TAC ATTACK

NOVEMBER 1973

HOT ROCKS & COLD WEATHER Pg. 4

for efficient tactical air power

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Tactical Air Command

CURRENT INTEREST

DEPARTMENTS

TACRP 127-1

TAC's NEW COMMANDER

General Robert James Dixon assumed command of Tactical Air Command on 1 Oct 1973. In addition to his responsibilities as Commander of TAC, General Dixon also serves as Commander in Chief of U. S. Air Forces for both the Atlantic and U. S. Readiness Commands.

General Dixon was born in New York City on April 9, 1920. He was graduated from Dartmouth College in June 1941 with a bachelor of arts degree in literature. In November 1941 he entered pilot training in the Royal Canadian Air Force (RCAF) and in November 1942 was commissioned a Pilot Officer (second lieutenant). He then graduated with a navigator rating from the RCAF Astro Navigation School. After completing Spitfire training at Dyce, Scotland, he was assigned to the 541st Royal Air Force Photo Reconnaissance Squadron at Benson Air Field, England.

In September 1943 General Dixon was transferred to the U. S. Army Air Force and assigned to the 7th Photographic Group, Eighth Air Force, European Theater of Operations (ETO). In 1944 General Dixon assumed command of the 14th Photographic Reconnaissance Squadron, 7th Photographic Group, which had Mark XI Spitfires, P-38s, and P-51s.

He flew missions in four different aircraft for a total of 235 combat flying hours in 65 missions. He was shot down by flak while doing reconnaissance of the oil refinery at Merseburg, Germany. He was captured and remained a prisoner of war until released by U. S. Forces in May 1945.

After hospitalization General Dixon served at Will Rogers Field, Oklahoma City, Okla., and Rapid City, S. Dak. He was an instructor at the West Point Preparatory School in 1947 and then was assigned as group and wing personnel officer for the 82nd Fighter Wing, Grenier Field, N. H.

From November 1948 to 1953 General Dixon served in the Directorate of Personnel, Headquarters Strategic Air Command (SAC). He next served 11 months in Korea with the 4th Fighter Interceptor Wing as wing inspector and then Commander of 335th Fighter Interceptor Squadron. He completed 28 combat missions before the Korean armistice.

General Dixon returned to the United States in 1954. He was assigned to Headquarters U. S. Air Force and subsequently served as Assistant to the Deputy Chief of Staff, Plans and Operations, for National Security Council Affairs. In this capacity he was Air Force action officer with the Joint Chiefs of Staff, the State Department, and the National Security Council.

He graduated from the Air War College in 1959 and was assigned to Supreme Headquarters Allied Powers Europe (SHAPE), Paris, France, as Staff Missile Planner. Reassigned to the Pentagon in 1962, he served as Assistant Deputy Director for War Plans and later as Assistant for Joint and National Security Council Matters, Deputy Chief of Staff, Plans and Operations. In this latter capacity, General Dixon was the Air Force planner for Joint Chiefs of Staff matters.

In September 1965 General Dixon was assigned to the 45th Air Division, Strategic Air Command, at Loring Air Force Base, Maine, as Division Commander with B52/KC-135 units at Loring AFB, Dow AFB, Harmon Air Base and Goose Air Base. From July 1967 until July 1969 he was assigned as Assistant Deputy Chief of Staff, Personnel for Military Personnel, and Commander, USAF Military Personnel Center, Randolph Air Force Base, Tex. While in this assignment, he received the 1969 Eugene M. Zuckert Management Award.

In July 1969 General Dixon was transferred to the Republic of Vietnam as Vice Commander, Seventh Air Force. He flew 36 combat missions during this tour. On 1 August 1970, General Dixon was promoted to lieutenant general and assumed the duties of Deputy Chief of Staff, Personnel, Headquarters, U. S. Air Force. He served in that position until 1 October 1973, at which time he was promoted to general and assumed command of Tactical Air Command.

His decorations and awards include the Distinguished Service Cross, Distinguished Service Medal with two oak leaf clusters, Legion of Merit with one oak leaf cluster, Distinguished Flying Cross, Bronze Star Medal, Air Medal with eleven oak leaf clusters, Purple Heart, and the British Distinguished Flying Cross. He is a command pilot with more than 5,500 flying hours.

General Dixon is married to the former Lamana Kelly of Montgomery, Alabama. They have four children: Thomas F., Roland C., Mary L. and Kelly L.

Hot Rocks and Cold Weather

by Lt Col Richard C. Jones
HQ TAC/DOVX

All aircrew members have read, scanned, and perused numerous articles and stories which document the tales and woes of flying machines and of the many problems associated with flying these machines during the cold winter months. We have all, at one time or another, sat back while reading these documents and said, "Gosh, what a dingbat," "Damn, that was a dumb decision," "Does this guy really fly?," or "You've got to be kidding me!"

Now if you're a Hot Rock crew member, you can immediately identify all the inadequate skills the unlucky crew member demonstrated while being involved in an accident or incident, condemn him and then very rationally state under your breath, "What a clod; this surely couldn't happen to me."

It isn't essential at all for a Hot Rock to reflect about the current poop he's read or heard regarding winter experiences, or the high accident potential of cold weather operation, or even the trend analysis provided by his squadron and wing stan/eval people. This is not enough evidence for a Hot Rock; he's from the old school where "the worse the weather, the greater the challenge!" Hot Rock's philosophy is: "How can a guy win any money on the range or establish the proper hero image with others in his unit unless he takes a chance or two with excessive crosswinds or by cracking minimums occasionally?" Sure, Hot Rock says he knows about the problems associated with winter weather. "Winter complicates our existence; a body can't get to Happy Hour at the club so easily; you can't put the top down on your sports car and let your scarf fly; walking into Operations gets your cigar soggy and makes it hard to light; and worse, there's nothing really interesting to watch at the swimming pool!"

Now wait a minute, Hot Rock, let's try and put things into a more meaningful perspective! Let's look at some real flying problems that have occurred because of winter weather. In fact, I would like to interview you and have you give us your views regarding some incidents and accidents that were serious demonstrations of poor preparation, lack of proficiency and, perhaps the most serious, bad judgment!

"Hot Rock, what do you think about this one pilot who got into severe icing? In fact, this guy was iced-over so bad he couldn't see out of the cockpit. He made two missed approaches and finally ejected when the engine quit from fuel starvation."

Hot Rock: "I could have gotten it on the ground. The pilot flying that machine must have had weak eyes."

"I see. Well, what about another incident where a tactical pilot landed his bird on an icy runway; his approach was high on the glide slope, hot on airspeed, and the runway was slick. Off the end he goes, bending the airframe and collapsing both the nose gear and his ego."

Hot Rock: "Obviously this pilot was a slow thinker, unaware of the type of braking action necessary when landing on a slick runway. Anyway, just because the command trend analysis program identified this particular area of flying — too high and hot during instrument approaches — as an adverse trend, it ain't necessarily so. Good pilots like me thrive on this type of challenge."

"Well, Hot Rock, what do you think about the T-39 pilot who tried to bust minimums trying to get home? He hit three miles short of the runway, destroyed the aircraft, killed himself, the co-pilot and three passengers."

Hot Rock: "Well, this pilot must have been a low-time guy. Experience will prove that when attempting an instrument approach when the weather is below minimums, if you plan and purposely keep the bird a bit high on the glide and the airspeed on the plus side, you'll be O.K. I've flown at least a dozen below-minimum approaches and the weather is not going to hurt you. Those GCA controllers sure get upset when you stay high on the glide slope, though."

"O.K., Hot Rock, have your fun. You should have a great deal of respect for these GCA guys — they're always

HOT ROCKS AND COLD WEATHER

available to you when you really need them! Besides, it's not very funny when you're trying to bring in a sick bird with 100-and-a-half in blowing snow."

"Hot Rock, you certainly can analyze a problem. You are probably an expert in other associated weather problems, too; some that don't involve flying the aircraft. What do you think about a flight mechanic refueling a big bird and walking on an icy wing? This one slipped off, crushed his spine and paralyzed himself from the waist down."

Hot Rock: "I can tell you what I'd do, I'd court martial him for not wearing his parachute! In fact, this reminds me of some experiences I had when I was enlisted. We used to wait until a guy got up high on a maintenance stand. Then we'd kick the brake off and give it a big shove. Boy! We used to get some of the weirdest yells, but most guys learned fast how to hold on. Besides, that's what they pay those guys to do — if he can't preflight the bird without busting his bippy, that's his problem."

Gee, Hot Rock, you certainly get right to the heart of the problem. It certainly is enlightening to discuss winter safety with a crew member like you." End of interview.

All Hot Rock types have a reputation for being all speed and no direction. However, it is rewarding and comforting to know that we don't have any Hot Rock crew members in TAC. Nor do we have crew members who would regard trend analysis, accident reports, or flying safety bulletins with contempt, complacency, or a cavalier attitude — right?

Wrong! Unfortunately we do have our share of Hot Rock crew members; that dangerous minority who visualize themselves as select individuals and attempt to create an image by overextending their capabilities and those of their expensive weapons systems. We do have some guys who are sure "this couldn't happen to me," or demonstrate an alarming complacency regarding crew coordination, checklist requirements, flight planning, briefings, approach planning, and/or trend analysis. They scoff at past experiences or significant findings of accident/incident reports. With this type of attitude, add winter weather and you have a real "smokin' hole" candidate.

This know-it-all attitude is a big challenge and can be overcome only if crew members are made to realize that common sense and aircrew professionalism are basic considerations. In addition, commanders must provide proper supervision and management techniques to insure that the dangerous attitudes of guys like Hot Rock are stamped out.

It's quite obvious to see the fallacies of the Hot Rock crew member and the problems he may pose to the flying safety program and the successful completion of the mission. Those of us who do see the potential hazards while flying during winter months become deeply concerned. In fact, our concern goes even farther. Since experience shows winter flying to be more hazardous than flying during the summer months, we're providing a self-inspection check. We're trying to cover all types of aircraft, so some of the items may not apply to you — check the "All-Weather Operations" chapter of YOUR Dash One.

WINTER FLYING CHECKLIST

A. Flight Planning
   1. Check for proper personal and survival equipment.
   2. Check enroute, terminal, and alternate weather.
   3. Check enroute, terminal, and alternate NOTAMS; determine if NAVAIDS are operational.
   4. Review weather forecasts for icing, turbulence, or other hazardous flight conditions.

