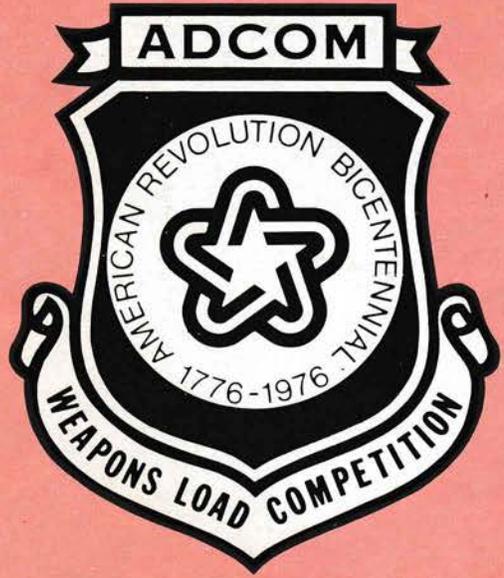
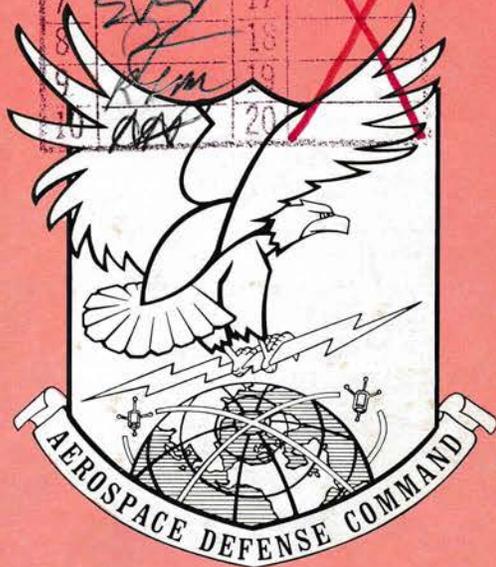


LGMXA

# Interceptor

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
											JULY 1976								

*Handwritten notes in red and blue ink:*  
 - Blue 'H' above date  
 - Red 'LV' above date  
 - Red 'R' above date  
 - Red 'RV' above date  
 - Blue 'RER' above date  
 - Blue 'DR' above date  
 - Blue 'M' above date  
 - Blue 'M' above date  
 - Red 'X' over dates 15-20



**THE COMPETITIVE SPIRIT OF '76 . . . see page 5**



# Interceptor

FOR THE MEN AND WOMEN RESPONSIBLE FOR AEROSPACE DEFENSE

VOL 18  
NO 7

*Aerospace Defense Command*  
**Gen Daniel James, Jr.**  
*Commander in Chief*

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## SPOTLIGHT

How beautiful a day can be when kindness touches it.

Anonymous

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## OUR COVER

During a recent visit to the Oregon ANG unit, President Ford personally congratulated the winning team in the 1976 ADCOM Weapons Loading Competition.

**IN THE INTEREST OF SAFETY  
PASS ME ALONG TO A FRIEND**



*"The main purpose in any valid safety program is to educate toward the prevention of accidents"*

**J**ust about everyone in the Air Force is a safety officer — or should be. The only problem is that many of them do not know how to go about it. Too often they want to make things safe at the expense of mission accomplishment. Too often a pilot who breaks a bird has his every action compared to Dash One procedures. If he fails to follow these procedures step-by-step, he may find that the "safety troops" use the Dash One as a hammer rather than a guide.

There are those in the "safety business" who pay lip service to a paper program and end up entirely missing the program's intent. They see the safety program only as books of restrictions, designed to channelize training and to degrade the importance of readiness. They often overlook the importance of reporting incidents, and incidents are valuable indicators that we cannot afford to pass up.

The main purpose in any valid safety program is to educate toward the prevention of accidents and, therefore, minimize loss of men and equipment. In combat or alert operations, a strong safety program is a must! The need to minimize loss is critical, and accident-free operations should be natural tendencies brought about by education and habit.

During this period of bicentennial celebration, our goals must be toward continued excellence in readiness and, if needed, victory in war. To reach these goals, the requirements to educate and conserve must receive even greater importance than ever before. Then, safety and effectiveness will result by design rather than by chance.

COLONEL ALFRED E. LANG  
Chief of Safety

# HOT LINE

**SCREECH!** Did you hear the one about the aircraft from another command that landed and received a sheared nose gear strut, major structural damage to the radome components and elongated main gear trunnions? It seems the aircraft commander used normal crosswind landing techniques which involved a combination of wing low and crab. Crossing the runway threshold, the pilot applied left rudder to align the aircraft with the runway and touched down in a slight left drift with both main wheels locked. Feeling the deceleration of the drag chute, the WSO looked back over his shoulder and verified not only a "good chute" but also that there was smoke trailing the right side of the aircraft. Suspecting a blown tire the aircraft commander took steps to stop the aircraft. The aircraft started a rapid right drift and departed the runway causing the above mentioned damage. Did you notice anything interesting in the above list of events? How about touching down . . . with both main wheels locked? Watch it! Know your crosswind landing procedures and think ahead so the old "snowball" doesn't start to pile up against you.

## AIRCREW GROUND TRAINING — AFISC

Continuation ground training has rapidly emerged as a more important element of today's flying training program. Reduced budgets and rising fuel costs dictate improved training techniques, procedures, and programs. We can no longer afford to train in the air when training can be effectively accomplished on the ground. The Instructional System Development (ISD) process, described in AFM 50-2, "Instructional System Development," must be used to identify and develop simulators, part-task trainers, study carrels, and other training needs. This process should be used by commands to clearly define objectives and standards so managers and trainees know exactly what is required. The ISD is an open loop process that insures constant review and feedback that enables us to get more from our training dollar. Like many other programs, however, it takes money to save money. Advanced planning and programming of resources are necessary to insure that full advantage is taken of the ISD program.

**CRUNCH!** A recent experience in a Lockheed Racer brought home a point to remember. If you have ever been in the habit of taking off your jacket between hops in the T-33 and storing it above the rear seat (bad practice but done), take heed! When the venerable bird is modified with the single-motion seats, there *ain't* no room up thar! Even one lightweight flying jacket will cause the canopy to jam and not close completely. Can be dangerous as well as embarrassing.

**ATTA BOY!** A recent F-106 incident vividly demonstrates that not all the things told at Tyndall are superstition — frequent fuel checks *are* essential. After completing a stern attack, a fuel check revealed an imbalance and trapped fuel in the "F" and "T" tanks. Appropriate emergency procedures were accomplished with success. Immediate RTB was initiated. Boost pumps were turned off on the low side when usable fuel in that wing was exhausted and high key for an SFO was established as the pilot anticipated flameout. The remaining usable fuel in the other wing fed out during landing roll and the pilot shut the engine down to preclude further fuel system damage. A delay of a few minutes in completing required fuel checks could have caused this incident to increase one of our more distasteful statics. Professional pilot actions kept this one in the "attaboy" column.

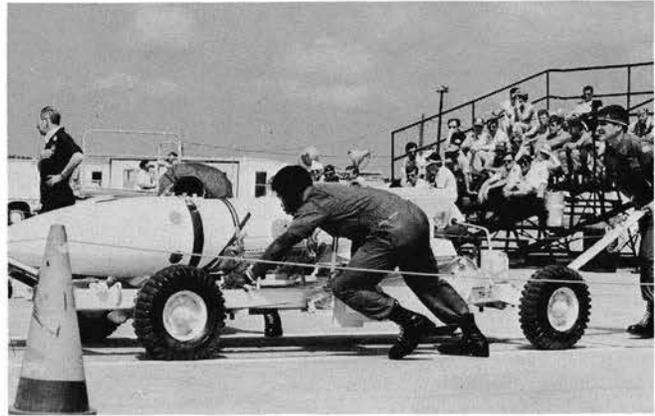
**SELF CURE?** Investigation following a recent fatal aircraft accident revealed that the pilot had noted the onset of an acute illness four days earlier while on another mission. In spite of weakness, lassitude, loss of appetite, and temperature to 104 degrees, he did not seek medical assistance during the acute phase of the illness nor did he obtain medical clearance prior to the accident flight. Self treatment and unrecognized residual disability can be real killers following a period of illness. An aircrew member has an individual responsibility to seek medical clearance from a flight surgeon prior to performing flying duties.

