

# TAC ATTACK

April 1973

TAC ATTACK

APRIL 1973



The good old days... pg. 16

THE GOOD OLD DAYS....  
Pg 16



for efficient tactical air power

# TAC ATTACK

APRIL 1973  
VOL. 13, NO. 4

Tactical Air Command

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Published by the Chief of Safety

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A set of orders issued from  
the Octagon, Confederate  
Air Force Headquarters.....  
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# Angle of ATTACK



## GET IT ON PAPER

I'm sure you've heard it said of the sudden discovery of a procedure or tactic or lesson of any kind, "We learned that thirty years ago." I'm equally sure you've heard it said (or said it yourself), "We keep making the same old mistakes." Have you ever wondered why those statements are made and why we have to keep relearning lessons? Part of the answer lies in the fact that some of the knowledge gained years ago was either not recorded, was recorded but not passed down the line, or was recorded and passed along but was ignored. Somewhere, somebody, at some time in the past didn't take the time to get what he had learned in writing. But we have the opportunity to not make a similar mistake.

Right now in Tactical Air Command there exists an assemblage of people who have more total air combat experience than any group of people at any other time in our history. Think about that for a moment. MORE combat experience (KNOWLEDGE) than at any other time in our history! There's a very distinct possibility that in five years our air combat experience will have been greatly reduced and in ten years a lot of it will have disappeared. So we must record the lessons learned and we must do it now.

How? Let's acknowledge first that some of the lessons learned have already made their way into regulations, tactics manuals, and a variety of other publications. But you can bet your bifocals that all of them haven't. So let's make it a wing project or a squadron project or an individual project. Kick your ideas around, then get them on paper, then get it to the boss. If a procedural change is warranted then submit the necessary paperwork to get it changed. If a reg is wrong or insufficient, then get the paper mill started to correct it. And in each case be prepared to fight for your idea.

And there's another way which can be used by a group or by an individual.

I have set aside a section in TAC ATTACK to be used by you to record some of this hard-gained knowledge. It begins with this issue and is titled "TAC Today." The series will exist for as long as you wish it to, demonstrated by your inputs.

I want to be able to pass along to the entire command the problems you faced (or face), both in combat and in stateside operation, and the means you used to solve these problems. In this way, you will have an additional means to get it in print and TAC will benefit from your experience.

Whatever means is used, the important point is we must get it recorded now while it is still fresh in our minds. We owe it to the tactical air forces of the future.

  
E. HILLDING, Colonel, USAF  
Chief of Safety

# TRAFFIC,

*weather*

*traffic information*

*vectors*

*holding*

*bird activity*

*pattern surveillance*

*altitude conflicts*

*safety advisories*

**A**ir traffic controllers are responsible for providing pilots with a variety of information. From the controller's viewpoint, some of this information is mandatory and must be transmitted in the form of instructions or advisories. Other information is not mandatory and is considered an "additional service." The purpose of this article is to enlarge the aircrews' understanding of these additional services and what the air traffic controllers'

responsibilities are for providing them. FAA Handbooks 7110.8C and 7110.9C are the sources for this information as they prescribe the en route and terminal air traffic control procedures and phraseology to be used by both FAA and military controllers.

Before we discuss individual cases, let's take a look at what additional services are. ATC additional services are services provided by an air traffic control facility to



# twelve o'clock

## (ATC additional services)

By Captain Joseph L. Thomas  
Hq TAC/DCF, Langley AFB, Va.

en route or terminal aircraft. These services are not mandatory and will be provided to the maximum extent possible, depending upon the controller's capability to fit them into his performance of higher priority duties. Disregarding emergencies, the first priority in air traffic control is given, naturally enough, to the separation of aircraft. Second priority is given to services that are required but do not involve separation of aircraft. The third and last priority is given to additional services.

The reason additional services are not mandatory is because of the many factors which could prevent the controller from providing them. Traffic volume, frequency saturation, limitations of the radar, and controlled workload all play a part in the ability of the controller to provide additional services. Further, the controller has complete discretion for determining if he is able to provide or continue to provide a service in a particular case.