B. Pre-Flight
   1. Insure frost, snow, and ice are removed from aircraft.
   2. Pre-heat engines if required.
   3. Pre-heat cockpit.
   4. Check fuel drains for water and presence of ice.
   5. Check for ice on pitot tubes and static ports.
   6. Check gear struts for presence of ice.
   7. Check closely for fuel, oil, and hydraulic leaks — cold weather means rapid expansion and contraction of fluid lines and connections.

C. Start/Taxi/Run-Up
   1. Check cockpit/cabin or flight compartment for heat.
   2. Check operation of anti/de-ice system.
   3. Review cold weather starting procedures and limitations.
   4. Exercise caution when taxiing and during engine runup — especially on icy surfaces.
   5. Direct ground crewmen to observe wing flap or other system operations.
   6. Remember that painted areas on runways and taxiways are more slippery than non-painted areas.
   7. Allow adequate warm-up of flight instruments, radio/NAVAIDS, and radar in accordance with flight manual.
   8. Maintain extra clearance from obstructions during brake and/or reverse checks — watch for skids.
   9. Insure proper oil temperatures prior to high engine power settings.
   10. Watch for creeping during engine run-up; run up symmetrical engines if required (multi-engine).

D. Takeoff
   1. Turn on anti and de-ice equipment prior to takeoff, in accordance with your Dash One.
   2. If necessary, use asymmetrical power to maintain directional control on an icy runway.
   3. Recycle landing gear and flaps, if in accordance with your flight manual.
   4. Watch for structural icing during climb-out.

E. In-Flight
   1. Maintain engine temperature within limits, for anti-ice operation.
   2. Use carburetor heat, if applicable
   3. Use Pilot-to-Metro Service and enroute radios for significant enroute and destination weather — and don't forget to give PIREPs if you encounter weather hazards.
   4. Be aware of alternate requirements/facilities.

F. Descent
   1. Use additional power on reciprocating engines to prevent cooling. For jets, keep the RPM up to insure adequate compressor bleed air.
   2. Consider the use of flaps and gear, if required, to descend.
   3. Turn windshield heat on; use defrosters.
   4. Use ATIS, if available, to review current weather and landing information.
   5. Determine type of approach to be flown and your TAC-established weather category minimums.
   6. Take note of any significant terrain in the landing area.
   7. Review approach plate for the following:
      a. Decision height, minimum descent altitude.
      b. Emergency altitudes.
      c. Missed approach/go-around procedures.
   8. Review approach and landing lighting.
   9. Determine crosswind component.
   10. Determine recommended rate of descent from instrument approach procedure chart.
   11. Determine runway conditions to include length, stopping distance, and RCR.
   12. Consider increasing airspeed if ice has accumulated on aircraft.
   13. Use minimal reverse thrust initially (if applicable) if ice is on runway.
   14. Consider the possibility of hydroplaning.
   15. Be aware of nose wheel steering capabilities and restrictions.
   16. Slow to taxi speed before turning off runway and taxi with caution.

G. Shutdown
   1. Insure proper chocks or sand bags are used for slippery surfaces.
   2. After wheels are chocked, release parking brakes.
   3. To prevent frosting of windows, whenever practical leave cockpit or flight compartment window open.
   4. Dilute reciprocating engines if required.

If you are a professional aircrew member, the above checklist will contain some valid and thought provoking items. If you are a Hot Rock, don't pay any attention to this. You may want to get the recognition as TAC's next winter flying statistic.

SPO COR

A-7D PASSES IN REVIEW

by Maj Bob Lawler

As of this writing, TAC has had 22 major aircraft accidents in 1973, seven of which have been A-7 aircraft. Not too shining for A-7s. Three of these accidents were pilot related. The first was caused from fuel starvation. The pilot did not recognize an external tank fuel transfer problem until it was too late to recover the aircraft. He ejected safely. The second loss occurred during ACM when the aircraft departed normal flight while flying in the fighting wing position. Clouds were a factor. The pilot was disoriented and ejected in a steep dive above 10,000 feet. Had the pilot remained in the aircraft a few more seconds, he might not have survived. The third occurred on a two-ship nite-owl mission after multiple passes. The pilot flew into the ground while attempting recovery from a low angle bomb run.

Four losses were due to engine or engine associated problems. Number one was lost when the engine flamed out while waiting to strike a target. An incorrect bearing had been installed, resulting in the failure of the high speed gear box, which caused the engine to surge and then flame out. The pilot was recovered safely. Number two happened on a cross-country flight. The pilot indications were engine vibrations followed by RPM decay and subsequent flameout caused by the number six bearing labyrinth air seal. This failure caused molten metal to clog the oil system, which resulted in oil starvation. The pilot got out okay. Number three occurred at a deployed location. The engine failed after the pilot noticed zero oil pressure. Oil loss was due to seal failure in the number five bearing. The tragedy of this accident was the loss of the pilot because the seat didn't fire.

Number four was lost at night when the engine flamed out. Investigation determined that a failure occurred within the high speed gear drive. Number two and three roller bearings were found flat and number three bearing had a fractured inner race due to fatigue. The pilot was successfully recovered, but had a fractured arm.

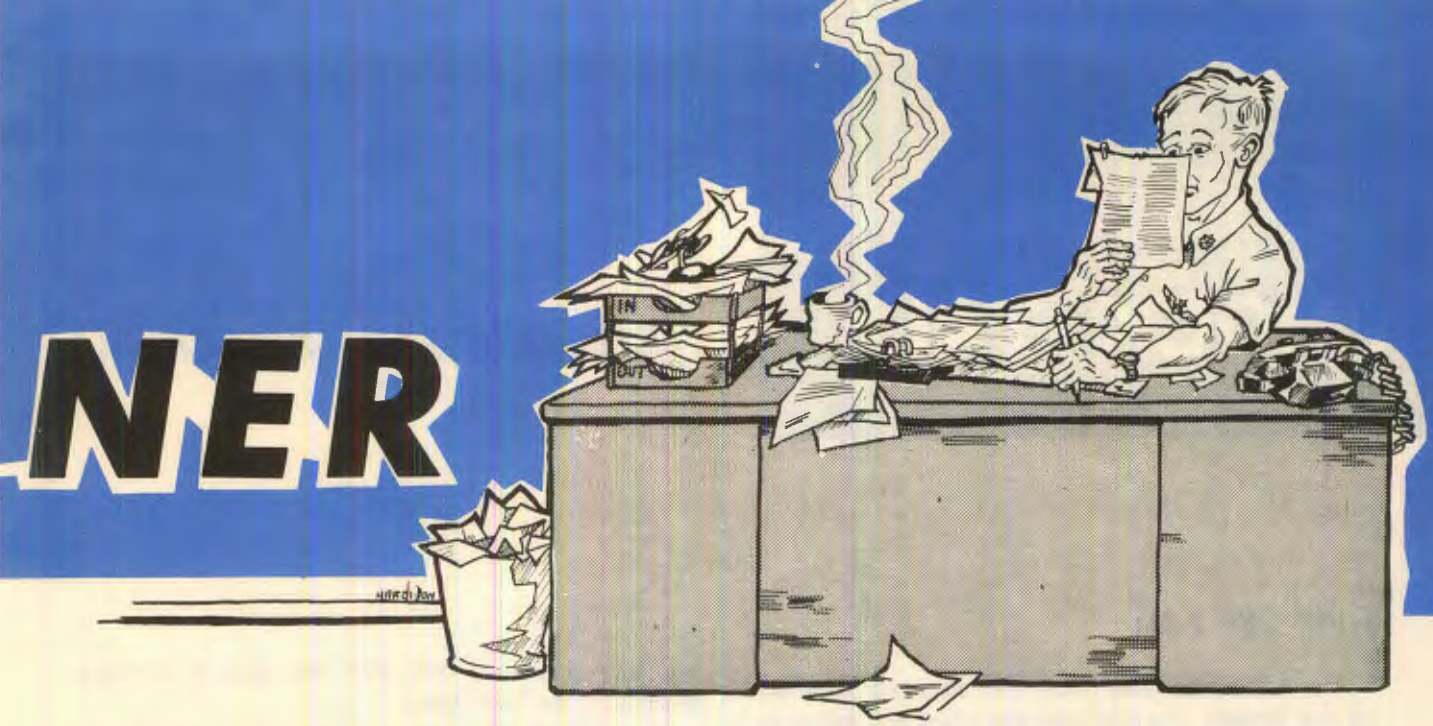
In a nutshell, that is a summary of our seven A-7D losses. As you may have noted, there has been only one fatality in which the pilot attempted to eject within the envelope. With respect to the engine, no trend in failures has been established such as the failures of the spacer in the HP turbine section in 1972. In the last A-7D accident, the engine had only 309 hours and the integrity of the engine had not been broken since factory delivery. Loss of oil was not considered a factor. You can understand that it's difficult to come up with fixes on an engine when no trend exists. Meanwhile, keep an eye on the gages, listen for unusual engine noises, and be prepared to take the appropriate emergency actions.

EJECTIONS

by Maj Al Mosher

Our latest ejection experiences have been under relatively controlled conditions; however, injuries resulted which might have been prevented had the aircrew been in an optimum position at ejection and at parachute opening. The basic elements of a good ejection body position are well known, but there is one that is not — and that is the position of the hands and arms. For instance, if a pilot has his right hand on the stick when he ejects, the "G" onset as the seat leaves the aircraft may cause his right arm to bounce off his right leg. It is highly probable that the arm will flail to the right, not only injuring the arm, but also adding to the drag on the right side of the seat. As if the injury weren't enough, the added drag causes the seat to spiral during its upward vector.

At man/seat separation there is a good chance the pilot will have his back to the direction of flight and the parachute may feed out in interesting ways. One way it can deploy is under a flailing arm; another is between the lower extremities. At parachute canopy opening, the force is not taken up by the chute harness, but rather by the particular part of the body with which the shroud lines/risers come in contact. If possible, let go of the pole and make sure you have good arm position prior to starting the ejection sequence. Your local life support officer can give you the details for your specific aircraft.



GUEST SPO CORNER

IMPROVED FLIGHT SUITS

by Maj Jim Downey
TAC/DOXBL/Life Support, Langley AFB, Va.