# The Competitive Spirit of '76

by Capt ROBERT J. PERRY, HQ ADCOM  
Missile Nuclear Safety Branch



A thorough preflight



Spring-loaded



The action

**T**he ADCOM 1976 Weapons Loading Competition demonstrated team work of the highest degree coupled with personal sacrifice and leadership by example. The highly disciplined teams competing in this event at Tyndall AFB represented

the many personnel assigned to the Command who perform the loading function on a day-to-day basis. These teams had already mastered stiff competition at their home units to earn the right to make the trip to the Command competition.

Another team on the flight line during the competition demonstrated its own brand of professionalism! This was a team of judges performing the thankless task of selecting the "best of the best" in the ADCOM weapons loading field.

# The Winners



THE CHAMPS - Team members of the 142nd FIG (Oregon ANG) - TSgt Lane F. Hoffman, TSgt Joe L. Woodburn, TSgt Mark E. Wiebold, and SMSgt Alan D. Kaser.

Think back for a moment to the year of 1776 and the green fields of Concord and Lexington. The countryside was alive with the feeling of purpose and dedication. This same spirit was demonstrated throughout the 1976 Weapons Loading Competition. Main goals of the event were to foster a competitive spirit, recognize outstanding perfor-

mance, and raise the overall standards of excellence. The ever present but intangible factor of esprit de corps was evident between team members as well as with other participating teams.

According to judging team members, the scores during this competition were considerably higher than those of a year ago. The judges at-

tributed this to teams gaining experience from previous competitions and utilizing innovations of former teams.

Two near perfect loads, a high test score and maximum points on the tools and equipment check earned the Air National Guard's 142nd Fighter Interceptor Group (FIG) from Portland, Oregon, the

overall championship of ADCOM's 1976 Weapons Loading Competition. Members of the team were SMSgt Alan Kaser, crew chief; TSgt Mark Wiebold, TSgt Joe Woodburn, and TSgt Lane Hoffman, team members. Their scores included two 985 point loads (out of 1,000 points possible per load), a written test score of 291 (out of 300 possible), and a maximum 200 point total received during the tools and equipment check. This F-101 unit scored a total of 2,461 points out of 2,500 possible.

Second place was earned by the 5th Fighter Interceptor Squadron (FIS), Minot AFB, North Dakota, with a 2,438.5 point total. One point behind and placing third was the 119th FIG, Fargo North Dakota, with a 2,437.5 score. The 119th FIG also scored the top written test results by registering a 295.5 point total. In addition, this F-101 unit team was recognized as the only team with female members.

The highest individual load score during the event was attained by the 120th FIG from Great Falls, Montana. An 11-second overtime penalty cost the team a perfect 1,000 point load; therefore, the "Big Sky" team had to settle for 994.5 score. The next highest load score of 985 points was scored by the Air Defense Weapons Center, 318th FIS, 49th FIS, 119th FIG, and twice by the competition winner, 142nd FIG.

An awards banquet was held at the Tyndall AFB Officers' Club honoring all participants. Major General J.R. Spalding, Deputy Chief of Staff/Logistics, HQ ADCOM, made the award presentations. Competitors then returned home to continue preparations for the next test of skill and expertise among air defense units — William Tell '76.★



SECOND PLACE WINNERS - The team from the 5th FIS (Minot AFB, ND) - SSgt Jeffery A. Mercier, A1C Floyd O. Howe II, Sgt Martin J. Greer and SSgt Fordyce L. Brevig.



THIRD PLACE WINNERS - Members of the team from the 119th FIG (North Dakota ANG) - TSgt Phillip Poe, Sgt Ellen M. Rising, TSgt Merlyn D. Dorrheim, Sgt Patricia S. McMerty.

# The Competitors



48th FIS



49th FIS



318th FIS



102nd FIG



125th FIG



177th FIG



84th FIS



87th FIS



107th FIG



120th FIG



191st FIG



4756th MMS/ADWC

# Freedom Bird — 318th FIS

By Lieutenant KATHLEEN D. PAINI  
Information Officer, 318 FIS



The "Freedom Bird" represents the 318th Fighter Interceptor Squadron's efforts to honor our nation's first 200 years. The F-106 decorated in red, white and blue is a visual indication of the "Spirit of '76." It also represents the current spirit of '76 found in today's military and the 318th Fighter Interceptor Squadron. The enthusiasm and esprit d' corps generated within the members of the 318th required to design and prepare the aircraft for the bicentennial also symbolizes the spirit required to keep

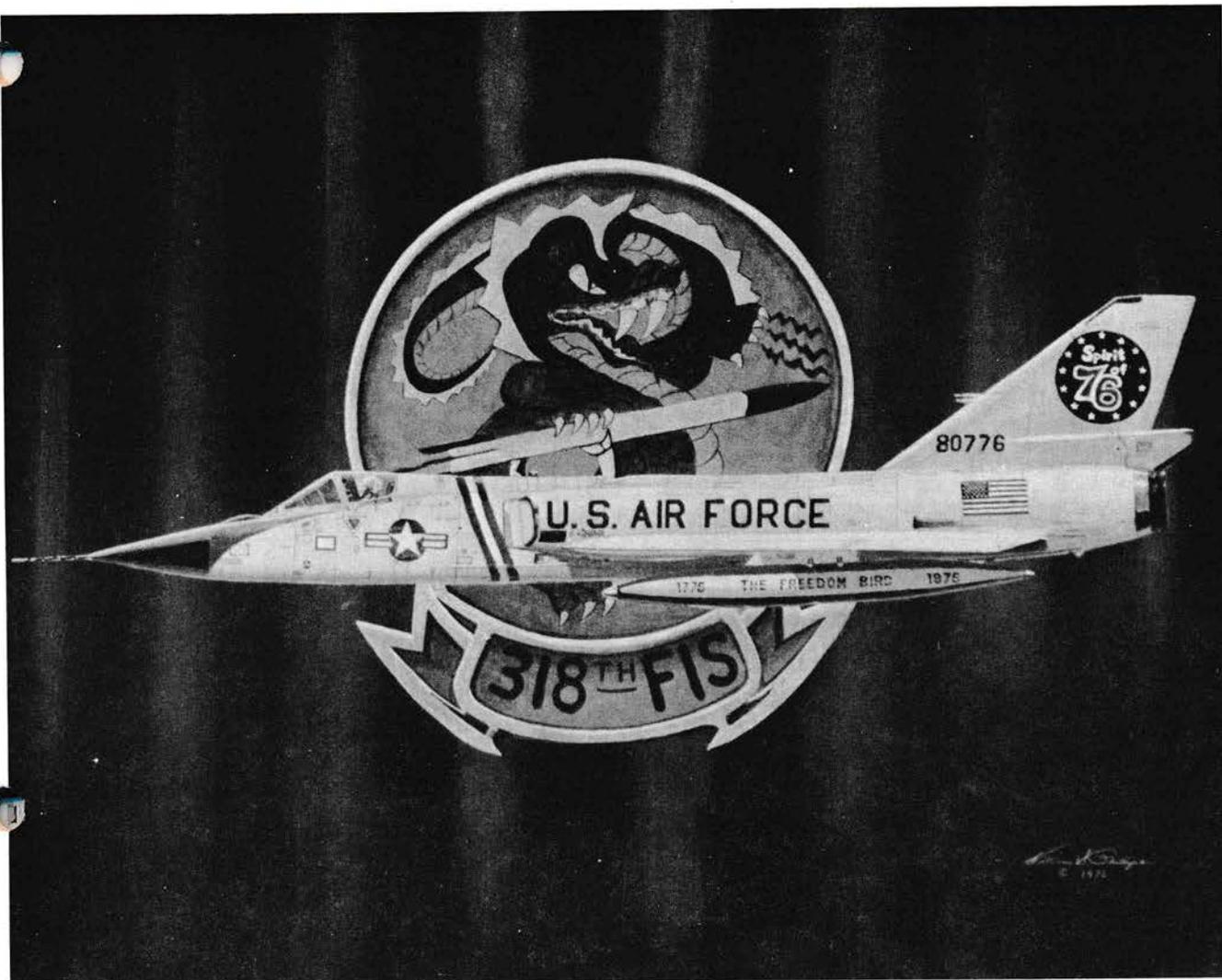
our nation free for the next 200 years.

The idea to paint an aircraft with special colors for the bicentennial year was initiated by squadron members who secured approval in November of 1975 to decorate F-106 serial number 58-0076. The selection of the design was not easy. A squadron contest was held and over 70 different designs and variations were presented for judging. A composite of several was decided on in arriving at the final paint scheme.

Enthusiasm for the project ran

high and the aircraft and associated equipment were painted in early January 76. An appropriate dedication date presented itself on the 24th of January as the 318th was being awarded the 1975 Hughes Achievement Award as the outstanding USAF fighter squadron with a mission of Air Defense.