The reason that I have gone into detail on these responsibilities before I explain what items are considered additional services is to insure that you are aware that these services are not mandatory and that they will be provided only after mandatory services have been accomplished. Every attempt will be made by the controller, however, to provide these additional services to the maximum extent possible. The fallacy of additional services procedures from a pilot's standpoint is that when the controller is busy you may not get these additional services, even though this is when you may need the service most. This means, of course, that you may receive some of these services from one controller or air traffic control facility and not receive them from another. It is not because a particular controller or facility is not doing their job, but rather that the controller has other priority duties and may be temporarily unable to provide you with these services.

Now that we have discussed the limitations and restrictions on additional services, let's look at what they are. ATC additional services are broken down into seven categories: (1) Weather, (2) Traffic Information, (3) Vectors, (4) Holding Pattern Surveillance, (5) Bird Activity, (6) Safety Advisories, and (7) Altitude Conflicts.

### ATC ADDITIONAL SERVICES

**WEATHER:** Duties permitting, the controller will issue pertinent information on radar-observed weather and may suggest radar navigational assistance to avoid these areas. This assistance will be provided **ONLY** when the pilot requests it. There are good reasons why controllers cannot be held responsible for vectoring aircraft around radar-observed weather without the pilot's request. Air traffic control radars are not weather radars and only display limited weather returns. The radars are normally operated with "Circular Polarization" in use; this reduces weather returns and results in weather areas which are not clearly defined. Further, a feature known as Moving Target Indicator (MTI) causes distortion of weather echoes within its effective range. Therefore, it may be extremely difficult for a controller to vector you around radar-observed weather, and his vectors may, in fact, take you into a worse weather area — not visible on his scope. If you want to insure that the controller is aware of severe weather, the best thing you can do for yourself and other pilots is to provide him with a pilot report (PIREP) on your inflight weather conditions. If pilots will keep ATC agencies advised of inflight weather conditions, these agencies will be able to plan ahead and suggest use of other routes to avoid known areas of significant weather. The important thing to remember is that the controller may be completely unaware of your inflight weather



# TRAFFIC, twelve o'clock

conditions, unless you tell him. Also, if you can see that a vector will take you into a severe or significant weather area and you want to be routed around it — TELL THE CONTROLLER. Traffic permitting, any request for route or altitude deviation to avoid areas of significant weather will be approved.

**TRAFFIC INFORMATION:** Many pilots have become so used to receiving radar traffic information that I am sure they believe that this service is mandatory. Radar traffic information is also an additional service. Duties permitting, radar traffic information will be issued to all aircraft operating on an IFR flight plan unless omission is requested by the pilot, or the aircraft is operating in positive controlled airspace (PCA). This information will be issued to aircraft operating on a VFR flight plan ONLY when the pilot requests it. (Note: There are certain exceptions to this rule under the USAF Mandatory IFR Program and Stage I, II, and III Service, but this is a subject for another article.) Duties permitting, controllers will automatically issue traffic information to aircraft operating on an IFR flight plan and cleared to climb or descend in VFR conditions.

**VECTORS:** Vectors to assist an aircraft receiving radar traffic information to avoid reported traffic will be provided ONLY when the pilot requests it, and the aircraft to be vectored is within airspace for which the controller has control jurisdiction. If the pilot of a radar identified aircraft informs the controller that he does not see the traffic that was issued to him and the controller did not vector him to assist him in avoiding it, then the controller will inform him when the traffic is no longer a factor. If the pilot requests, and his aircraft is within airspace for which the controller has control jurisdiction, the controller can vector his aircraft to avoid merging with the target of previously issued traffic.

**HOLDING PATTERN SURVEILLANCE:** Duties permitting, radar surveillance will be provided for outer fix holding pattern airspace areas, or any portions thereof shown on the radar scope, whenever aircraft are holding there. An attempt will be made to detect aircraft that stray outside the area and assistance will be provided to vector them back to the area.


**BIRD ACTIVITY:** If time and duties permit, advisory information will be issued on pilot-reported or radar-observed and pilot-verified bird activities.

**SAFETY ADVISORIES:** Duties permitting, advisories will be issued to radar identified aircraft whenever radar observation reveals a situation which, in the controller's judgment, is likely to affect the safety of the aircraft.