Here's some news for you guys who have been complaining about "heat build-up" in Nomex flight suits. As you all know, the Nomex flight suits now being worn have been credited with saving several lives even though they have only been in service a relatively short time. Don't get the idea that complaining about an item of life support is frowned upon. Quite the contrary, because the only way flight suits and other items of life support equipment are improved is through comments and suggestions from aircrew members. After all, aircrew who wear the equipment should certainly have the loudest voice in passing judgment on the gear they are equipped with. The Nomex flight suits and other similar fabrics can be viewed as only a first step toward fire resistant clothing which will make present clothing as obsolete as knee boots, leather jackets, and riding breeches. The currently available suits are good and have saved lives but the fabric doesn't have adequate ventilation; nor does it absorb body moisture to aid in cooling. Although small knots (called pilling) form on the surface of the material after being washed a few times, these knots do not interfere with the fabric's fire-resistant properties. While we're on the subject of pilling, some people mention trying to shave them off, others use the scratch and pick method. Here are a few ways to help prevent this condition or at least slow its formation down. Take your name tag off (if you use the one issued with the suit), and use the back side with the small hooks as a brush. It will hook and pull off the "knit knots" and restore appearance. Or better yet, turn the suit wrong side out for washing and use minimum time in the agitation cycle, then hang to dry. (Hanging or drip drying is preferred over spin or tumble dry.) Check with your Life Support types. They may be able to get your suits dry cleaned by base contract which really helps the problem.

Now for the good news! Improved fabrics are now available and have been made up into suits which are at several TAC units for a comparative flight suits wear test (TAC Project 73A-084T). The new suits have been tailored from two types of fabric and the test is to determine which brand most adequately fulfills the TAC aircrew members' needs. The new suits are intended to give additional fire protection (fire resistant to 1000 degrees Fahrenheit versus the present 800^{o}F suit) in conjunction with improved comfort and wear capabilities. The testing is being conducted in various climates by aircrews of different aircraft types. The test will be completed this month. Hopefully, the test will result in improved suits being introduced in the near future.

So — the "heat build-up" in the current Nomex suit may bother you, but it's better than the alternative.

CHOCK TALK ...incidents and incidentals

chock talk ..incidents and incidentals

A POP TOP F-111

The F-111 crew chief raised both arms and motioned his bird forward. The pilot advanced power and started to roll. The crew chief gave the pilot a turn out of the chocks, and the F-111 rolled down the taxiway toward the active. While taking one last look at his bird prior to going back into the line shack for a quick cup of coffee, the crew chief did a double take. As he watched, the aft portion of the overwing fairing assembly popped up abruptly about four feet above the wing, then settled back down. The crew chief hot-footed it over to the expedite vehicle and relayed the incident to maintenance control, who dispatched personnel to stop the airplane. The F-111 was prevented from taking off with a failure of the overwing fairing cable assembly.

Now THAT'S safety in action!

GREASE IS A LUBRICANT-SOMETIMES

Extracted from Talon Service News

Antifriction bearings are the heart of every rotating object or mechanical movement of any aircraft. Basically, these lubricants are divided into two categories; oil and grease. Oil is by far the best lubricant for ball and roller bearings under heavy loads, for long periods, under the extreme temperatures. However, grease has one important advantage – it doesn't require a closed lubricating system.

Grease, a combination of oil and soap or silicone additive, is still a necessary element in bearing protection and because of this, scientists continue adding new types of grease to an already long list. Here lies the reason behind the rule that forbids mixing of different types of grease in the same bearing. A recent bearing failure was attributed to mixing two different types of greases. If you are required to service a bearing, thoroughly clean it first and then service it only with the type of lubricant specified in the Tech Order!

A couple of more hints on increasing bearing life: do not overservice, and keep your grease clean.

The normal bearing is about one-third full when properly greased – an excessive amount will churn and create excessive friction and overheat the bearing.

An open grease can, disassembled grease gun, dirty fittings and working areas may all contribute to the creation of one of the world's best abrasives – and failed bearings. Use only clean, lint-free rags for wiping bearing areas and to insure clean grease; use only the pressure method for servicing, if possible. Remember, the way you handle that greasy kid-stuff can add many hours to bearing life – and maybe many years to our aircrews!

TRAVEL PODS

Most fighters and trainers have some means of carrying crew members' luggage. Some pods are converted napalm cans, others modified fuel tanks, and a few have special pods designed for them. Regardless of your type of aircraft, we'd be willing to bet that the travel pod can be installed improperly. If it falls off or comes open in flight, you're probably going to have an irate crew member discussing the situation with you. Also think of the other possibilities. That pod just might not land in a remote, uninhabited area. Or, as in the case of an F-4 we read about recently, the pod was installed improperly and got in the way of the landing gear. Fortunately, it wouldn't let the gear retract. Think of the consequences if the pod had shifted in flight and hadn't let the gear come down! Just as in every other operation around an airplane, there's a right way and a wrong way to install travel pods. Installed improperly, they can be a hazardous and sometimes lethal item.

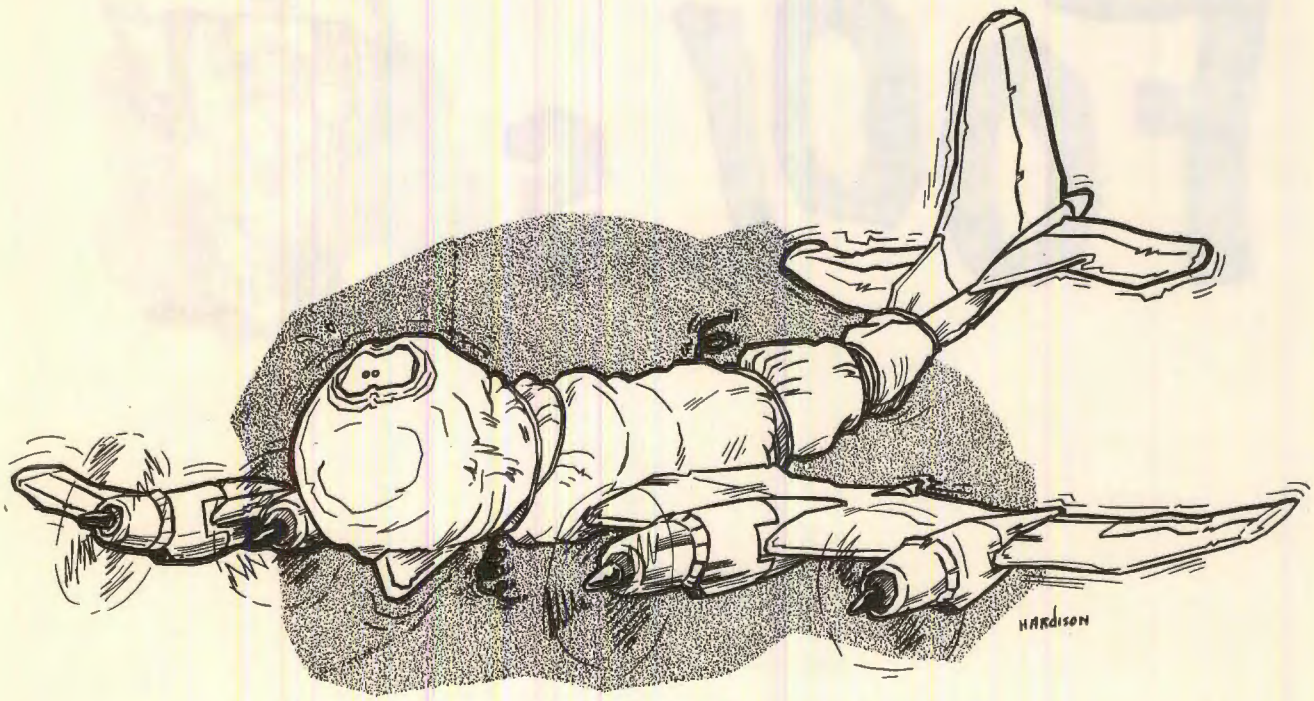
with a maintenance slant.

BALING WIRE ?

Back in the infant days of aviation, it was not at all uncommon to see an airplane patched up with a little glue and baling wire. The repairs, or at least the tales about them, seemed to last rather well. We've all heard many war stories about the "chewing gum and baling wire" mechanics who could fix anything.

Well, recently a KC-97L blew both left main tires during a simulated two-engine out landing. A section of sheet metal from the gear door assembly was damaged, a not uncommon occurence in incidents of this nature. The wheels and tires were replaced and the aircraft was cleared for a one-time gear-down flight back home. Sometime during the flight, a piece of sheet metal from the gear door assembly fell off the aircraft. Investigation revealed that it had been safety wired to the gear door assembly.

We thought the baling wire had disappeared along with goggles, leather helmets, and scarves. This unit has decided that they won't let anything like this happen again. They are no longer allowing a one-time flight during future circumstances involving landing gear sheet metal damage until a thorough investigation is made by Quality Control. Does your unit do the same?



TIGERS AND FOOLS

by Major Jack Drummond
23 TFW/SE, England AFB, La.

How many times have you seen the following statement? "Captain Doe, because of his 'can do' attitude always accomplishes the mission in spite of aircraft malfunctions, weather, ground fire, and lack of proper crew rest." I am sure that Captain Doe is to be commended for his efforts, but we should examine his 'can do' attitude from a 'common sense' viewpoint.

Was the mission important enough to take an aircraft that was not operational in all systems? The A-7D is a much more complicated aircraft than most of us have flown in the past. I sometimes wonder if all of us know, without a shadow of doubt, from which systems we will accept degraded performance and how to operate the aircraft under the degraded performance conditions. The 'can do' attitude is also a factor in maintenance operations. When a unit is launching 70 sorties a day and the number of personnel available only equates to 50 sorties a day, someone is cutting corners in order to launch the sorties. This corner-cutting operation can result in a serious situation developing for Captain Doe, most probably at a time when he already has something else to do.

The 'can do' attitude and bad weather have been a fatal combination since the days of the Wright brothers. Some of us can remember with sorrow the story of a good friend dropping down beneath the clouds to check weather in the target area and we can note that the good friend never came back up on top to tell us what the weather was. Other examples of this combination can be labeled get-homeitis, the X-country over-the-weekend trick, TDY, or 'can do' attitude.

"In spite of extensive ground fire and with no regard for his own personal safety, Captain Doe was shot down on his fifth pass on the suspected tree park." Does that ring a bell? Was the target worth the risk of an aircraft and crewmember? It's doubtful, and yet many of us can remember a similar story.

In these days of transitioning into new aircraft, trying to get our unit into combat ready status, paperwork, additional duties, etc., something has to give and what usually gives is AFM 60-1 — crew rest. We all know that we can extend ourselves and still perform at our normal level of proficiency for a short period of time, but we cannot do it over extended periods and still get away with it. Something suffers and that is usually reaction time, ability to reason, and judgment.