General Daniel James Jr, CINC-NORAD, presided over the bicentennial dedication ceremony while the Honorable Gordon N. Johnston, Mayor of Tacoma, officially dedi-



This painting of the Freedom Bird is by William L. Phillips of Ashland, Oregon. Mr. Phillips served with the Air Force for four years as a Security Policeman and was assigned to the 318th FIS Detachment at Walla Walla, Washington, in 1967. He is primarily a western and wildlife artist, but painting airplanes is his first love.

cated the Freedom Bird to all military personnel who have served their country in the past, are presently serving, and who will serve in the future.

The Freedom Bird, an F-106 all-weather fighter interceptor, has been fully utilized in performing its assigned aerospace mission as well as

being utilized for static displays at various Bicentennial events throughout the Northwest and Canada. Some of the more widely publicized events occurring in Colorado Springs, Spokane, Everett, Portland, Tacoma, Comox, B.C. and Abbotsford, B.C. The "Freedom Bird" is an impressive sight to behold

— the beauty and strength of today's fighter aircraft combined with our nation's colors indeed is a symbol and tribute to the "Spirit of 76." ★

*Editor's Note: We are happy to see our first contribution from a lady in ADCOM. Looking forward to more inputs from the distaff side.*



## COOLSTONE CONCEDES...

by ROGER G. CREWSE January 1959

"Hello RG tower, Rg tower, this is Coolstone one, ovah."

"Roger Coolstone one, this is RG tower, go ahead."

"RG from Coolstone, how about checking ATC clearance boy, I'm standing by on the ramp."

"Roger Coolstone, your clearance is on request."

Coolstone was on his way to Tyndall. This was the third and final leg on a flight which originated at Geiger, and Coolstone was most impatient to get underway. His flight planning was very thorough for this flight because he had never flown the route before. He marked his maps carefully, filled out a complete route card, and paid strict attention to the weather forecast given to him over the closed circuit weather vision. He had planned his route to be direct Springfield, J-41V Memphis, Montgomery, direct Tyndall. A comfortable flight really, just a bit over 700 nautical, with favorable winds. He had asked, hopefully, for 35,000', but he could easily make

the flight at thirty.

The weather at Richards was IFR — 1500 overcast, about five miles in rain, with tops guessed to be over 25,000'. Coolstone knew he would have to make an IFR departure of one sort or another. He asked the AO what kind of a procedure he would be up against, and was told, "No sweat, we got Rap-Con."

Coolstone filed his 175 and went out to the T-bird. The rain was something more than light, and the pre-flight was accompanied with a good soaking. But the thoughts of the sunny South in the winter along with oyster cocktails, tall drinks on a patio overlooking the Gulf, and long, well tanned legs, Florida-gal style, kept this YOUNG, SINGLE pilot's spirit uncommonly high.

While in the cockpit waiting for the clearance, Coolstone casually checked the warning lights, circuit breakers, inverters, navigation equipment, etc., until he just could not find much else to check. And then he began to grow a bit impa-

tient with ATC, for almost 25 minutes had gone by since he had requested his clearance. The inside of the canopy was fogging up quite badly, so he decided to crack it a bit. But the thirty-five degree air accentuated the uncomfortable darkness which he found to be a result of the soggy pre-flight. Matter of fact, Coolstone was becoming downright cold. Then...

"Hello Coolstone, RG tower has your clearance, are you ready to copy?"

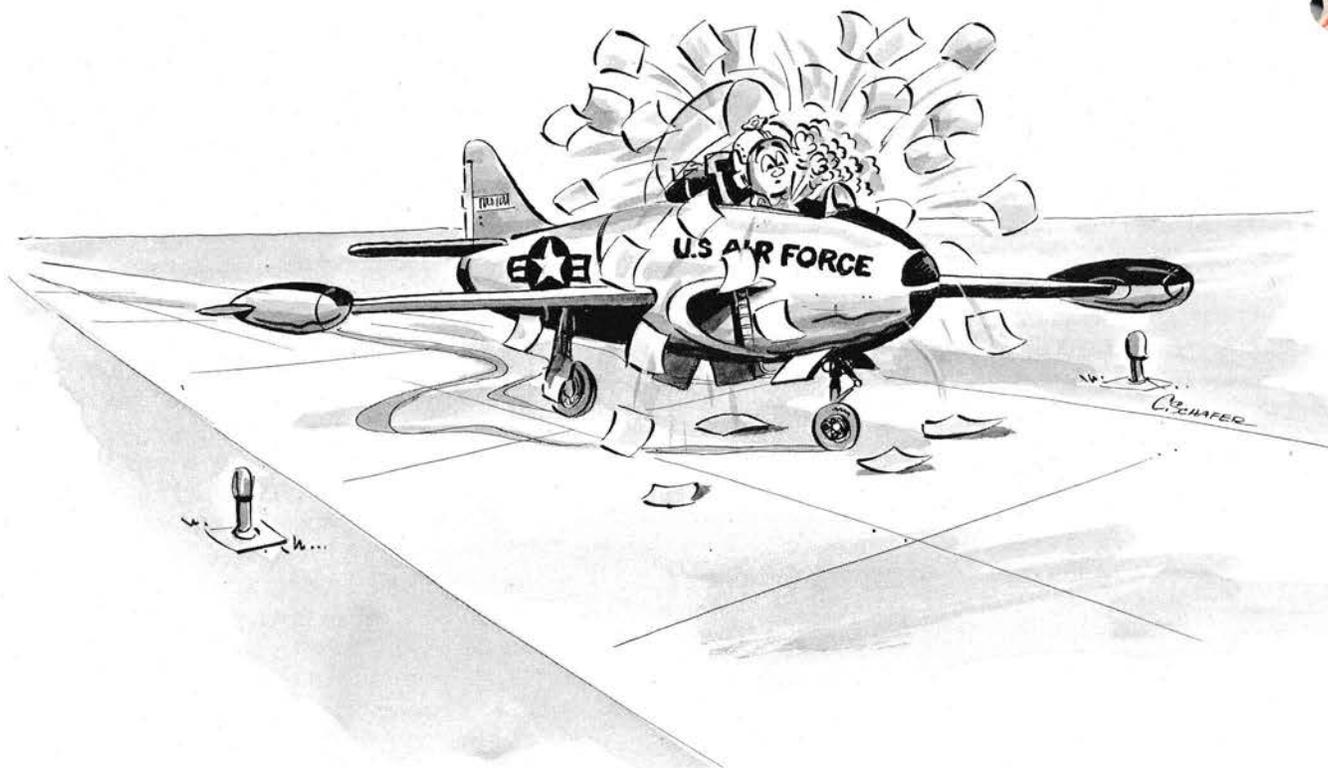
"Roger, roger boy, ready to copy."

"Roger Coolstone, ATC clears Coolstone one to the Tyndall Airport via read back please, over."

"Er-ah, tower from Coolstone, are you sure you have the right aircraft, that doesn't sound like anything I filed for"

"Roger Coolstone, this is your clearance — do you want it repeated"

"Roger boy, repeat please and"



Pilot carefully rechecks

would be most acceptable.

"Hello Coolstone one, have your climb instructions, execute a Lamar departure, contact RapCon on 363.8 immediately after take-off, over."

"Roger, understand tower. Lamar departure, contact approach control immediately after take-off — what was that frequency again?"

"That was 363.8 — channel 15, and you are cleared on the active and to take-off."

Once again a minor paper explosion occurred, for Coolstone didn't understand this Lamar jazz at all. He attempted to divide his attention between the frantic search for the Lamar departure and taxiing the plane. After almost running off the taxi-way, he stopped and devoted all of his attention to the search.

"Coolstone from RG, are you OK?"

"Roger tower, but I can't seem to find instructions for the Lamar departure."

"That's on the back of your clearance Coolstone, on the back of the 175."

"Roger, roger boy, thanks a lot."

After a frantic search, Coolstone turned up a crumpled soggy piece of paper from his pocket. The clearance had also suffered from the wet preflight. While the printing on the back was somewhat obscured, he was able to make out some of it with the questionable aid of his 1912 Signal Corps flashlight; newly issued of course! Let's see, he read: Lamar departure on TVOR, climb something on 200 degree radial until reaching 12,000 feet. The next

three words were unreadable — then proceed inbound on 200 degree radial crossing TVOR at 20,000 feet.

Coolstone attempted to secure the 175 under his leg clip, but the tensile strength of the paper had sadly deteriorated, and it tore. It tore right in the middle of the Lamar departure. No sweat, Coolstone thought, I've got it right in the old head. Outbound on 200 degrees radial till 12,000 feet, inbound 200 degree radial till 20,000 feet then proceed on course. Wait a minute — boy do they make it difficult; one of these directions isn't 200 degrees, that's pretty obvious. Let's see that would be outbound on 20 degrees, inbound 200 degrees — that ought to do it.