**ALTITUDE CONFLICTIONS:** Whatever action is necessary will be taken to separate aircraft concerned if a VFR aircraft not under radar control is known to be at altitude and in the same general area as the one being controlled; i.e., an unidentified aircraft is observed on the PAR scope at the same altitude as an aircraft on approach. The reason that this action is considered an additional service is because the first responsibility of the controller is to provide separation between aircraft under his control. Duties permitting, the only time a controller would take this action is when the altitude of the unidentified aircraft is KNOWN.

These, then, are the seven areas of ATC additional services. They will normally be provided to the pilot without question. You should remember, however, that these duties are not mandatory (from the controller's viewpoint) and other priority duties may prohibit the controller from providing any or all of them for you.

I have written this and past articles for TAC ATTACK in the hope that a better understanding between pilot and controller will result in a safer flying operation within TAC. This will be my last article for this magazine for a few years as I am being assigned to RAF Bentwaters as the Flight Facilities Officer. Before I leave, however, I would like to wish all you flying types in TAC "Calm winds and good landings."



*Captain Joseph L. Thomas enlisted in the USAF in 1954 and served as an Aircraft Control and Warning Operator and Airborne Early Warning Radar Operator until entering the AECP program in 1962. He was graduated from the University of Colorado and entered Officer Training School, receiving his commission in 1964. Since then he has worked in Air Traffic Control as a RAPCON watch supervisor and served a SEA tour as Chief Controller for Saigon Radar Approach Control. He is currently the Director of the Air Traffic Control Services Division, Headquarters, Tactical Communications Area, Langley Air Force Base, Virginia.*



## TACTICAL AIR COMMAND

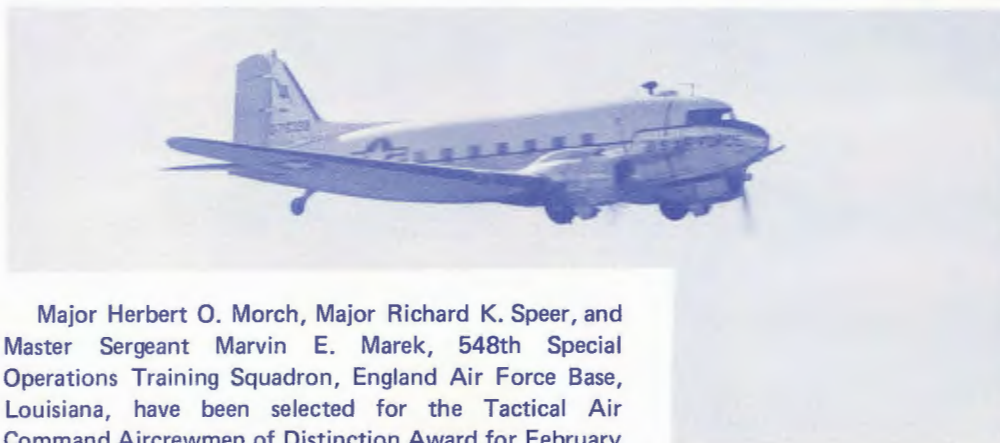
# AIRCREW MEN of DISTINCTION



MAJ MORCH



MAJ SPEER



Major Herbert O. Morch, Major Richard K. Speer, and Master Sergeant Marvin E. Marek, 548th Special Operations Training Squadron, England Air Force Base, Louisiana, have been selected for the Tactical Air Command Aircrewmembers of Distinction Award for February 1973.

Major Morch, Major Speer, and MSgt Marek were on a C-47D functional check flight from England AFB. A normal briefing, preflight, takeoff, and entry into the functional check flight area were completed without incident. During the functional check flight, the number one propeller was feathered as required in the flight profile, and all operations remained normal. As the propeller was brought out of the feathered position, it became apparent the RPM on the number one engine was uncontrollable, and the possibility existed that the propeller might separate from the aircraft. When the number one propeller separates from the engine in flight, it usually tears through the fuselage in the area of the cockpit, and injury to the crew is a predictable result. Knowing this and the further fact that such an accident could lead to total loss of the aircraft and possible damage or injury to property or personnel on the ground from a resulting crash, the pilots followed the specified emergency procedure and attempted to shut down the number one engine. While accomplishing this emergency procedure, a turn toward the nearest airdrome was initiated, and an emergency was declared. During the turn, the pilots observed that the number one propeller had failed to feather and was windmilling. The C-47 aircraft is



MSGT MAREK

unable to maintain altitude with a windmilling propeller regardless of weight factor. The crew was forced to make a decision whether to bail out, crash land, or attempt a controlled descent to the nearest landing field. Descending at 500 FPM, flight time to touchdown was estimated to be ten minutes. The crew elected to attempt landing at the home base which was 17 nautical miles south of their position. This was the closest suitable landing field with crash equipment available. As the aircraft approached the airdrome, the pilot requested landing on the nearest runway even though it necessitated a down-wind landing. Their altitude would not allow a landing on the runway in use at that time. The down-wind landing was accomplished perfectly and without further incident.