I don't mean to put down the 'can do' attitude, but many of us forget that it must be tempered with judgment. In my mind, the 'common sense' approach to safety is the judgment side of the problem. Our job is mission accomplishment through proper use of the managerial techniques called efficiency and effectiveness. Safety equals efficiency in mission accomplishment. If the 'can do' attitude causes needless loss of personnel or equipment, that is inefficiency and the common sense aspect has been violated. It has been said that only in flying will an individual accept high risks that far outweigh an anticipated gain. The following quote is taken from the Navy APPROACH of December 1972 and I hope that all 'Flying Tigers' will do a little self-analysis to determine the proper category in which they should be classified and to determine if they can use common sense in their approach to daily performance of duty.

"A tiger knows the limitations of his aircraft, and can make it perform to the extent of these limits.

A fool either doesn't know the limits or tries to get 'just a little more' than the book allows.

A tiger knows his personal limits and operates within them.

A fool figures he can push himself a little more and really show everyone what a tiger he is.

A tiger can take an (OR) aircraft and perform a mission to perfection.

A fool will take a marginal aircraft and try to do the same because he thinks he can hack it.

A tiger knows the rules and regulations and while observing them, gives a professional performance.

A fool feels he has to break rules and regulations to show what a tiger he is.

A tiger is not a fool, but . . .

A fool usually thinks he is a tiger."

EMERGENCY SITUATION TRAINING

F-100

by Capt Wiley E. Greene
FSO, 152TFTS, Ariz ANG
Tucson IAP, Arizona

SITUATION: You're Number Two in a four-ship gaggle and making a wing takeoff. It's one of your normal type takeoffs — only 2-¼ inches out of PERFECT position. The Leader nods his head for gear retraction and you neatly lift the gear handle. It readily becomes apparent that something is wrong because your Leader gradually pulls away from you. Pick an option:

OPTIONS: A. The Leader lit a rocket.
B. You flamed out.
C. The gear did not retract.
D. It's VFR and airplanes can't fly VFR.

ANALYSIS: Back in the days of zero launch (that's when we got pushed off of semitrailers, for you young heads), Option A might have been valid, but not any more. Option B is possible, but not likely. Option D has more truth than fiction but let's pick C.

It's a simple enough problem, but what are you going to do? That other element is going to be flying up your tailpipe right shortly so you can't dilly dally.

The first thing to do as you check to make sure the engine is still working is to make a telephone call and let everybody know that the situation has departed from the norm. Restricting your airspeed to gear limit would be nice (removing gear doors in flight is not in the T O). And leaving the flaps where they are is also a good idea ("C" drivers have been doing that for years). As you climb to a safe altitude (Remember the Heavy that flew into the ground while the crew tried to get a safe nose gear indication?), there are two areas of interest — electrical and hydraulic.

Electrically you check to see that the primary bus is hot and that those little old circuit breakers, seventh and eighth down from the top on the left elbow side, are in. If one or both of them is popped, I would suggest that you put the gear handle down before you reset a circuit breaker. And leave it down unless your mission is of such importance that you gotta go.

If everything is cool electrically, then snap a glance at utility hydraulic pressure. If the needle is bouncing around nothin', then put the gear handle down and steel yourself for a Dash One, Page 3-41 recovery — no speed brakes, no nose wheel steering, blow the flaps down, and make good your emergency braking technique. Most of us have gotten used to losing hydraulics, so if you checked hydraulics before electrics, that's OK.

The Book says "Land as soon as practical" and it's a good idea. I've had residual hydraulic fluid get hot enough to scorch the tape that identifies fluid lines. But don't get in so much of a hurry that you put yourself into deeper trouble. While flying, a cool head is better than Hot Pants.

TACTICAL AIR COMMAND

AIRCREWMEN of DISTINCTION

CAPT SOKOL

1LT GALLOP

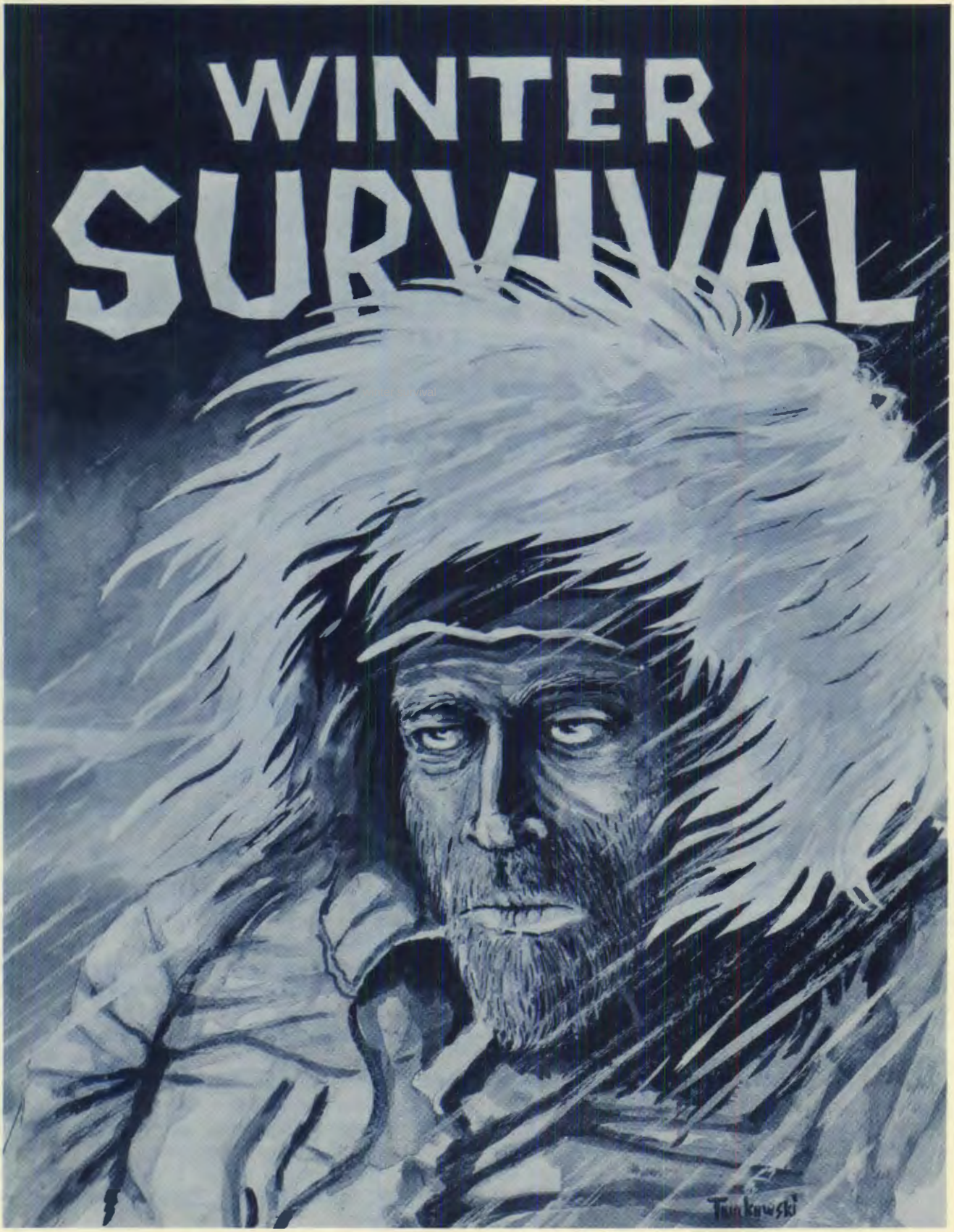
Captain Thomas C. Sokol and First Lieutenant Wesley W. Gallop, 4435 Tactical Fighter Replacement Squadron, 35 Tactical Fighter Wing, George Air Force Base, California, have been selected as the Tactical Air Command Aircrewmen of Distinction for September 1973.

Capt Sokol, as instructor pilot, and Lt Gallop, as combat aircrew trainee, were flying as number three in a four-ship of F-4Es on a tactical ground attack mission. On arrival at the range, the flight accomplished a pod roll-in, and Lt Gallop used afterburner to stay in position. After bomb release, Lt Gallop brought the throttles out of afterburner and both engine overheat lights came on. Lt Gallop notified Capt Sokol of the emergency and reduced both throttles to idle. The number four aircraft confirmed a fire in the number one engine and sparks from the number two engine. Lt Gallop climbed to 17,000 feet and proceeded to the nearest suitable landing field, with lead chasing him. The number one engine was shut down to reduce the intensity of the fire, and number two was kept at a low RPM during descent.

A straight-in, one-half flap, single-engine approach was made, with airspeed on final held at 180-190 knots to enhance safe ejection in the event the fire intensified. A successful landing and barrier engagement was made.

Investigation revealed that the number four fuel cell had ruptured, spilling fuel into both aft engine bays.

Capt Sokol and Lt Gallop displayed exceptional skill, excellent crew coordination, and good judgment in overcoming this serious inflight emergency. Their timely actions prevented the loss of a valuable aircraft and certainly qualify them as Tactical Aircrewmen of Distinction.


WINTER
SURVIVAL
Tuszkowski

Last winter we talked about the effects of heat loss in a winter survival situation, and what you could do about it. Fortunately, we in TAC have had very few instances in recent years where winter survival was necessary. However, if you fly airplanes (or drive your car out in the country) in cold weather, you're faced with at least the possibility of a survival situation.

There's an old cliché that "experience is the best teacher." If you can't have the experience yourself, then all you can do is learn from the experiences of others (another old cliché).

The following is an outline of experiences compiled by Richard A. Howard, PhD., for the Air Force Environmental Information Division. The records used to compile this information are from the crashes of 268 aircraft. Personnel involved in these episodes number 641, of which 480 either survived or their stories could be reconstructed from diaries or later investigations. The remaining 161 were either killed in the crashes or are still missing.

ENDURANCE

No experience was included in this study unless at least 24 hours had elapsed before the individual or crew was rescued. This does not mean that the men who spent less than 24 hours on the ground did not endure hardships, only that their experiences are not as significant as those of men "on their own" in remote areas for longer periods of time. Even within this short interval of time there were cases of frostbite requiring hospitalization. One man committed suicide rather than face the problems of survival.

In contrast to these are the many stories of heroism and endurance against great odds. Two men parachuted by error from a transport and one was injured on landing. The other man carried and dragged his injured companion 150 miles to safety. As they had no food or equipment, it was necessary to forage along the way. The journey took 48 days.