"Hello RG tower, Coolstone one,

all set now, am I cleared for takeoff?"

"Roger Coolstone, you are cleared for take-off."

Coolstone taxied into position gang loaded his tanks, checked no red lights, and started up his power. Coolstone held for a moment with full power; checking his engine instruments, then he released the brakes.

At about 100 kts, as he raised the nose, Coolstone found that the rain on the windshield had all but eliminated forward visibility. The runway lights were only a blur. He made up his mind that he would go on instruments as soon as he became airborne. The steam on the canopy had not dissipated to any noticeable extent, which altogether gave Coolstone the impression that he was flying this bird from a rather poorly lit coal tunnel.

After becoming airborne, with the plane cleaned up, Coolstone started the turn to 20 degrees for his departure. He called RapCon:

"Hello Olathe Radar, this is Coolstone one, airborne at RG, 14 past the hour, squawking three, turning to the outbound heading for the Lamar departure."

"Roger Coolstone, this is Olathe Radar. Understand you departed RG at 14; remain at 2500 feet until established outbound on the 200 degree radial. Give Olathe Radar a call when inbound."

"Whoops!" said Coolstone to himself as he shot through 2500 feet, nose down, power back, they almost faked me out of position that time.

"Hello Coolstone, this is Olathe. ATC would like your Butler estimate, please."

"Ah, uh, Butler, let's see." It would take him twenty odd minutes to

climb, then thirty or forty miles to Butler. "Give them fifty past the hour Olathe."

"Roger, understand, forty past the hour — is that correct Coolstone?"

"Uh — OK, forty is my estimate." They probably know better than I do anyhow, he thought.

Coolstone finally centered the omni needle and started his climb from 2500. At 7000 feet, Coolstone released his IFR take-off clutch on the stick and remarked to himself that he was quite an instrument pilot even if he did say so. Had that 20 degrees boxed and course indicator right in the middle.

With the turn coming up at twelve thousand, he tried to see on the battered clearance if it was supposed to be a procedure turn, or if he should just wheel it around — the tear had taken care of the turn instructions very well. He couldn't make it out. He decided just to wheel it on around, it would save time anyhow.

"Hello Olathe Radar, Olathe Radar." Coolstone's voice exuded pure confidence now. I'm inbound on the Lamar departure, how about going out on course now."

"Coolstone from Olathe, continue on your departure until twenty thousand and squawk two please."

Coolstone changed modes, and advised radar.

"Roger Coolstone, we don't have you on our scope, what is your heading?" "Well, (slightly indignant) my heading is 200 degrees, naturally, passing through nineteen thousand."

"Tombstone from Olathe, did you say your heading was 200 degrees? What is your position?"

With just a bit of irritation, Coolstone answered, "That's Coolstone, Olathe, Coolstone one, not Tomb-

stone, and I'm northeast of the TVOR inbound on 200 degrees."

"TOMBSTONE one from Olathe, %/\$-\*\$\$" '@\$-\$&- over."

"Olathe you were garbled, say again please!"

"TOMBSTONE one from Olathe Radar, this is to advice you that you have just worked the Lamar departure in reverse. While doing so, you climbed through Green Four, Victor 4, 12, 116 and 210, four of Kansas City's stacks — and to top it off, you went dead center through the Airline's 'tunnel of love'. Continue climb to 31,000 on a south westerly heading, and when reaching 31,000, proceed to the Grandview TVOR, then you are clear to depart on course. DO YOU UNDERSTAND? OVER!"

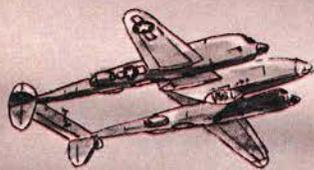
"Er — ah — uh. I'm awful sorry Olathe." (very weak) "Understand climb on a southwesterly heading to 31,000, then proceed to the Grandview TVOR and depart on course."

A very disgusted "Roger Tombstone."

"Give us a call when you are over Grandview proceeding on course."

Coolstone finally reached 31,000; time was passing very slowly for him now. He turned almost due East to head for Grandview TVOR. He looked at his fuel counter and saw that there were only 580 gallons of fuel remaining. He had gone exactly nowhere, and he wasn't too sure how much the ATC routing had affected the distance to Tyndall. If it didn't change any, he could see that he would have less than minimum fuel remaining when arriving at Tyndall. . .

"Hello Olathe Approach Control, this is Tombstone — er — Coolstone one; would you get me an approach time for RG please? I'm changing my destination from Tyndall to Richards-Gebaur."★



**LOCKHEED P-38 LIGHTNING** The unique Lightning was the first fighter equipped with turbosuperchargers, and the first American twin-engined, twin-boomed, single-seat fighter. It was designed in the late 30s and was test flown in January 1939. P-38Fs took part in their first large-scale operations during the North African Campaign in November 1942 and by early '43 Lightnings were in the Southwest Pacific. P-38s claimed more Japanese aircraft destroyed than any other fighter. The leading American fighter ace of WWII, Major Richard Bong (whose P-38J is illustrated here) scored all forty of his victories flying Lightnings in the Pacific. The P-38J was powered by two 1425 hp Allison V-12 liquid-cooled engines with counterrotating props. These gave it a maximum speed of 414 mph at 25,000 ft, a 44,000 ft service ceiling, and a maximum range of 2,260 miles with two 250 lmp gal drop tanks. The P38J had a 52'0" wing span, was 37'10" long, weighed 12,800 lbs empty and 17,500 lbs loaded. Armament consisted of one 20mm cannon and four .50 caliber machine guns, plus two bombs totaling up to 3200 lbs or ten 5" rockets.



ILLUSTRATION BY CRAIG SCHAFER

# Snooping - Swooping

**W**hat is the outlook for old, bold fighter jocks who want to get away from flying the 1 ea gray desk, and back into a sleek fighter type aircraft? Are there aircraft available?

Some time ago we at ADWC investigated the possibility of rejuvenating our less-than-new T-Birds with a new engine. Since ADCOM is in the market for a new interceptor and since funds are short as usual these days, we decided to really save some dough with the EFT-33 "Snooping Swooping Star." Some of the features of this truly cost effective (and amaz-

ing) aircraft are as follows:

- Two AIM-7 Sparrows for long-range engagements.

- An M-61 cannon and two AIM-9B Sidewinders for close-in dogfights.

- A 45,000 lb thrust, non-afterburning C-5A engine.

- A detachable radar dish in case of ejection.\*

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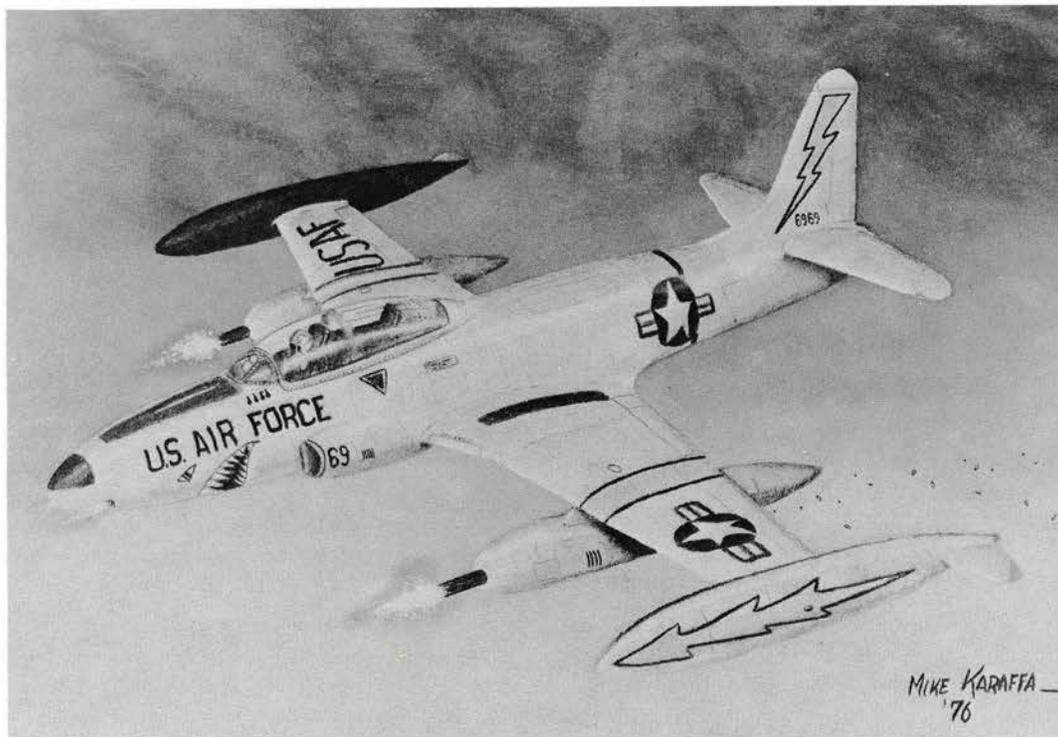
\*There's only one small glitch — flight tests have shown that 0.3 seconds after ejection, the aircrew become FOD, but a fix is in the mill.