Major Morch, Major Speer, and MSgt Marek demonstrated an outstanding degree of professional ability and skill by recovering this aircraft while in a committed descent. The calculated decision to attempt landing under these adverse circumstances saved the aircraft from possible total destruction and the aircrew from probable physical injury and certainly qualifies the crew for the Tactical Air Command Aircrewmembers of Distinction Award.





## *The Alligators will get you, if you don't watch out!*

by Maj Tim Brady

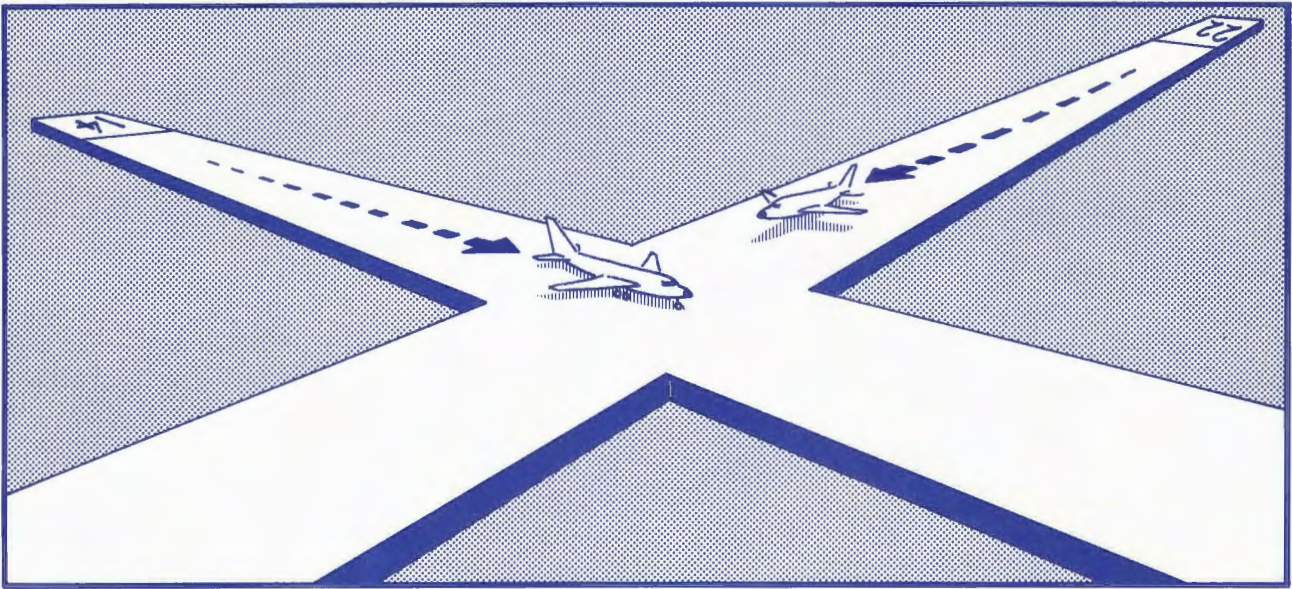
Some alligators feature the traditional anatomy complete with teeth, tail, and Tarzan (with knife). These alligators lurk in jungles, everglades, and swamps, waiting to chomp the unwary. Others, of a less definable structure, hide in the bushes, take to the air, or just lie in waiting beside runway thresholds ready to inflict just as grievous a wound as the toothy kind. Some of them have names like, misunderstanding, assumption, lack of

knowledge, poor preparation, and the worst of all, error.

We, as Air Force crewmembers, can find these alligators just about anywhere, but a preponderance of the beasts make their homes in and around the areas we travel infrequently (on a relative basis); namely, civil aerodromes.