The crew of a bomber which landed along an Arctic beach never gave up hope. Only a diary revealed their story. The men ran out of food after 38 days of rationing limited supplies. The diary records their plight for a total of 53 days. Their bodies were located a month after the last entry.

One survivor was fortunate in finding trapper's supplies and cabins along his lonely route. He was out 84 days before he returned to his base but suffered no hardships and lost no weight during his emergency trek.

The longest experience in the stories examined is that of a crew isolated on the Greenland Icecap. They were found and supplied by air after only a few days, but 164 days passed before they could be removed from the icecap.

The effects of the extreme cold were both physical and mental. Some men came very close to mental breakdowns in combating the arctic winters. A bomber was forced to ditch in the ocean off the coast of Greenland. The ditching was successful and the men were dry when they entered the life raft. They paddled all night long and by morning were soaked and cold when they reached a pinnacle of rock. Two days of snow and sleet were followed by 48 hours of freezing weather with strong winds. Then came three additional days of gales and gusts of wind and finally a long snowstorm which lasted intermittently until their rescue three days later. Only a short break in the weather saved their lives. The few minutes of sunshine allowed them to use a signal mirror to attract a passing ship. The rescue party found all three men unconscious and thought that only one was alive. This rescue appears to have been accomplished at the last possible moment.

HEALTH AND INJURIES

About 50 percent of the men involved in these survival episodes suffered injuries in the course of the descent, whether a crash landing or parachute landing. The injuries ranged from fractured skulls, broken legs, arms, and shoulder blades to sprains, bruises, cuts, and concussions. In two reports, broken limbs were set by a member of the party. One of these was set so successfully by a non-medical man that resetting was not necessary when the party was rescued and taken to a base hospital. In all other cases, the fractures were immobilized by splints. Burns from fires in flight or following the crash were reported in 17 stories. Cuts occurred most frequently on the face; they were caused by fractures of glass in the plane or by broken flying goggles.

Fifteen cases of shock were recorded. No specific comments were made on the treatment of shock cases. The impairments of health or physical condition following the emergency landings were attributable, in the vast majority of cases, to the environment and the locality of the accident. These are reported as exposure, cold, frostbite, lack of food, and malnutrition.

The survivors often showed a lack of training in the use and care of clothing. Men wore wet clothes, gloves, socks, and shoes and failed to dry them when the situation allowed it. Men forgot their gloves when working outside. They used cold tools with wet hands and learned better "the hard way." They took off their gloves to wipe snow from the wings of the aircraft. Only after being frostbitten did they find life raft paddles ideal for the purpose. Others used their bare hands to scoop up snow to eat or

WINTER SURVIVAL

to melt. One man commented he was so anxious to rush after the supplies dropped to him that he forgot to put on his foot covering. The result was wet feet and eventual amputation of two toes. Another man landed his fighter safely but walked around the plane and then sat in the cockpit all night with snow-filled shoes and wet feet. He had frostbitten feet by morning and eventually lost all his toes. Such comments as swollen, blistered hands, feet with such large blisters a man couldn't walk, loose skin on one finger, one lost fingernail and possible loss of another, were in the report of three men who lived in an insulated hut. They had a fire over which they said they dried their sleeping gear but never mentioned drying socks or gloves. The results of these actions were frostbite, frozen limbs, gangrene, and eventual amputation.

Treatment of frostbite was often wrong. Many cases were reported where the first aid given frozen or chilled feet and hands was rubbing with snow, rubbing with alcohol, rubbing with gasoline, or just simple massage. One survivor, who admitted being ignorant of arctic first aid, treated a fellow crew member's frozen feet correctly at first by putting them under his armpits. Had he read the manual in the first aid kit in his plane, he would not have made the mistake of rubbing the feet for 2 or 3 hours. The next day the victim's feet turned all colors of the rainbow and after his rescue all the toes had to be amputated.

In a very few cases the frostbite was unavoidable. The three men who spent 10 days on a windswept pinnacle in the Arctic Sea had only the clothes they wore. They were soaked from travel in a life raft and from the blowing spray. Their hands and feet were frozen and paralyzed. They had discarded their shoes, which had frozen to the hardness of cement in the first day on the rock, and worn only their flying boots. Their feet were so swollen they even filled the boots. It was impossible to make a fire. Under such conditions frostbite is inevitable.

In general, caring for injured men in sleeping bags was an exhausting, difficult, and trying task. Providing a level and dry spot for the patient was one problem, keeping him warm and clean another. One rescue party found an injured man "filthy from head to foot," as the survivors were unable to dispose of his excreta and the infected secretions from his injured nose.

Lack of knowledge of the principles of first aid was conspicuous. No treatment, inadequate treatment, or the wrong treatment of injuries occurred all too frequently, showing the men lacked the basic knowledge of first aid principles that all air crews should have.

Living in a snow shelter, as some men did, proved dangerous if the men were not constantly aware of the frostbite problem and other effects of cold. The warmth of a man's body penetrating through layers of sleeping bags melted the snow or ice beneath. This, in turn, soaked the sleeping gear so that definite steps had to be taken to dry it out. One survivor reported that his sleeping bag froze to the ice and had to be chopped free. Most men, however, cared for their sleeping gear and aired and dried it frequently. The survivors also found it necessary to insulate themselves from the snow and ice even when just sitting around. Fourteen cases of hemorrhoids were reported, most of them attributed to sitting on cold surfaces.

Chapped or sore lips, faces, and tongues followed eating or sucking snow or ice. Several survivors complained that snow only made one more thirsty and resulted in parched and burning throats. Additional snow did little to relieve these sensations and only added to the chapping.

Effects of cold wind were frequently noted. Men said the strong gales made breathing difficult and seemed to make the lungs burn.

Glare bothered a few men; they improvised snow goggles or wore smoked flying goggles. Red or sore eyes and swollen or dry, cracked eyelids were attributed to the wind and to the glare. By contrast, a few men reported they didn't need or use snow glasses or goggles. Others stated they couldn't use the goggles for protection because the melting and freezing snow froze on them. A few men smeared oil or grease on their faces to prevent sunburn.

The men who spent most of their time in shelters had pertinent comments on health conditions. Many of them suffered from violent headaches which they blamed on the fumes from the stoves and fires. A common complaint was a headache on arising which disappeared when they went outside. Although many survivors reported worrying about the dangers of carbon monoxide poisoning, no cases more serious than these were mentioned. One group which used gasoline torches for light was bothered by black sputum and black nasal mucus from the fumes and soot of the leaded gasoline. One party reported sore and inflamed eyes from the smoke of an open spruce fire. Fires were a major hazard in shelters, especially when the men used open fuel or improvised stoves. Flash fires and accidental fires from spilled fuel resulted in burns, generally of the face, hair, or hands.

Three men reported suffering intermittently from an upset stomach, described as vomiting accompanied by violent aches and chills. No further explanation was given. One man was made ill by rations contaminated by camphor heat tablets. Only once was a survivor bothered by high altitude and thin air.

Perhaps the most common complaint was a progressive weakness when rations were limited. Fatigue set in quickly, so that work periods had to be limited to a few hours or to less than an hour in severe cases. As men tired, they tended to stumble more frequently in traveling and to misjudge their movements and bump or bruise themselves in normal activities. Men reported being wet all the time from continued falls because they were too weak to walk normally. Ankles in particular suffered from cold and bruises. Bruises seemed to remain painful for longer periods of time than usual.

Cases of dizziness and nausea from smoking were reported frequently. One group of men had been on short rations for 38 days. After 12 additional days with no food at all they decided to smoke. One pipe of tobacco made them sick. Another group with limited food but unlimited cigarettes were dizzy frequently from chain-smoking.

Once rescued, the men were examined and given proper medical care. In the reports available, more than half the men needed no medical attention other than rest. In other cases, severe effects from exposure and lack of food were cited. The effects of frostbite and frozen limbs were the most serious.

CLOTHING

The comment "inadequate clothing" occurs so frequently in the survival stories that proper clothing discipline was obviously lacking. The men wore whatever clothing they wanted for the flight; when an emergency occurred they often suffered from their poor choice unless additional apparel was carried in the plane or dropped to them later.

Wool clothing, summer underwear, coveralls, and flight jackets with gloves, helmet, low shoes, and flying boots of some type comprised the typical clothing of most survivors. Only a very few commented that they flew suitably dressed for the experiences which followed; they were carefully prepared either through previous emergency experience, arctic indoctrination, or just considerable thought on the subject.

Most of the comments on clothing concerned footwear. Gloves were not mentioned except for the remark that they got wet. Hats were mentioned only once by a survivor, who reported he made one out of the fur collar of his flying jacket.

Clothing in several thicknesses was preferred so that layers could be removed while working or walking and put on during rest stops and in the cooler hours of the day. The one-piece flying suit for emergency arctic living caused much caustic comment. It made access to pockets difficult, had to be removed for body functions, tended to be binding for normal activities, and did not supply enough protection. The few comments on exposure suits indicate these were generally used only for sleeping.

Proper footwear was the exception rather than the rule. Leather oxfords, combat boots, high-top leather shoes, and tennis shoes were all mentioned as inadequate or unsatisfactory. Shoes were soon replaced by flying boots, supplemented inside or out by layers of burlap, parachute cloth, or tarpaulin, and insulated with fiber, straw, moss, or excelsior. Most of those who mentioned mukluks approved of them as ideal footwear for arctic emergencies. They praised their convenience, comfort, and insulating properties when properly used. One man thought rubber footwear possibly the most practical because snow wouldn't stick to it. Leather footwear tended to freeze and was described as like armor, concrete, or rocks.

Emergency repairs to clothing usually were made with pieces of parachute or tarpaulin sewn with unraveled shroud lines. All the men praised the parachute as emergency material and valued it highly. All groups carried one or more parachutes with them, and every individual saved whole or selected parts of parachutes for shelters, bedding, insulation, repairs, and clothing.

WINTER SURVIVAL

WATER

In spite of the abundance of ice, snow, and water almost everywhere, many of the narratives mention problems and difficulties in procuring drinking water.

In the freezing temperatures of winter, obtaining a water supply became a more serious problem. After landing his plane on a frozen lake, one man chopped a hole through nearly 3 feet of ice to get drinking water, which froze in his canteen cup almost immediately when brought into the air.

