in which the aircrew safely landed was truly professional; but there is another lesson to be learned here: Why did they continue the takeoff past liftoff speed? If the aircraft had never gotten airborne, total loss of the Thud would have resulted, along with possible injury to the crew.

Aircrews should be prepared to immediately deal with go/no-go situations, as getting airborne can often compound the crisis.

Thank you for an excellent magazine. We in the A6E community enjoy it very much.

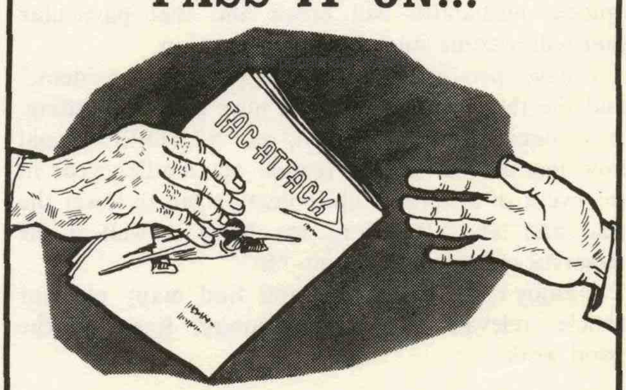
Lt Jeff Coffey
Attack Sq 196
NAS Whidbey Island, WA

*Jeff*

*We agree that aircrews should be prepared to immediately deal with go/no-go situations. However, it must be the aircrew's decision, based upon a large amount of variables, whether to abort or to get airborne. There are circumstances where staying on the ground may prove more hazardous than getting airborne. Again, it's up to the crew; but they should make their decision prior to taking the active -- it's no time for mental debate when the concrete available is rapidly diminishing.*

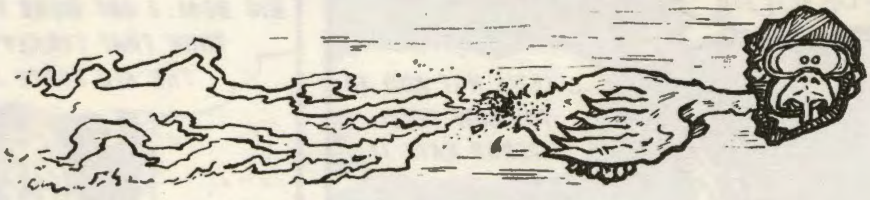
*ED*

**PASS IT ON...**




**9 PEOPLE ARE WAITING.**

# TAC TALLY



| | TAC NOV | TAC thru NOV 1977 | TAC thru NOV 1976 | ANG NOV | ANG thru NOV 1977 | ANG thru NOV 1976 | AFR NOV | AFR thru NOV 1977 | AFR thru NOV 1976 |
|---|---|---|---|---|---|---|---|---|---|
| MAJOR ACFT. ACCIDENTS ► | 1 | 25 | 30 | 3 | 12 | 9 | 0 | 1 | 2 |
| AIRCREW FATALITIES ► | 2 | 28 | 15 | 3 | 6 | 5 | 0 | 0 | 1 |
| TOTAL EJECTIONS ► | 0 | 21 | 24 | 2 | 11 | 5 | 0 | 1 | 1 |
| SUCCESSFUL EJECTIONS ► | 0 | 16 | 18 | 1 | 7 | 5 | 0 | 1 | 0 |

## TAC'S TOP "5" thru NOVEMBER

**TAC FTR/RECCE**

| class A mishap free months | Unit |
|---|---|
| 25 | 4 TFW |
| 19 | 474 TFW |
| 17 | 56 TFW |
| 14 | 67 TRW |
| 13 | 35 TFW |

**TAC GAINED FTR/RECCE**

| class A mishap free months | Unit | |
|---|---|---|
| 68 | 127 TFW | ANG |
| 34 | 156 TFG | ANG |
| 23 | 434 TFW | AFRES |
| 23 | 162 TFTG | ANG |
| 20 | 131 TFW | ANG |

**TAC/GAINED Other Units**

| class A mishap free months | Unit | |
|---|---|---|
| 124 | 182 TASG | ANG |
| 104 | 135 TASG | ANG |
| 96 | 507 TAIRCW | TAC |
| 93 | 193 SOG | ANG |
| 85 | 110 TASG | ANG |

### CLASS A MISHAP COMPARISON RATE 76/77

(BASED ON ACCIDENTS PER 100,000 HOURS FLYING TIME)

| | | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TAC | 76 | 2.9 | 8.6 | 9.0 | 7.3 | 8.0 | 8.1 | 6.9 | 6.8 | 7.5 | 8.1 | 7.4 | 7.0 |
| | 77 | 0.0 | 5.3 | 5.8 | 5.4 | 5.1 | 5.0 | 5.6 | 5.2 | 5.9 | 5.6 | 5.3 | |
| ANG | 76 | 10.5 | 5.0 | 6.5 | 4.8 | 3.8 | 3.9 | 3.4 | 3.5 | 3.7 | 3.9 | 4.0 | 4.1 |
| | 77 | 0.0 | 3.1 | 1.9 | 5.7 | 4.4 | 5.4 | 5.4 | 5.3 | 5.3 | 4.8 | 5.8 | |
| AFRES | 76 | 0.0 | 0.0 | 11.3 | 8.1 | 6.1 | 5.0 | 4.2 | 7.2 | 6.4 | 5.7 | 5.3 | 7.3 |
| | 77 | 0.0 | 0.0 | 10.1 | 7.4 | 5.8 | 4.7 | 4.0 | 3.4 | 3.0 | 2.7 | 2.5 | |

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FLEAGLE
... LET'S NOT ADD TO THE LOW LEVEL MISHAP RATE !!
HARDISON
BIG DEAL. I GOT MORE TIME AT 50 FEET THAN THAT TURKEY'S GOT IN THE AIR FORCE !
OPS
© Stan Hardison, 1978
REAL NICE !!
OH NO !!
SKRRACK!
REDWOOD ?
NO, DUMB ASH.