- The Sears Roebuck MK-69 fire control system.

- An improved cockpit layout by adding a backup J-8, a larger DME gage, and moving the landing gear handle further aft and down.

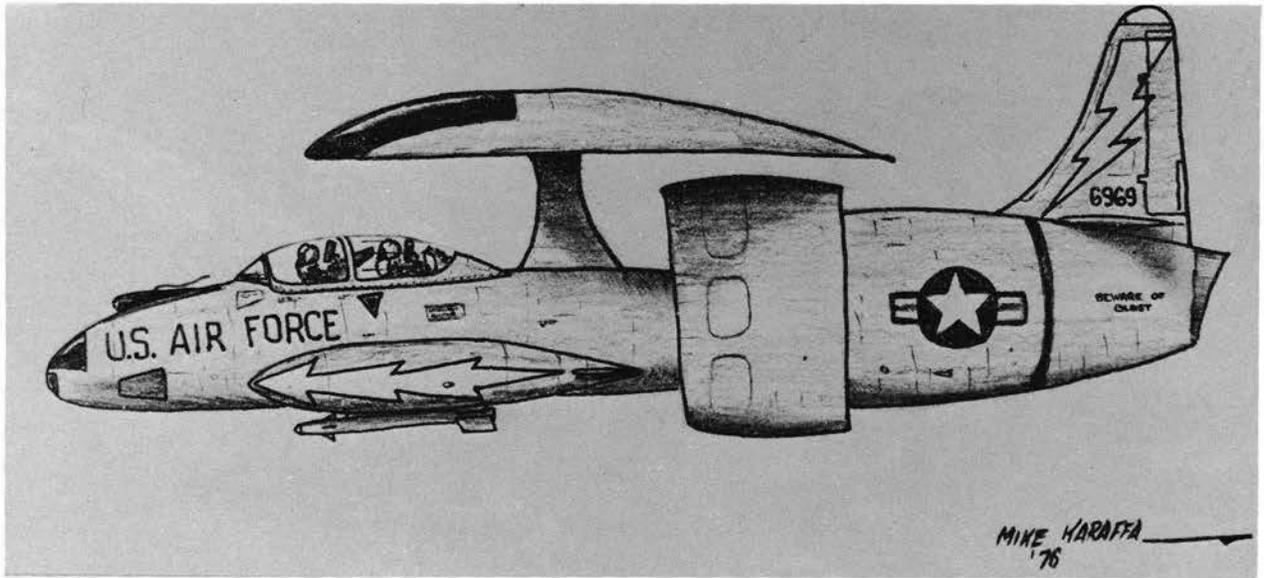
- Gun pods are 50 cal Gatlings mounted in surplus chaff tanks.

Various aircraft companies, and the Wham-O Corporation, builders of this revolutionary weapons system, have assured us that the EFT-33 will meet and counter any airbreathing threat projected through the 1950s. So hang in there, sports fans. There's hope for us yet.

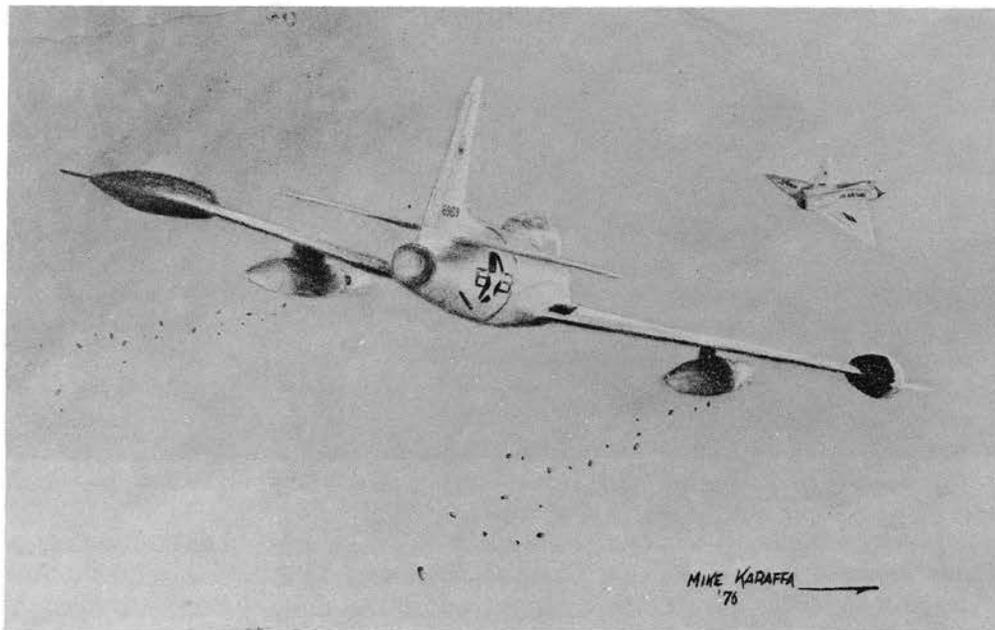


Artist Version of the EFT-33

by CAPTAIN MICHAEL J. KARAFFA  
T-33 ISD Project Manager



Another Variation of the Snooping-Swooping Star



A six checks six

# the THREAT



## BISON M-4

*"The ancient warrior must be feared not for his agility or prowess; but instead I warn you to respect his experience and dependability."*

*Author Unknown*

One of the two "heavies" in the Soviet bomber inventory, the "Bison," dates back to the early 1950s. Presently, it appears that only about 85 of these aircraft remain in service with 35 as bombers

and 50 in the inflight refueling tanker configuration. The Bison was first displayed during the May Day fly-past over Moscow in 1954. The aircraft went into production in three basic versions: A, B, and C models.

The Bison A is comparable in many ways to the USAF B-52 in specifications and capabilities. Although the wingspan is approximately fifteen feet shorter than that of the B-52, the Bison is slightly longer by about eight feet. The Bison's gross weight is about two-thirds of the B-52 and has only four engines. The engines are mounted internally near the wing root area and develop about 19,000 lbs of thrust each. The landing gear arrangement is very similar to that of the B-52 in that the main gear is mounted on two "trucks" underneath the fuselage and there are "trailer" wheels under each wingtip. Defensive armament consists of a tail gunner's position (similar to older model B-52s) and nine other twin-gun 23mm turrets located both above and under the fuselage fore and aft of the wings and weapons bays, respectively. The three weapons bays are located in mid-fuselage and weapons are primarily carried internally. The 50 Bison aircraft modified as tankers carry a hose-reel type unit in their bomb bay to function as an inflight refueling platform.

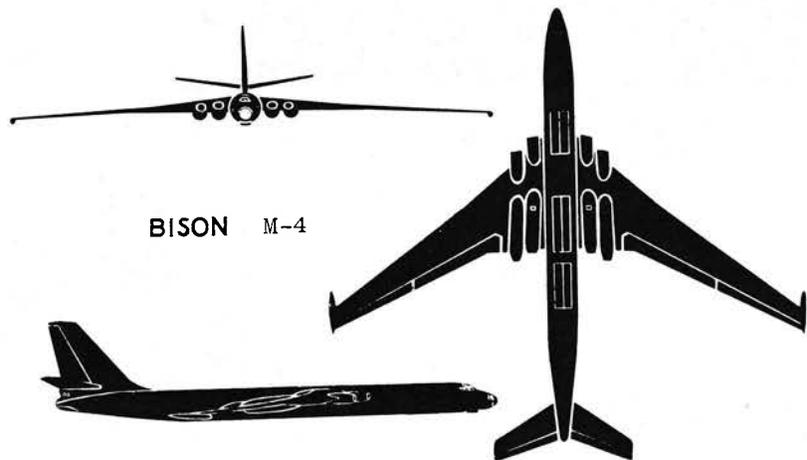
The Bison B is similar to the A version with minor external modifications. The B version is primarily a

maritime reconnaissance/patrol aircraft. The glazed nose of the Bison A is replaced by a solid nose radome and there is a large refueling probe superimposed above the radome. Gun turrets and bomb bays appear to be modified to accommodate electronic equipment.