Snow is not as satisfactory a source of drinking water as ice, yet many survivors used it. Two injured men were dependent for water on the snow they could reach through the plane window. Various men who ate snow reported that their hands, lips, tongues, and mucous membranes were soon chapped, cracked, and bleeding. Snow proved unsatisfactory in other ways. Many reported, "No matter how much snow we sucked, we couldn't quench our thirst." At least 10 men complained that eating it caused a burning sensation in the throat. One man noted that he and several other members of his party who ate snow directly or drank it melted suffered from diarrhea. In others, it caused severe gas pains and belching. They discovered that snow is difficult to melt and that tremendous quantities must be heated to supply even a small amount of water. Many concluded that melting snow is not worth the effort, for drinking water can be obtained from ice with less energy and fuel.

Both ice and snow had to be melted for drinking water in containers. The men found it best to save one container for melting ice alone, because of the difficulty in cleaning those used for cooking or other purposes. One observant lad noted that a solid block of ice melted as quickly as small cubes or shaved ice. Several mentioned that if the water was allowed to heat a little after the ice had melted completely, it kept better and provided a more satisfactory drink than when only slightly above the freezing point. Drinking water was kept in thermos jugs or canteens.

Some men noted that a constant water supply could be easily maintained by adding ice and snow as needed to a container of water in their shelter.

CONCLUSIONS

It should be obvious from what you've read so far, that your physical condition and dress may well determine how you return to civilization . . . or if you will. Such things as injuries, the length of your ordeal, the environment you are deposited into, and other variables will certainly have a bearing on the outcome, but you have no direct control over these things.

Our experience in TAC along these lines is nil. We have had one known survival tale in the past few years, and it turned out to be a bad example. The crew of a two-seat fighter from a southern base had to eject about seventy miles from home over mountainous terrain. One man was fatally injured, the other landed on a mountain around the six thousand foot level. The survivor was dressed for a chilly spring day in a summer flying suit, summer flying jacket, and G-suit. The temperatures during his "survival training" ranged between twenty and thirty degrees with a wind averaging about twenty-five knots.

He ejected about four in the afternoon and had thirty minutes of daylight remaining. He used his radio to transmit a mayday call but got no reply. Then he decided to follow some telephone poles, hoping to reach a ranch house. He abandoned his insulated life raft and began walking. About nine that night, he wrapped up in a reflectorized survival blanket and his parachute, to spend the night. It was cold. He lit a candle occasionally to warm and dry his hands and feet, it snowed all night. After daybreak he saw a rescue helicopter and directed it to him by radio. He was picked up fifteen hours after ejection.

Our TAC pilot was lucky — or perhaps he had that ultimate faith in immediate rescue. He certainly proved his faith in the rescue troops by leaving his winter flying gear and long johns at home. But had that snowstorm continued, he could have spent the rest of the winter on that lonely peak. And for those of you who fly the big ones — an injured man can place a heavy burden on the rest of the crew. Are you prepared to take care of your own? Be sure you can take care of yourself or your injured buddy will have to stand alone. Not a nice thought, is it?

Before you leave home for that next flight, give some thought to where you're going and what you'll do, and what you will be flying over. It's important because, although experience is the best teacher, the cost of tuition may be prohibitive . . . it may take all you have.

TACTICAL AIR COMMAND

Maintenance Man Safety Award

Staff Sergeant Michael T. Noe, Supervisor of the Airborne Radar Navigation Systems Shop of the 463 Avionics Maintenance Squadron, 463 Tactical Airlift Wing, Dyess Air Force Base, Texas, has been selected to receive the Tactical Air Command Maintenance Man Safety Award for September 1973. Sergeant Noe will receive a certificate and letter of appreciation from the Commander of Tactical Air Command.

SSGT NOE

TACTICAL AIR COMMAND

Crew Chief Safety Award

Sergeant Robert W. Shaw, F-4E Crew Chief of the 35 Organizational Maintenance Squadron, 35 Tactical Fighter Wing, George Air Force Base, California, has been selected to receive the Tactical Air Command Crew Chief Safety Award for September 1973. Sergeant Shaw will receive a certificate and letter of appreciation from the Commander of Tactical Air Command.

SGT SHAW

TACTICAL AIR COMMAND

Ground Safety Man of the Month

Master Sergeant Charles William Stafford, 49 Avionics Maintenance Squadron, 49 Tactical Fighter Wing, Holloman Air Force Base, New Mexico, has been selected to receive the TAC Ground Safety Man of the Month Award for September 1973. Sergeant Stafford will receive a certificate and a letter of appreciation from the Commander of Tactical Air Command.

MSGT STAFFORD

MAFFS

by Capt Kerry Pope
Langley AFB, Va.

Less than five minutes after takeoff from Stockton, California, the crew of Tanker 71, a TAC C-130E from Dyess AFB, could see columns of smoke boiling up out of the Sierra Nevada Mountains some 50 miles to the east. The source of that smoke was an inferno known as the granite fire, and the granite fire was Tanker 71's destination. Located 65 miles southwest of Lake Tahoe, the blaze was out of control and had already destroyed more than 5000 acres of timber. Giant redwood trees more than three centuries old had fallen victim as the fire spread destruction which would take nature hundreds of years to repair. On board Tanker 71, the crew quickly

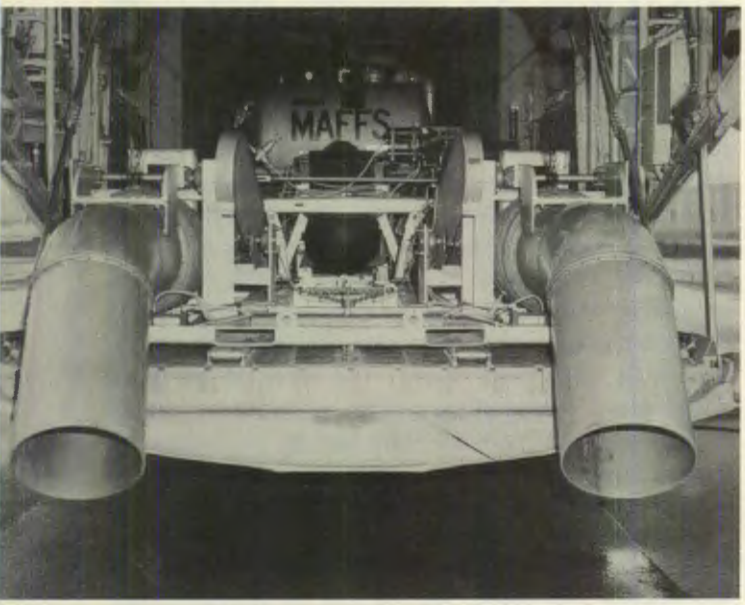
completed their checklists, each man in quiet anticipation of the mission he was about to perform.

As the Herkybird neared the target area, radio contact was made with 102 Zulu, an Aero Commander. 102 Zulu was the lead plane, responsible for guiding the big tanker aircraft over their targets. The lead plane instructed the pilot of Tanker 71, Captain Greg Crum, to hold east of the fire at 7500 feet. While in his orbit, Capt Crum surveyed the terrain, making mental notes on his planned drop run and escape route. It was sheer folly to make a run on a fire in mountainous terrain without first surveying the area to determine the best drop route and escape. Tanker 71 was advised that he would be following the B-17 just starting its run down the mountain slope. Capt Crum called slowdown, and the big transport was configured for the attack – flaps 50 percent, cargo ramp and door open, discharge tubes extended. The lead plane directed Tanker 71 to descend to 5000 feet and position himself on a left downwind. The approach was to be made over a high ridge and down a 40 degree mountain slope. The drop itself would be made where the B-17 left off, about halfway down the slope. Capt Crum turned base leg and called the one minute warning to his crew. The cargo door was closed, leaving two huge nozzles extending over the aircraft's lowered ramp. The lead plane pulled into position to guide the tanker in on his run. The two aircraft turned final, descending to a scant 200 feet above the ridge. As he crested the ridge, Capt Crum pulled his throttles to flight idle and began his roller coaster ride down the mountainside. The crew sighted the bright red line of retardant left by the B-17's drop and the five second warning was given. Final adjustments for wind were made, and the crew awaited the signal for release. A few moments later, the C-130 surged forward as 3000 gallons of fire retardant spewed forth from its cargo compartment. In less than six seconds, the big bird had shed 27,000 pounds, and a raging forest fire was closer to being contained. Forty minutes later, Tanker 71 had reloaded its tanks and was enroute back to the fire for another drop.

An Aero Commander, a B-17, and an Air Force C-130 working together? It happened last August as the Forestry Service battled dozens of major forest fires throughout the West and Northwest. The story of TAC's involvement, however, goes back to early 1971. The Forestry Service has been fighting forest fires for years with a fleet of World War II bombers: B-17s, B-26s, PB-4Ys (the Navy version of the old B-24 Liberator), and TEMs (single engine torpedo bomber). Recently, C-119s, DC-6s, DC-7s, and P2Vs have been added. Too often in the past, however, the heroics of the civilian tanker pilots and their ancient airplanes have not been enough to contain the biggest fires. A supplemental force was needed, and the Air Force seemed to be the answer. The Secretary of the Air Force directed the Air Force Chief of Staff to develop a capability to support the forestry service in its airborne fire fighting operations. The Tactical Air Warfare Center (TAWC) at Eglin AFB was tasked to develop the capability.

In July 1971 a prototype system was flight tested at Edwards AFB. The system was expanded and flown aboard an Air National Guard C-130A from Van Nuys, California. An operational test indicated the concept was feasible, and a California corporation was contracted to

MAFFS



develop an operational prototype, to be designated the Modular Airborne Firefighting System (MAFFS).

In November 1972 my copilot, then Lt Greg Crum, and I were sent to Marana, Arizona, to attend the Forestry Service's first National Air Tanker Pilot School. At Marana, we were introduced to the modern science of forest fire fighting. We learned of the numerous factors that influence the nature of a forest fire: topography, fuel, wind, weather, command and control, ground fire fighting methods, use of aerial retardant, and tanker tactics followed in the curriculum. The information given us was important and extremely interesting, but the most vital information came from the other pilots. These were the men who fly air tankers year round, and had been fighting forest fires for years. We were given advice that can only come from the lips of men who have been there: never make a run before flying over the target to pick out an escape route. Unlike a C-130, a B-17 doesn't have the power to make a steep climbout if its load can't be jettisoned. Never make your drop run uphill. Don't fly below the rim of a canyon unless a lead plane precedes you, for there can be air currents which will render a loaded tanker uncontrollable. The smaller, faster lead plane can fly out of these currents, and it's his job to warn the tanker of such dangers.