Last year a herd of alligators summoned up by a civilian control tower operator very nearly resulted in an





accident of catastrophic proportions between a military aircraft and a civilian airliner. Here's how it went.

If you'll direct your attention to the accompanying diagram, you'll note that on this particular airfield two runways intersect at almost a 90 degree angle. The civilian tower operator cleared an airliner to land on runway 14 (top left of the illustration) and less than a minute later, cleared a military aircraft into position on runway 22 to hold (top right of the illustration). Tower next told the military aircraft that a takeoff clearance would be forthcoming in a few seconds, then advised the commercial airliner, which had by this time landed, to expedite taxiing through the intersection of the two runways. Ten seconds later, the tower cleared the military aircraft for takeoff; the airliner had not yet taxied past the intersection. The tower then told the airliner to expedite clearance across the intersection. At this time, the military aircraft was accelerating down the runway at about sixty knots when the pilot noticed the airliner on a converging course. Insufficient runway remained for the military pilot to stop his aircraft before the intersection. Ten knots below normal takeoff speed, the pilot pulled the big machine into the air and flew over the top of the airliner . . . almost. The military aircraft clipped off the top four inches of the airliner's vertical stabilizer and lost the ADF antenna in the process (total damage to the military airplane was thirty dollars and nineteen cents). Neither the military nor the airline pilot was aware that a collision had taken place, as evidenced by this radio transmission from the airline pilot to the tower.

"Ah, listen, you were talking so fast to get us to cross everything that airplane took right up over . . . took off right on top of us."

To which the tower replied,

"Well sir, you were stopping on the runway and I was asking you to expedite through the intersection. It appeared as though you were clear of the intersection as he, ah, as he departed."

To which the airline pilot replied,

"No, I wasn't, you . . . ,"

A short time later the tower transmitted to the airliner, "(Call sign) I had anticipated your going through the intersection and ah, ah, it appeared as though you [were] only about fifty yards or so from the intersection when the other aircraft was cleared for takeoff and, ah, I hadn't anticipated your slowing down at all. I'm sorry if I talked too fast."

The airline pilot's response was,

"Ah, yeah, that was kinda close. We were taxiing as fast as we could, ah, about fifty miles an hour."

The tower operator bit the bullet on this one, but the throng of alligators at his command almost consumed two airplanes and many people.

This near-accident is a vivid demonstration of the OP (other people) kind of alligator which can do the crewmember in, but there are others which we ourselves create by our lack of understanding of a procedure. For instance, do you know what a CRUISE clearance is? What is your clearance limit under a cruise clearance? For the answer, let's turn first to Section I of FLIP Planning for a definition.

"Cruise — A word used in an ATC clearance to indicate to a pilot that climb to and descent from the assigned altitude may be made at his discretion, and is authorization for the pilot to proceed to and make an approach at the destination airport."





The definition means simply that you are cleared for all the airspace below you to your destination airport. The destination airport is your clearance limit. You may descend at your own discretion and are cleared for an instrument approach at your destination. In some cases, you may even climb. For instance, if you are maintaining 3000 feet and are given a cruise clearance for 6000 feet you are cleared to climb, at your discretion, to 6000.

A misunderstanding of any clearance, cruise or otherwise, creates an alligator which can jump up and bite you at a critical time. If the clearance is unclear to you, don't let the misunderstanding persist; ask questions.

Since we've been talking about clearances, let's bring up another tidbit which can cause a potential problem. Have you ever been given a clearance to descend from the high altitude structure into the low altitude system and in the same transmission been given a low altitude airway routing? To top it off, you've been given a clearance limit fix that is not on the low altitude chart, or is not on the approach plate. Pandemonium? IFR in the cockpit with multiple charts flying about and obscuring vision? The answer may be a simple one. Look on the Area Chart (sometimes called arrival chart) if there is one for the area in which your destination airport resides. An Area Chart is merely an expanded chunk of the low altitude chart but contains more navigational data than can be placed on the low altitude chart. These Area Charts are published and distributed along with the low altitude charts and are for relatively high-density terminal areas. Check FLIP for further poop.