The Bison C appears to be somewhat a combination of the A and B versions. The C model has the bomb bay and turret modifications of the Bison B but also has a large search radar built into an elongated nose radome. This model, when designated the 201-M, had

modified engines developing almost 29,000 lbs of thrust each. The modified aircraft was used to set several "time-to-climb-with-payload" records in 1959.

Although a much sleeker and more modern looking aircraft than the "Bear," the Bison has not been used as a mainstay in the Soviet bomber fleet. Reasons appear to be the relatively short range and low combat ceiling. In our next issue, we discuss the other "heavy" in the inventory, the venerable, but widely used and observed TU-95 — BEAR.★



AC INFO	BOEING	BOEING	GENERAL DYNAMICS	ROCKWELL	TUPOLEV BACKFIRE	TUPOLEV BLINDER	TUPOLEV BADGER	TUPOLEV BEAR	MYASISHCHEV BISON
DESIG	B-47	B-52	FB-111	B-1	TU-(?)	TU-22	TU-16	TU-95	M-4
WING SPAN	116'	185'	70' (34')	137' (78')	113' (90')	80'	110'		170'
LENGTH	107'	157.5'	73.5'	151'	139'	110'	120'	COMING NEXT	165'
SPEED	528 mph	660 mph 20,000	mach 2.5 36,000'	mach 2.2 50,000'	mach 2.0	1.4 40,000'	587 mph 35,000'		
RANGE	4,340 mi	10,000 mi	4100 mi	6100 mi	3,570 mi	1,400 mi	3,975 mi		7,000 mi
GROSS WEIGHT	133,000 lb	480,000 lb	100,000 lb	350,000- 400,000 lb	272,000 lb	185,000 lb	150,000 lb		350,000 lb
CEILING	39,000'	55,000'	60,000' +		60,000'	60,000'	42,650'		45,000' +
CREW	3	6	2	4	3	3	7		

# GHOST WRITERS

IN DISGUISE



Ghost Writers is dedicated to bringing *your* anonymously shared experience, close call, war story, etc., to our readers. We encourage each of you — pilots, crew chiefs, specialists, everyone — to share your true learning experiences with us. We'll do the writing job for you. Just send a letter, a tape or make a phone call to **INTERCEPTOR Magazine/Ghost Writers, CINCAD/SED, Ent AFB, CO, 80912; GPA 692-3186, SAGE 530-3186**. You need not give your name and we guarantee *complete anonymity!*

## A PLEA FOR THE RETURN OF PRIDE

**A**lthough known as the last deadly sin, PRIDE can be a major part of a safe, enthusiastic flight line environment. What, you may ask has pride to do with aircraft maintenance? Well, I believe, everything.

The Air Force advertises a "challenging career" for our young people, but often what they receive these days is something less. In many cases, jobs are broken down into small tasks and the majority of those tasks are done by specialists. The crew chief, who was the heart of the maintenance program, is often nothing more than a gas station attendant or forms keeper. He is responsible for everything, yet has vir-

tually no authority. Why not give the airplane back to the crew chief? When his name goes on the forms, let him be the one who really crews it. I'm sure they would welcome the challenge of being responsible for the maintenance, cleanliness and safety of the product as well as being held liable for the deficiencies.

Ask yourself, why is Joe in the parking lot working on his car when the aircraft he's assigned to that day taxis in or why are Helen and Bob sitting in the shade instead of cleaning the cockpit? Is it because they don't really care or is it that they don't feel a part of this new, modern Air Force? A job must have a chal-

lenge and a reward to be satisfying. Money and non-tangible benefits are not enough. Each worker must be made to feel important and a necessary part of his organization. In other words, he must have a job which he considers satisfying and be able to have pride in the finished product. We are wasting their education, training, and enthusiasm by assigning menial, fragmented tasks. To many, the sight of "their airplane" taking off on a mission on time and with a no discrepancy writeup on completion would mean more than an extra coffee break or pay raise. "Let the specialist fix it" has become the battle cry of the

day. Granted, some systems are beyond the capabilities of the aircraft mechanic, but what's to keep him from assisting on the radar write-up or stop him from troubleshooting a hydraulic leak or changing a fuel pump?

How are the supervisors spending their time? Do they know their people and the airplanes? During down times for weather or non-flight days, what is accomplished? Why not hold familiarization classes? The better each worker knows and understands the aircraft and systems, the more valuable he becomes. Also, in this way the supervisor better knows his people and their problems. Teach inspection methods. A knowledge of where to look and what to look for can be more valuable than the checklist. Experience is said to be the best teacher, so why not teach your experience. Show each mechanic what is between the lines on a checklist. Don't just look at an object but **see** it and what is in the sur-

rounding area. Learn to recognize problems by sound, touch, and smell before they become aborts, incidents, or accidents. Do those bubbles under the wing mean poor paint, a fuel leak, or corrosion? Or did you even notice them as you inspected for cracks, loose rivets, or fasteners? How do you tell if a Dzus, screw, or other fastener is too long or too short or the right kind? These and many more "little things" can tell the difference between a clean airplane, an FOD engine change, or maybe just an abort because the pilot is sharper-eyed than the crew chief.

Make sure the people really know and understand what to do if a tow-bar snaps or how to provide emergency hydraulic pressure even if they are tired, wet and cold, at 1:30 in the morning.

In these days of cost reduction, shrinking troop strength, and lowered flying hours, the quality of maintenance and inspections has

become even more important than in the past. If we are to maintain the reputation we have earned as the "Best in the World," everyone must be used to their fullest capacity. Weed out the deadheads! Reward the remaining individuals by giving them the job to do as they pictured it when they decided to join the Air Force team. By applying some of the principles of management, human relations, and the experience we as supervisors have gathered over the years, we can ignite a spark which will bring back the old TEAM SPIRIT. This can overcome the handicaps of cost reduction and the forced economy we must live with these days.

All personnel error accidents are preventable and even some material failure accidents can be avoided by better trained, motivated people, and more thorough inspections. The tools are there to work with so why not use them? Give the people the chance and see if a bit of PRIDE is a sin or an asset. ★





OPERATIONAL  
READINESS  
INSPECTION TEAM

HQ, ADCOM

## AIRCRAFT EGRESS

**D**uring many types of inspections, exercises are conducted which reflect a unit's capability to respond and perform in emergency situations. One such exercise is emergency egress of crew members from the mission aircraft. The purpose of aircraft egress exercises is to evaluate the crash rescue proficiency training program and the ability of rescue personnel to rapidly and successfully rescue entrapped crew members. In some cases, units have not demonstrated the ability to satisfactorily perform during egress exercises. The main cause was attributed to inadequate training and failure to schedule and conduct live exercises on aircraft.

The primary responsibility for administering the overall training program lies with the base fire chief. However, support from other organizations is paramount to ensure success of the training program. Operations provides crew members fully suited with flight and survival equipment; maintenance provides the aircraft, a crew chief, and egress specialists; safety officers provide safety assistance and guidance as required. A unit regulation should be developed with specific tasks and responsibility for all participating organizations. As a minimum, the regulation should assign responsibility for conducting the training; making provisions for instructors, specific personnel to be trained, aircraft and aircrew members, maintenance personnel, frequency of

training, and reports and records to be maintained.

In conducting live training exercises, it is important to make the training as realistic as possible. Varying the location and time of unannounced simulated aircraft emergencies and changes in exercise scenarios will enhance realism and provide a greater variety of training situations. At some units, we noted that training was accomplished on a routine basis and exercises were conducted only at times and locations that were convenient to all participants. Also, we observed that crew members participating in the training were not prebriefed by evaluators and debriefed on actions taken by firemen inside the cockpit during the exercise. The crew member is the most qualified person to observe if correct procedures were used in crew member extraction from the aircraft.

All facets of egress are evaluated during IG inspections. Actions such as preparing the aircraft and ejection seat; fire department notification; response by firemen; cockpit entry procedures; use of prefire plans; personnel's knowledge of applicable tech orders; and exercise debriefings are several elements which contribute to the overall rating of the exercise.

Any one or a combination of these actions, if not properly executed, could result in a rating other than satisfactory. For example, during one egress exercise,



"Tool, Egress, Emergency . . ."

fire department notification, response, equipment positioning and canopy opening were all expeditiously and correctly accomplished. However, firemen did not use current procedures inside the cockpit in releasing the survival kit, disconnecting oxygen, and unstrapping the crew member for removal. The delay was caused by inadequate training and lack of familiarity with egress procedures in the cockpit. At another unit, the fireman designated to release the canopy did not know emergency canopy release procedures and a long delay resulted in crew member extraction.