As we listened, Greg and I became infected with a fever common to all tanker pilots. Fighting forest fires from 150 feet above the ground is perhaps the most exhilarating, rewarding experience an airlifter may ever encounter. This was one job that could be done only by those who wanted to do it, and we both wanted to prove ourselves and our airplane.

From our discussions with Forestry Service officials and the civilian tanker pilots, the advantages we would have with the C-130 and the MAFFS system became apparent. The C-130 gives us performance that our civilian counterparts could only dream of. The Hercules can descend at 2500 feet per minute at drop airspeed (140 knots). This makes a 40 degree slope easily negotiable. In contrast, a B-17 is limited to about a 900 foot per minute rate of descent at his drop airspeed of 110 knots. The great power available in the C-130 makes steep climbouts routine. For the old B-17, there is no power to spare.

The advantage of the MAFFS lies in the fact that the retardant (a chemical weighing nine pounds per gallon which is also a growth-promoting fertilizer) is dispensed by compressed air, and not by a gravity system such as the civilian industry uses. Dropping at too low an altitude from a TBM, for example, allows the retardant to strike the ground before it has had a chance to break up into a mist. Such an impact can be devastating, and has been blamed for deaths on the fire line and destruction of equipment. A MAFFS equipped aircraft can spray a row of houses from 50 feet up with absolutely no damage. A gravity drop from such an altitude would smash the roofs of the buildings.

In January of this year, we got our first look at the new MAFFS system. It consists of seven units: five holding tanks for the 3000 gallons of retardant, one control console pallet, and a discharge nozzle pallet. The entire system is palletized for use aboard any aircraft equipped with the 463L dual rail system. Loading time for the entire unit is less than 90 minutes. The retardant is dispensed under compressed air pressure, which is variable from 5 to 40 PSI. A low pressure is used on range or brush fires, and a higher pressure on fires in heavy timber and other dense fuels. At 40 PSI, the entire load of retardant is emptied in less than six seconds. Recycle time for onloading retardant and air is 15 minutes or less.

We flew the system back to Marana for a period of extensive testing. A total of 24 drops were made at various altitudes and system pressures, and we found that discharging the system had very little effect on the flight characteristics of the aircraft. Losing 27,000 pounds almost instantaneously has the effect of an afterburner kicking in and an elevator going up at the same time.

The operational test of MAFFS came rather spectacularly last August when the rash of fires broke out in the West and Northwest. The MAFFS C-130, piloted by Capts Greg Crum and Dick Henry from the 463 TAW at Dyess AFB, made more than two dozen drops on major

fires in Idaho, Montana, and California. MAFFS was given credit for saving a string of cabins and a restaurant in California by using its unique low altitude spraying capability. More importantly, MAFFS was proven to be an effective fire fighting system that can be safely employed by a TAC aircrew. Spokesmen for the Forestry Service stated that the system and the aircraft gives them performance and capability that never before existed.

If funds are approved for the equipment, the training programs will be set up at the tactical airlift wings designated to maintain MAFFS currency. Two would be required to maintain a certain number of MAFFS crews available during the fire season, May through October. In addition, the Reserve Forces could be tasked to maintain a certain number of MAFFS qualified crews. Crews and aircraft would be employed only on major fires threatening government property or inhabited areas, and only after all available civilian air tanker resources have been committed. This employment concept insures that tactical airlift will be employed only in cases of genuine emergency, and still provide the Forestry Service with a greatly increased capability to combat fires of major proportion.

The initial call for assistance will come from the International Fire Control Center in Boise, Idaho. The request will be authenticated, and the required numbers of C-130s will be launched. These aircraft will proceed to an onload station to install the MAFFS equipment. They will then proceed to a forward operating location to dispense their flame-smothering retardant. After the fire fighting operation is complete, the MAFFS will be returned to storage, and the aircraft and crews will return to their normal airlift duties.

The advent of MAFFS will provide the airlift forces of TAC, and the Reserve Forces an opportunity to demonstrate another facet of their flexibility and versatility. It also demonstrates to the people of this country the ability of tactical airlift to employ its forces in peacetime roles which are beneficial to all . . . and absolutely vital to many.

TAC TIPS

...interest items,

THE UNEXPECTED

An RF-4 in another command recently encountered a series of problems that could have resulted in major damage. It did result in minor damage. Here's what happened.

The RF-4 touched down at 142 KIAS with 4500 pounds of fuel remaining. The pilot deployed the drag chute, and it blossomed. Unfortunately, it also departed the airplane. The pilot then got on the binders, but couldn't feel any deceleration. He turned off the anti-skid, but there was still no braking. Switching next to emergency brakes, he got on the brakes again. They appeared to work normally at first, but then the airplane swerved right, then left. He used nose wheel steering to keep the airplane going straight ahead, then lowered the hook. The airplane stopped straight ahead, short of the barrier, with both main tires blown.

It's evident that this pilot used everything available to him. He was ready for the unexpected. Are you?

PLAN AHEAD

It seems that about once a year, we run into a lengthy FCIF item about the importance of flight planning. This year we lost an aircraft and crew — they impacted a mountain at 8000 feet while flying on a computer flight plan. That's a pretty good reason for an FCIF item! The more planning you do on the ground means more time in the air you can devote to flying your air machine. When you have maintenance, weather, or physiological problems inflight, the extra time you have to spend on these problems may be the difference between a safe recovery and a bent airframe — or worse.

Let's look at a few things you can do on the ground to assist you in enjoying a successful mission.

1. Takeoff and Climb — You wouldn't think of taking off without knowing your takeoff and refusal speeds for takeoff, but how about an emergency landing right after takeoff? Do you have your landing data at your fingertips? How about no-flap speeds? The closed pattern is no place to be spinning a computer. If you are filing out of an unfamiliar field, check on nonstandard local procedures. Find these out in base ops — not on the radio with tower or approach control after it hits the fan. While you're digging into local area information, take note of any significant terrain hazards in the local area and check the emergency bailout and jettison areas.
2. Cruise — Watch your Minimum Enroute Altitudes (MEAs) and Minimum Obstruction Clearance Altitudes (MOCAs). Winter is approaching, so be aware — "your altimeter rarely indicates a true height" (AFM 51-37, remember?). Temperature and pressure altitude changes, usually more dramatic during winter months, will result in a change in your absolute altitude. On an IFR flight plan, Air Force aircraft will not fly less than 1000 feet above the highest obstacle (2000 feet in designated mountainous areas) within a horizontal distance of 22 nautical miles from the centerline of your intended course. Whenever possible, of course, plan to fly well above your minimum altitudes — those clouds down there may have rocks in them!
3. Approach and Landing — A good thorough study of the approach plate you intend to use prior to takeoff will keep you one-up on surprises. (Of course, we all know that this is done after checking NOTAMs to be sure the NAVAIDs for the approach are in commission.) Take a close look at the terrain features in the area of your intended arrival base. Don't wait until after you've started

mishaps with morals, for the TAC aircrewman

your let-down to review approach data such as field elevation, minimum and emergency safe altitudes and IAF altitude. Have in mind your missed approach procedures and, if required, the information you will need for diverting to your alternate.

4. Crew Coordination — If you have help in the cockpit, use it. Let your crew know what you expect of them so they can help you. Have the navigator, copilot, or WSO monitor your approach and let him know that you are thick-skinned enough to admit to errors. Make sure that whoever is working the radio writes down frequency changes, missed-approach procedures, and lost-communication instructions. Brief — but do it before takeoff.

WHAT WOULD YOU DO IF...?

As you sit there right now, answer this question. What would you do if you were at altitude and suspected hypoxia or hyperventilation? Chances are, your answer would look something like this:

1. Select 100 percent oxygen and emergency
2. Tell someone
3. Select emergency oxygen bottle
4. Start a descent
5. Declare an emergency
6. Land ASAP

Well, a pilot in TAC recently had an incident. He was in his F-4, at FL 280, on an air-to-air intercept mission, when he noticed tunnel vision setting in. Suspecting hypoxia, he selected 100 percent oxygen and emergency and told his WSO of his problem. The symptoms didn't disappear, so he pulled the emergency oxygen bottle handle, started a descent, delcared an emergency, and went home.

The investigators couldn't find any evidence of hypoxia, so they surmised that hyperventilation was the culprit.

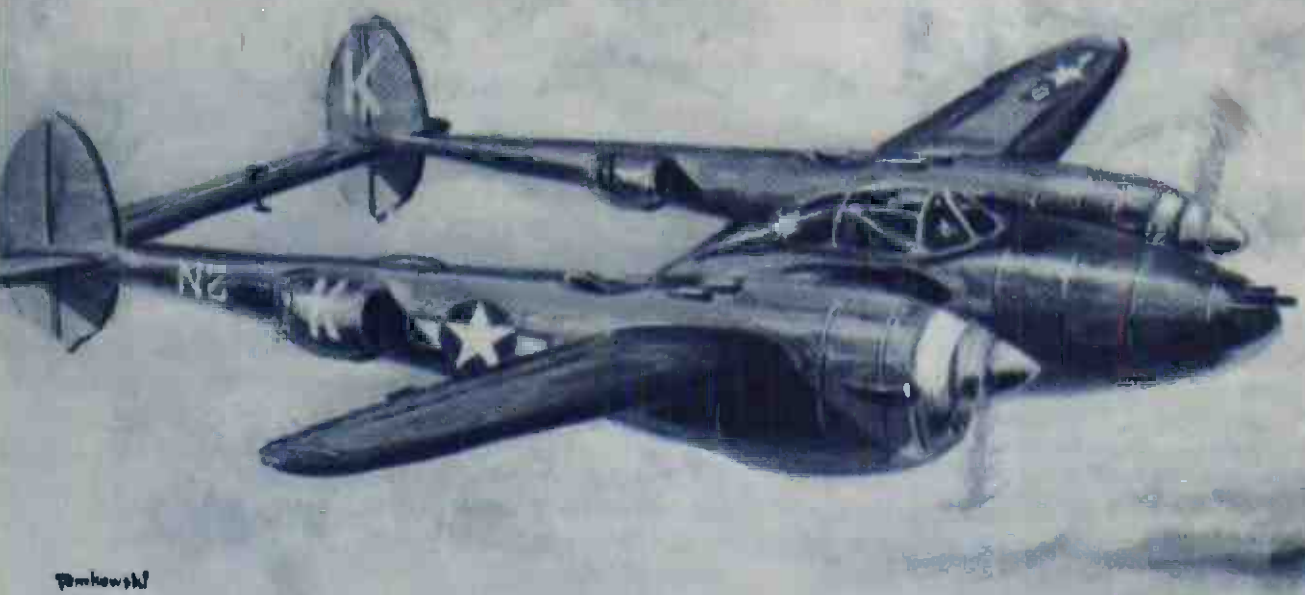
Regardless of which it was, we'd be willing to bet that this pilot had decided on his course of action a long time ago. It sure doesn't sound like he waited until he was in trouble before he asked himself the question, "What would you do if . . . ?"