Of course the alligators can be eliminated with a little planning on the part of the crew. When preparing for an approach to any field, military or civilian, the crew should have at their fingertips the necessary pubs such as the low

altitude chart, the Area Chart if applicable, and of course the terminal chart (letdown book). The approach should be thoroughly briefed and preferably before the radio clutters the cockpit with controller instructions. Sounds good, doesn't it? But how do you know what approach you'll be shooting, what the active runway is, what the weather is, what the field conditions are, and what the local altimeter setting is? Many civil airfields (especially those with high-density traffic) and some military fields have something called ATIS (Automatic Terminal Information Service). All of the questions posed above are answered on the ATIS broadcast and to quote directly from the IFR-Supplement, "Pilots will be expected to listen to ATIS broadcasts where in operation to obtain essential, but routine, terminal information." If your aircraft doesn't have a VOR receiver or a VHF radio, then you're out of luck as far as the ATIS business is concerned. True? Wrong! Some ATIS stations (example: Andrews AFB) broadcast on UHF frequencies. In the cases where no ATIS is provided, a short query to ATC will give you the same information.

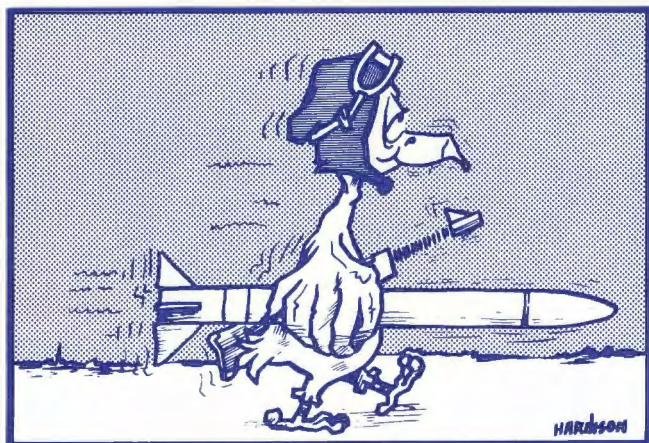
Another alligator shows his teeth in the instrument approach area. When you get a low altitude instrument approach on your annual instrument check, chances are you'll hit the initial approach fix, turn outbound, complete a procedure turn back inbound, hack the final approach fix, and head down the chute. However, when shooting an ILS low altitude approach at a civil field, the controller may put you on a vector for the final approach course and clear you for the approach. He, most probably, will not expect you to turn outbound upon crossing the fix. Rather, he will expect you to treat the fix as a final approach fix. The vector he provided can be likened to an NoPT. If the controller has given you no clue as to what he expects from you and there is any doubt in your mind, ask him.

The last alligator belongs in the future and is brought out here just to get you thinking about it. STARS — not the shiny kind but the Standard Terminal Arrival Route kind. You've probably already heard about them and if you know any more than that, you're ahead of the game. Thus far, the use of the Terminal Arrival Routes by DOD aircraft has not been finalized; however, the airlines are into them hot and heavy. Look for a comprehensive article on STARS in the next issue of TAC ATTACK.

The key element which binds all of these alligator producing situations together is the lack of an awareness of the situation by somebody. You must arm yourself with all the proper weapons — planning, anticipation, and knowledge — in order to defeat the beasts.

And you must look for them around every corner. **THE ALLIGATORS WILL GET YOU, IF YOU DON'T WATCH OUT!** ➤





# WEAPONS WORDS

## TAC RPVS AND DRONES

by **Captain Laird C. Arey**  
Hq TAC/Drone Requirements Division

Development of remotely piloted vehicles (RPVs) capable of performing a variety of missions is quickly becoming a reality. Ever since man began delivering ordnance on a target, he has strived to do it more accurately and with less risk to himself. The advent of guided weapons has greatly improved the accuracy; RPVs can reduce the risk and cost.

The RPV can extend man into a hostile environment with little or no risk to himself. By using small TV cameras and data transmission links, the RPV can be "piloted" by qualified personnel located in a launch aircraft or a ground control station safely removed from high-risk combat areas. Present RPV roles include reconnaissance and electronic warfare, but new technology will expand RPV/drone capabilities to tactical strike, defense suppression, and high altitude relay.

The RPV is not designed to replace the manned aircraft; rather, it will complement it, being used where risk to manned aircraft is too high. TAC is taking the lead in advocating and developing these broad new RPV/drone capabilities.