Ratings are significant to the unit being inspected. However, more importantly, the ability to respond during

actual aircraft emergencies and to remove entrapped crew members are the primary objectives of preplanning, training, and hard work by all concerned. IG evaluations and ratings are designed to determine overall deficiencies in the training program and assist all units in improving procedures.

In summary, preplanning, training, and practice are the key elements to a successful emergency egress of aircraft crew members. It is the only insurance available to save lives of crew members in certain emergencies.

KENNETH W. OHLINGER, Colonel, USAF  
Director of Inspections



# check points

✓ Supervisor of flying regulation. Air Force Regulation 60-2, "Supervisor of Flying Program," was published 20 February 1976. It establishes the requirement for a supervisor of flying (SOF) in all operational flying units to insure positive supervision and control of USAF flying activities. MAJCOMs are encouraged to supplement the regulation to expand or further define the SOF program in terms of their mission requirements. There is a demonstrated need for positive supervision of flying activities. Also recognized are the many and varied demands on unit supervisory personnel, and that delegation of supervision of the unit's flying activities is required. In these circumstances the SOF becomes a key element in the command and control of all flying operations. The SOF serves as the commander's operational flying representative and is an extension of the chain of command and control, with its inherent responsibility and authority. Unit commanders are required to designate in writing the individuals selected for SOF duty. These officers must be qualified and current in one of the unit's primary mission aircraft and have demonstrated the

maturity to cope with the responsibilities of the position. The SOF should be aware of the total operational environment and insure aircraft commanders are provided with accurate, timely advice and assistance to enable them to determine a correct course of action. This will not detract from the authority and responsibility of aircraft commanders for the safety of their aircraft. The authority of the SOF to direct courses of action will be delineated by the MAJCOM and unit commanders. Safe flying operations depend on a great many people and are affected by several factors. The "Supervisor of Flying Program" is a positive step in assuring safe and efficient operations for USAF and Air Reserve Force aircrews. (TIG/SED)

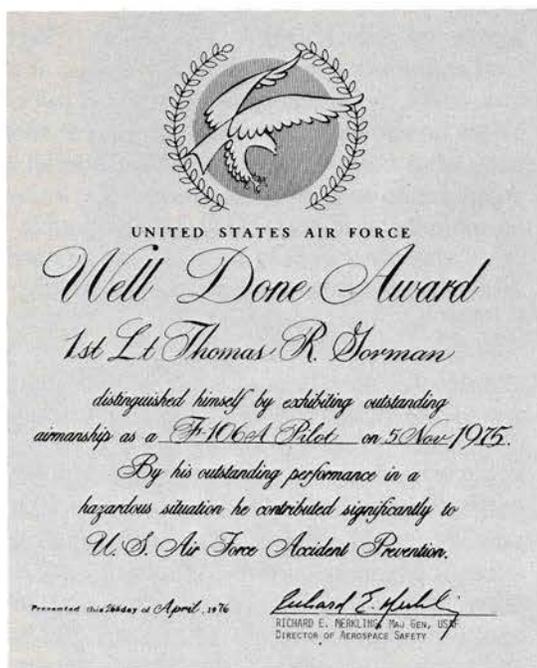
✓ Take a deep breath. Recent incidents involving compressed gases indicate a lack of quality control by commercial suppliers. One incident involved a compressed gas cylinder, thought to contain nitrogen, that actually contained pure oxygen. The bottle was color coded as a nitrogen bottle, but had an oxygen valve installed. An adapter was used to connect the bottle to an

air compressor. When the oxygen was induced in the oil-polluted environment, an explosion occurred. Another incident involved the use of a walk-around oxygen bottle. A crew member was utilizing the bottle for supplemental oxygen in an aircraft cargo compartment above 10,000 feet. After a few breaths from the bottle, he lost consciousness. An emergency descent was accomplished and the crew member was taken to the hospital where he luckily recovered. Investigation revealed that the walkaround bottle contained 90-92 percent nitrogen. Several other bottles were tested and also contained nitrogen instead of oxygen. Be aware of the possibility of contamination and insure that all cylinders are properly color-coded, marked, and that the correct valves are installed. (AFISC/SED)

High-Speed, low-level training routes — AFISC. Until something better comes along, EDUCATION is the best way to prevent midair collisions between general aviation aircraft and military aircraft on high-speed, low-level training routes. Several bases have launched local educational campaigns to make the general aviation community, especially the light aircraft pilots, aware of the routes. These campaigns have included: (1) posters showing the location of high-speed, low level training routes, and frequencies to contact or telephone numbers to call when checking if the route is hot; (2) visits to small airports within a 200-mile radius; (3) guest speakers at local civilian flying organizations and airport functions; (4) press releases on Air Force training activities; (5) films showing the hazards of high-speed aircraft and human visual limitations; (6) joint military/civilian aviation safety groups; (7) information letters distributed through the area General Aviation District Office (FAA); (8) fly-ins for local general aviation aircraft (AFR 55-20); (9) static displays to highlight the problem during base open house functions; (10) local television news features; and (11) luncheons for community leaders. Each area and situation was different and required imagination and innovation to get the word out. If you plan a similar endeavor, be sure the tone is one of mutual concern and cooperation rather than a warning, to stimulate acceptance of the problem and assistance from the general aviation pilots. (TIG/SED)

Additional duty safety training-AFISC. Safety staff members are usually augmented at the unit level by additional-duty safety people. There has been occasional confusion as to exactly what these additional-duty personnel are supposed to do and how they should be trained. Essentially, additional-duty safety people of each discipline should be qualified to initiate and operate safety program elements prescribed by the parent unit. In addition, they should be able to fill in and function effectively at the higher level if required. Training is usually conducted at the parent unit safety office and consists of: (1) an overview of the safety contribution to the unit mission; (2) self-study of safety regulations; (3) briefings on safety policies and programs; and (4) practical experience conducting parent unit safety activities. Most units provide some sort of initial orientation; however, the depth of training and staff emphasis varies widely. Rarely is any recurring training conducted. The value of recurring training has proven itself in other disciplines and safety training programs should be no different. (TIG/SED)

Have wheels, will travel. During the past year, a military weather advisory was issued for thunderstorms within three nautical miles of one of our southern bases. Twenty-two minutes later, a point warning was issued for thunderstorms/waterspouts with winds variable to 20 knots and gusts to 45. Following the military weather advisory, all flight line personnel were in the process of tying down equipment when the high winds dislodged and moved a 600-pound aircraft passenger loading stand from its parking spot. The stand traveled 300 feet across the open concrete ramp, through the ramp access point, and struck a parked aircraft. The stand did not have a braking system, but it was chocked fore and aft of the left rear wheel with standard aircraft chocks. Corrective action taken was to insure that flight line equipment without integral braking systems is stowed in hangars during adverse weather conditions. Natural phenomena damage cannot always be prevented. However, damage can be held to a minimum with a good severe-weather plan and enough advance warning to place it into effect. How does your unit stack up? (TAC/SED)



# WELL DONE



**O**n 5 November 1975, Lieutenant Thomas R. Gorman of the Massachusetts ANG, successfully "dead-sticked" a F-106A onto the 6,000-ft runway at Albany Airport in New York. For this accomplishment, Lieutenant Gorman received the ADCOM "We Point With Pride" award (See INTERCEPTOR, February 1976). He has subsequently been awarded the United States Air Force "Well Done" award by the Director of Aerospace Safety for his outstanding flying skill and good judgment. Again, our congratulations to a true professional!