From a collection of anonymous stories published in 1942 by the Army Air Forces, TAC ATTACK presents:

Lessons That Live

No. 14 of 17

Courtesy of Lt Col H. M. Butler, 4500 ABW/SE



Pomkowski

TOO GOOD FOR FLYING SCHOOL HABITS

I'd been out of flying school six months and through maneuvers. I'd decided that the routine taken in flying school was just a bit childish for an old experienced pilot like me. In short, I was so hot I often heard myself sizzling.

Let me tell you how I got cooled off.

I'd been waiting a fretful week for a P-38 to be repaired at Patterson Field depot. I was to fly it to Selfridge, join two other pilots there, and then go on a long-cherished trip to the West Coast; so the minute the work was done, even though it was 2 A.M. and instrument weather part of the way, I jumped in and took off in the general direction of Detroit.

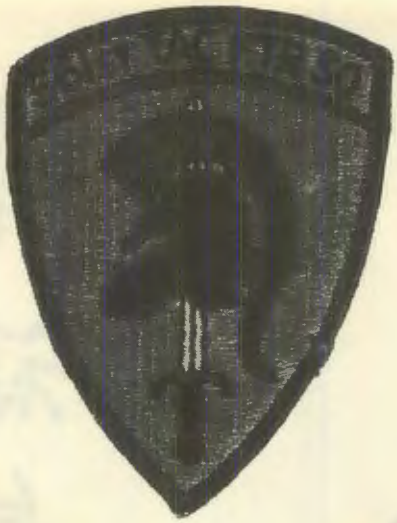
No maps, you understand; no drawn course, no flashlight — and, I realize now, no brains!

After checking my engines, the first thing I noticed was that the ground had completely disappeared and there was a 4,000-foot overcast separating me from it. I immediately started a let-down through and after giving the instruments quite a workout, to say nothing of myself, I broke out, indicating 1,500 feet.

I flew frantically for what seemed like hours, streaking between the too-close ground below and the too-close overcast above, recognizing nothing in the dark. Once I came across a light line about 30 degrees off my course and took it, hoping it would bring me to an airport. It did, but to one that had no lights. Panic-stricken, I was about ready to give up, but I headed back along the light line in the direction I had just come. Knowing nothing better to do I turned my radio dial — just in time to pick up the end of a weather report and to hear what sounded like "Detroit Radio Off." I pushed my mike button and started calling, urgently. Finally they heard my faint call, and as I kept on in the same direction my signals came in stronger and stronger. I then asked them the beam headings and they coached me into orienting myself and finding Detroit.

I found Selfridge all right, and landed in a sleet storm. Skidding across the slippery grass, I pulled up to the line, shaking, bathed in sweat, and filled with humility.

Since then I've never been too good for flying school habits!



WELCOME HOME

The TAC Constant Guard I thru V TDY units have returned from their heroic combat role in support of our country's objectives in Southeast Asia. The move home, called Coronet Bolo, included F-111s, F-4s, and F-105s. TAC units flew in the massive air offensive against North Vietnam, operating out of Thailand through 1972 until redeployment in September 1973.

The 561 Tactical Fighter Squadron, flying F-105G "Wild Weasel" aircraft, flew SAM suppression missions in support of F-4, A-7, F-111, and B-52 strikes in the air offensive against North Vietnam. The return of the 561st involved 220 personnel, along with 12 aircraft, from Korat Royal Thai Air Force Base to George Air Force Base, California.

The 336 Tactical Fighter Squadron, 4 Tactical Fighter Wing, flying F-4Es, flew the full gamut of air-to-ground operations in Southeast Asia. The return of the 336 TFS involved 18 F-4s and 420 personnel from Ubon Royal Thai Air Base to Seymour Johnson Air Force Base, North Carolina. Its sister squadrons, the 334 TFS and 335 TFS, had previously returned to Seymour Johnson from the Constant Guard effort.

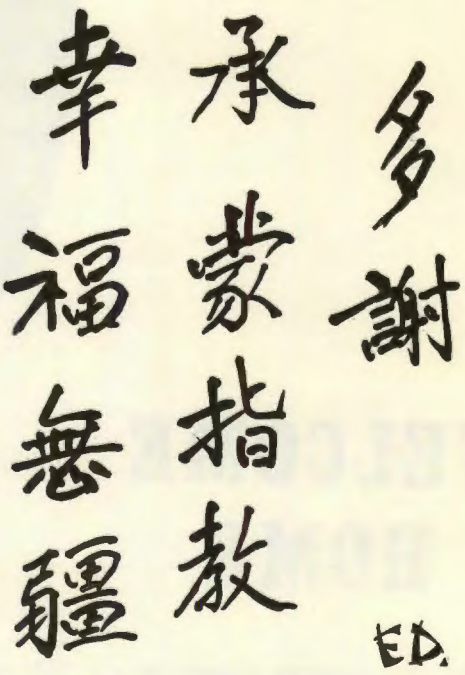
The 58 Tactical Fighter Squadron, 33 Tactical Fighter Wing, assigned TDY to Ubon Royal Thai Air Force Base, returned to its home station at Eglin Air Force Base, Florida. Their redeployment involved 18 F-4Es and 420 personnel. The 58th flew in the Linebacker II air campaign in Southeast Asia.

Twelve F-111As of the 474 Tactical Fighter Wing, along with 350 personnel, returned from Takhli Royal Thai Air Force Base to Nellis Air Force Base, Nevada. The F-111s flew night, all-weather operations into the heartland of North Vietnam.

These four units involved in Operation Coronet Bolo flew more than 12,000 combat sorties, including more than 3,000 over North Vietnam. Although the mission of TAC is changing to a peace-keeping role, its primary responsibility of preparedness for rapid deployment to any area of the world continues. This involves all facets of the tactical mission, including tactical fighter operations, airlift, reconnaissance, special operations, and electronic countermeasures.

Welcome Home, Guys!

LETTERS TO THE EDITOR



Editor,

The Chinese Air Force (CAF) Chief of Flying Safety has been receiving copies of TAC ATTACK for some years through the MAAG China flying safety advisors here in the Republic of China. We have thoroughly read all the articles you have published with great interest, as they contain much valuable safety information that applies to our Air Force, as well as yours.

The CAF Flying Safety Office publishes our own Flying Safety Magazine on a monthly basis, which is patterned largely along the lines of the USAF AEROSPACE SAFETY magazine. With your approval, we would like to translate and reprint selected articles and pictures from the TAC ATTACK magazine in our Flying Safety publications. The only purpose of this request is to enhance our safety efforts and programs by making our personnel more aware of suggestions, experiences, and general safety information that applies equally as well to both of our services.

If you so desire, we would be most happy to furnish you with a copy of all articles published, if approval is received.

Please keep up the excellent work on a fine and most useful safety publication such as TAC ATTACK. We look forward each month to the arrival of our copies to read and pass on to others in the Chinese Air Force.

CHOW, YING-LUNG, Colonel, CAF
Chief, Flying Safety Branch
IG HQ Chinese Air Force

Editor,

The Turkish Air Forces Foundation (TAFF) approached me recently with a request for translation/re-publication of articles as they appear in TAC ATTACK. Although they have been reading and enjoying TAC ATTACK for several years, they are preparing to go to press with one of their own publications and want to assure its outright success by presenting excellent and accurate articles like yours in TAC ATTACK.

Permission to translate and re-publish will be of great assistance in spreading the tactical gospel from one cockpit to another — and that's where it belongs — right!

WILLIAM W. BERKMAN, Colonel, USAF
Chief, Operations Branch

"Magazine" imizden her hangi bir "Material"; Kullanmakta tamamen Serbestsiniz. Nesriyatmizda Başarilar. Ed.

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TAC TALLY

	TAC			ANG			AFRes		
	SEP	THRU SEP		SEP	THRU SEP		SEP	THRU SEP	
		1973	1972		1973	1972		1973	1972
TOTAL ACFT. ACCIDENTS ►	2	33	39	2	16	16	0	1	2
MAJOR ACFT. ACCIDENTS ►	1	22	29	2	11	13	0	1	1
AIRCREW FATALITIES ►	0	15	32	0	1	2	0	2	0
TOTAL EJECTIONS ►	1	22	27	1	8	8	0	1	0
SUCCESSFUL EJECTIONS ►	1	14	18	1	7	8	0	0	0

TAC'S TOP "5"

FIGHTER/RECCE WINGS		
ACCIDENT-FREE MONTHS		
66	33 TFW	TAC
36	67 TRW	TAC
34	162 TFTG	ANG
33	4 TFW	TAC
25	122 TFW	ANG

AIRLIFT/REFUELING WINGS		
ACCIDENT-FREE MONTHS		
98	136 ARW	ANG
62	316 TAW	TAC
51	126 ARW	ANG
50	463 TAW	TAC
41	146 TAW	ANG

SPECIAL UNITS		
ACCIDENT-FREE MONTHS		
109	2 ADGP	TAC
78	DET 1, D.C.	ANG
50	182 TASG	ANG
43	193 TEWG	ANG
40	71 TASG	TAC

MAJOR ACCIDENT COMPARISON RATE 72–73

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
TAC	72	0	.8	1.6	2.8	4.0	4.8	4.2	4.6	4.6			
	73	5.0	5.1	5.1	4.2	4.3	5.0	4.7	4.4	4.2			
ANG	72	0	0	6.3	8.1	6.3	5.1	6.2	6.4	6.2			
	73	8.5	8.6	6.8	5.0	4.7	5.1	4.3	4.2	4.6			
AFRes	72	0	0	0	0	0	0	0	1.9	1.7			
	73	14.9	6.7	4.1	3.2	1.8	1.5	1.4	1.1	1.0			


FLEAGLE
FLIGHT MANUAL
ZZZ
HARDISON
ZZZZZ
TOO BAD HE DIDN'T MAKE IT TO THE ALL WEATHER OPERATION SECTION.
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