TAC has been in the drone business since 1968. The 11 Tactical

Drone Squadron is a unit of the 355 Tactical Fighter Wing at Davis-Monthan AFB, Arizona, and is TAC's first and only drone organization. The 11 TDS is a fully operational unit providing reconnaissance and electronic countermeasures (ECM) support for tactical commanders worldwide. Their mission may soon expand into the strike drone area.

The RPV strike concept was first tested in 1971. A DC-130A launch aircraft was modified to carry the necessary control equipment. Target drones were converted into strike RPVs by adding a commercially devel-

oped TV camera housed in the nose. The strike RPVs were then used to deliver guided weapons against ground target mockups. The acquisition of target and the decision to launch the ordnance are made by the Remote Control Officer located in the DC-130.

Although more testing remains before an operational capability is realized, the role of the RPV will continue to grow along with the system safety effort in new RPV technology. Because of this safety effort, future vehicles will be more reliable and safer to handle and control. ➤

TAC			WEAPONS MISHAPS			ANG		
FEB 73	THRU FEB		EXPLOSIVE	FEB 73	THRU FEB		FEB 73	THRU FEB
	1973	1972			1973	1972		
17	28	131	TOTAL	6	11	27		
4	6	38	Personnel	5	8	15		
9	17	59	Materiel	1	3	12		
4	5	34	Other	0	0	0		
1	4	14	MISSILE					
1	1	4	NUCLEAR					



# TAC Today

## THE 61<sup>st</sup> TAS GOES WEST

by Captain Philip C. Wilson  
61st TAS, Little Rock AFB, Arkansas

**W**hen the Commander of the 61st Tactical Airlift Squadron walked into the briefing room on that morning not long ago, the anticipation of the week long rumor of an impending rotation to Southeast Asia finally materialized into cold hard fact. The announcement that we would begin our deployment from Little Rock Air Force Base within three days started the wheels turning for this extraordinary rotation. Exactly three days later, the 61st loaded everything from socks to maintenance stands on the aircraft, said last goodbyes to families and sweethearts, closed the squadron's doors, and with over 450 aircrew members, maintenance and support personnel, including augmentee crews, departed the stable environment of stateside flying for a difficult and demanding deployment to Southeast Asia.

Within 66 hours after departing Little Rock, the 61st arrived at its deployment base in the Western Pacific. Two days later, twenty-four crews were flying combat missions in Vietnam. Twelve more crews arrived the next day to

begin the airdrop and cargo-hauling missions we had been assigned.

At the time, the 61st was one of only two fully combat ready Adverse Weather Aerial Delivery System (AWADS) equipped squadrons in the world. AWADS is an entirely self-contained aerial delivery system which enables crews to fly to a predetermined point and





accurately drop cargo or personnel with no ground-based assistance at the drop zone. If need be, using their associated Station Keeping Equipment (SKE), 61st crews can make formation drops under total instrument weather conditions. To perform these tasks, AWADS crews use a complex aircraft radar and a computer system. The computer is programmed by the navigator to automatically solve airdrop ballistic wind and release point problems. By the end of the fifth week of deployment, the 61st had airdropped six and one-half million pounds of cargo using the AWADS and the Ground Radar Aerial Delivery Systems.

These airdrops by the 61st were made under combat conditions from altitudes never before thought possible and with an accuracy measured in feet rather than yards. The standard contained delivery system drop zone in the United States, for example, is at least 250 yards long. However, in Vietnam the drop zone was occasionally as small as 100 yards square. The difference is akin to going from a target area the size of a golf course to one the size of a football field. As a matter of fact, at An Loc the drop zone was the soccer field. The capabilities of the AWADS crews were demonstrated time and again when airdrops were made under IFR conditions with the accompanying turbulence, rain showers, and crew's inability to see the target area. Lumped on top of all that was the added mental stress in knowing that if the two-thousand pound bundles loaded with badly needed supplies were not delivered accurately, they would end up in the hands of the enemy. The "Pucker Factor" was also increased by the constant threat of SA-7 missiles and anti-aircraft artillery.