1/Lt Thomas R. Gorman  
102 Ftr Intcp Gp

# THE WAY THE BALL

# Bounces

## ACCIDENT RATE

	ADC	ANG
1 Jan - 31 May 76	7.0	10.1

## ON TOP OF THE HEAP

MO	ADC	MO	ANG	MO	ANG
60	318 FIS McChord	79	141 FIG Spokane	34	107 FIG Niagara Falls
46	84 FIS Castle	58	144 FIG Fresno	27	102 FIG Otis
40	57 FIS Keflavik	41	142 FIG Portland	24	120 FIG Great Falls
29	48 FIS Langley	38	119 FIG Hector	23	177 FIG Atlantic City

**ACCIDENT FREE**

## CUMULATIVE RATE

ACCIDENTS FOR May	CUM TOTAL
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## BOX SCORE

RATE = MAJOR ACCIDENTS PER 100,000 FLYING HOURS

ALL RATES ESTIMATED

MINOR ACCIDENTS THIS PERIOD — 0

MINOR ACCIDENTS CUMULATIVE — 0

		ADC	ANG												
JET	CONV	7.3	10.6	20 AD	21 AD	23 AD	24 AD	25 AD	26 AD	ADWC	AFI	46	ANG		
F-101		67.8	0	/	/	/	/	/	/	1	/	/	/		
F-106		5.6	8.8	/	/	/	1	/	/	/	/	/	1		
F-4		0		/	/	/	/	/	/	/	/	/	/		
T-33		7.1	23.5	/	/	/	/	/	/	1	/	/	1		
T-37		0		/	/	/	/	/	/	/	/	/	/		
B-57		0	34.6	/	/	/	/	/	/	/	/	/	1		
EC-121		0		/	/	/	/	/	/	/	/	/	/		
OTHER		0	0	/	/	/	/	/	/	/	/	/	/		



MAINTENANCE  
ENGINEERING  
HQ ADCOM

## Bolts From The Blue



### F-106 LIGHTNING PROTECTION

*Editor's Note: We are indebted to Mr. J.A. Plumer of the General Electric Environmental Electromagnetics Unit, High Voltage Laboratory, Pittsfield, Massachusetts for contributing the following article.*

**A** lightning protection kit is being installed in all F-106A and F-106B aircraft. The main purpose of this modification, which is being performed in accordance with USAF Safety TCTO 1F-106-1130, is to keep lightning currents and voltage surges from entering and disrupting the aircraft's electric power system when the F-106 pitot boom is struck by lightning. These surges are believed to have caused two accidents involving F-106's within the past five years, and the kit will minimize the possibility of recurrences. Figure 1 is an example of severe lightning strike that occurred several years ago.

Without getting too technical, let's examine a "layman's definition" of what causes a lightning strike and its effects on aircraft with pitot booms.

A natural lightning flash is a rapid transfer of electrical charge by means of a long, high voltage spark between two charge centers. Flashes may occur between charge centers in clouds or in a cloud and the earth below. Once the voltage associated with a charge center becomes high enough, an electric spark jumps from it to the surrounding air and proceeds, in a series of subsequent steps known together as the stepped leader, towards another charge center of opposite polarity.

If an aircraft happens to be nearby, it may be struck by the approaching leader and serve, by itself, as one of the steps in the leader's path towards an ultimate destination. When the stepped leader has formed a complete path between charge centers, a rapid recombination of positive and negative ions occurs, creating the return stroke. The return stroke is a very fast-rising, high-amplitude electric current sometimes reaching a peak of 200,000 amperes, but more commonly generating about 20,000 amperes. The return stroke follows

the path taken by the stepped leader and thus, if an aircraft is part of this path, the stroke and any subsequent currents in the flash will enter, flow through, and exit the aircraft as they flow between charge centers.

Lightning strikes are always accompanied by a flash of light and usually (but not always) a loud, sharp report. Contrary to popular belief, if either the flash of light or noise occurs, the event is a lightning strike and not a "static discharge."

When fighter aircraft with radome-mounted pitot booms are struck by lightning, the pitot boom is the location most often hit because its sharp point attracts oncoming lightning leaders in a manner similar to the lightning rods found on roof tops. In fact, the pitot boom was struck in over half of the reported USAF fighter aircraft lightning strike incident reports on file at the USAF Inspection and Safety Center at Norton AFB.

Since radomes themselves are non-conductive, some sort of a "ground conductor" is usually provided in radomes to conduct lightning currents from the boom to the fuselage. In the F-106 this is a No. 12 AWG wire. Unfortunately, relatively little was known about aircraft lightning strikes at the time the F-106 was designed, so this ground conductor has insufficient cross-sectional area to conduct severe lightning currents without overheating. It has since been learned that very severe lightning currents can even vaporize and explode this size wire. Fortunately, strokes of this severity are rare, but a strike to the F-106 shown in Figure 1 several years ago did explode the ground wire inside its radome, destroying it and starting a fire in the forward equipment bay.

Since the present ground wire is inadequate to conduct all lightning

currents, some of the current may seek an additional path by sparking into the pitot heater and traveling through its power cord into the fuselage and the 115 VAC essential bus from which the heater is powered. Less severe lightning currents can be conducted by the existing ground wire and may not spark into the heater circuit, but still another less obvious problem results from the magnetic field which surrounds this ground wire when it conducts lightning current. This magnetic flux changes rapidly with the lightning current that produces it, and in accordance with Faraday's Law, induces a voltage surge in the adjacent heater circuit through which some of the flux passes. Laboratory tests have shown that this surge can be as high as several thousand volts, - enough to damage the aircraft's electric power system or other electronics equipment powered from it. Since these surges occur so fast, no protection is provided to the power system by the fuses or circuit breakers already installed in the aircraft. These do not operate until the surge has caused a sparkover to ground somewhere in the aircraft's electric power system, and by this time the surge has also reached the vulnerable electronics equipment. In another strike to an F-106 three years ago, a lightning-induced voltage surge in the pitot heater circuit is believed to have disabled flight instruments and communications gear also powered from the essential bus, resulting in loss of control and a fatal accident.

Thus, the radome-mounted pitot boom and its heater circuit are an "Achilles Heel" or direct pipeline through which dangerous lightning surges can enter the heart of the aircraft's electrical system. These problems are not unique to the F-106 and, as might be expected,

have also appeared on every other fighter aircraft with a radome-mounted pitot boom, with similar consequences. At the time these aircraft were designed the problem was not recognized and no military specifications or standards existed for lightning protection of such systems. By now, the problem is understood and adequate protective measures are being incorporated directly into designs of new aircraft such as the F-15 and F-16.

The TCTO 1F-106-1130 lightning protection kit, which is intended to provide protection for the F-106, consists basically of a larger diameter (No. 8 AWG) ground wire capable of safely conducting even the most severe lightning currents, a varistor to be installed inside the pitot boom to prevent breakdown of pitot heater insulation and the GE M-185 Lightning Suppressor. A varistor is a device whose resistance decreases as the current through it increases, so it serves to limit the lightning surge voltage appearing across the pitot heater insulation to a level insufficient to cause breakdown, thereby keeping the heater operational during and after the stroke. The M-185 lightning suppressor, shown in Figure 2, is installed in series with the pitot heater

circuit and mounted in the radome adapter ring.

Basically, the M-185 suppressor inserts a pair of inductors in each power wire to choke lightning current out of the heater power circuit and force them to flow in the improved ground wire where they belong. The suppressor also has a varistor to suppress the induced voltage surge (which will still occur in the heater circuit) and a third inductor to further attenuate the remaining surge voltage which the varistor does pass through.

A Teflon insulating sleeve is also provided in the kit, to be drawn over the heater power wires to minimize the possibility of sparking between these and the adjacent ground wire.

The complete lightning protection kit has been thoroughly tested in the laboratory with simulated lightning strikes of over 100,000 amperes, and should provide much improvement in F-106 flight safety when struck by lightning.

Basically, in "layman's terms," this is how the M-185 Lightning Suppressor works to defeat a lightning strike on a F-106 pitot boom. Thunderstorms, however, present other hazards such as hail and extreme turbulence and should still be avoided whenever possible.

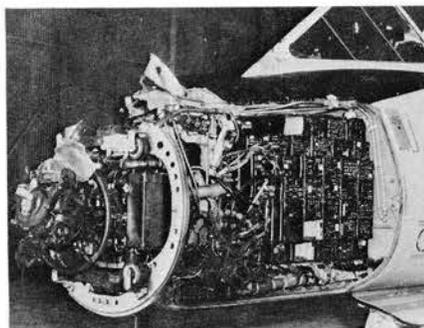


Figure 1.  
F-106 Lightning Strike Damage

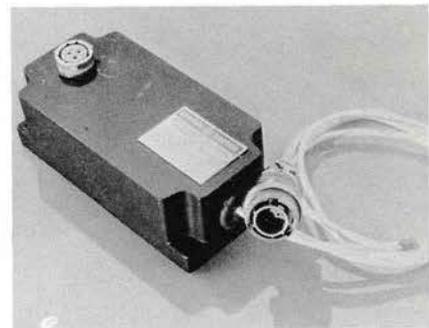


Figure 2. General Electric M-185  
Lightning Suppressor

Summer time is fun time. It is a great time to get your body in trim with some outdoor exercise. Whatever your play pleasure, be it swimming, boating, tennis or cycling, take it easy at first. Play it safe by starting out slowly and then work up to increased exercise. That way you can insure that you'll have fun in the sun.

*Rhonda*