Many days, the 61st was tasked to fly over one-half of all the combined airdrop and cargo hauling missions in Vietnam. This is an indication of the demand placed upon aircrews and maintenance. Unit maintenance people worked many extra hours with aircraft "quick-turns" to meet sortie requirements. Each of the squadron's aircraft flew more than three hundred hours during the three month period, with an excellent reliability rate of over 97 percent.

Those are some of the achievements; now, let's look at the operational environment and the inherent safety problems faced by the 61st during this deployment.

The hazards to flight and ground operations the squadron encountered in the combat environment were astounding and are indicative of what the crews had to overcome in completing their missions without a single incident. Having had SEA experience spanning the past three years, I can attest to the deteriorating conditions of the airfields, loading areas, taxiways, and support facilities that heavy use and winding down of the conflict brought on.



The lines on taxiways, so closely followed in the states, do not provide the necessary protection in SEA. For example, in Vietnam many bases are marked for clearances which are insufficient for many types of aircraft used there. Also, AFR 60-11, which requires at least ten feet wingtip clearance for taxiing is waived by a PACAF supplement. Although aircraft wing-walkers are required, I have observed instances of only a few inches clearance.

Simultaneous loading and refueling of aircraft is also authorized and the hot cargo ramp loading area at Tan Son Nhut left much to be desired when compared to stateside standards. The heavy loading commitments created a sense of urgency which called for close supervision of the loading by the entire crew to prevent a dinged airplane. Backing out of the hot cargo area at Tan Son Nhut was a tough job because of the ninety degree turn required for aircraft. Tire ruts were, in some instances, over twelve inches deep and crews had to use a rocking technique to get the aircraft moving. Crews filled ruts with gravel and clay, scooped up from nearby, to make aircraft movement easier and many crewmembers had to move rocks, boards, banding, and packing materials out of the way so aircraft could continue to taxi. Many times, taxiing to the runway was done with wingtips overlapping people, Class A explosives, and supplies. After numerous Hazard Reports were submitted, the ramp was being resurfaced and sundry cargo repositioned so as not to be a hindrance to taxiing aircraft.

Another problem was slashing props and the disregard of their maiming capabilities. Crews had to exercise close supervision of passengers and ground troops not familiar with the aircraft to keep them from wandering into the props.



## TAC TODAY....

Getting into the blue was something else again. Almost every takeoff was a maximum gross weight takeoff for that particular airfield and it called for extra attention and close scrutiny by all crewmembers. It was absolutely necessary to compute accurate takeoff and landing data. After landing at forward airfields, aircrews had to be ready to take off with or without the cargo, depending on the combat situation encountered. Inattention to detail or a lack of preparedness could have resulted in an airplane being severely damaged or destroyed. In some cases, because of airfield security, aircrews had to land at some forward airfields, speed off-load their cargo at the end of the runway, and take off opposite the direction of landing regardless of wind direction.

Some of the loading methods established for airdrops were quite unorthodox in nature. One of the problems, for example, was how to effectively secure an eight foot high by four foot square, two-thousand pound stack of rice on a piece of plywood. (Interesting thought for any loadmaster.) The forward four G restraint required by the Dash Nine loading manual was waived because of combat priorities. The loads had to be rigged so that two five-thousand pound restraint straps were attached to a single tiedown ring and some of the rings began to show definite signs of metal fatigue. Because of the rigging of the load restraint gates, top-heavy bundles sometimes spread out in flight, making it necessary for the



loadmaster to go between free-wheeling loads to try and secure them. By some extreme quirk of fate combined with close personal attention of the crewmembers, no loadmasters were injured. A deluge of hazard reports has since corrected the deficiency.

Much finesse and flying skill were demanded of the pilots when sixteen one ton bundles suddenly came roaring out of the aircraft during an airdrop. The change in the aircraft center of gravity caused an extreme pitch-up and ten to fifteen knots loss of airspeed, bringing the aircraft close to stall speed. Sometimes, because of an emergency or other circumstances, aircrews had to return to base with bundles still inside the airplane and make a landing with the aircraft on the outer limits of the center of gravity.



As many crewmen had never been to Southeast Asia, the communications problems posed by the many different accents were trying experiences. The saturation of the air traffic control facilities limiting their effectiveness, combined with the tremendous number of aircraft of all sizes and airspeeds, necessitated placing extra crewmembers on the flight deck at all times to guard against the ever-present midair collision possibilities.

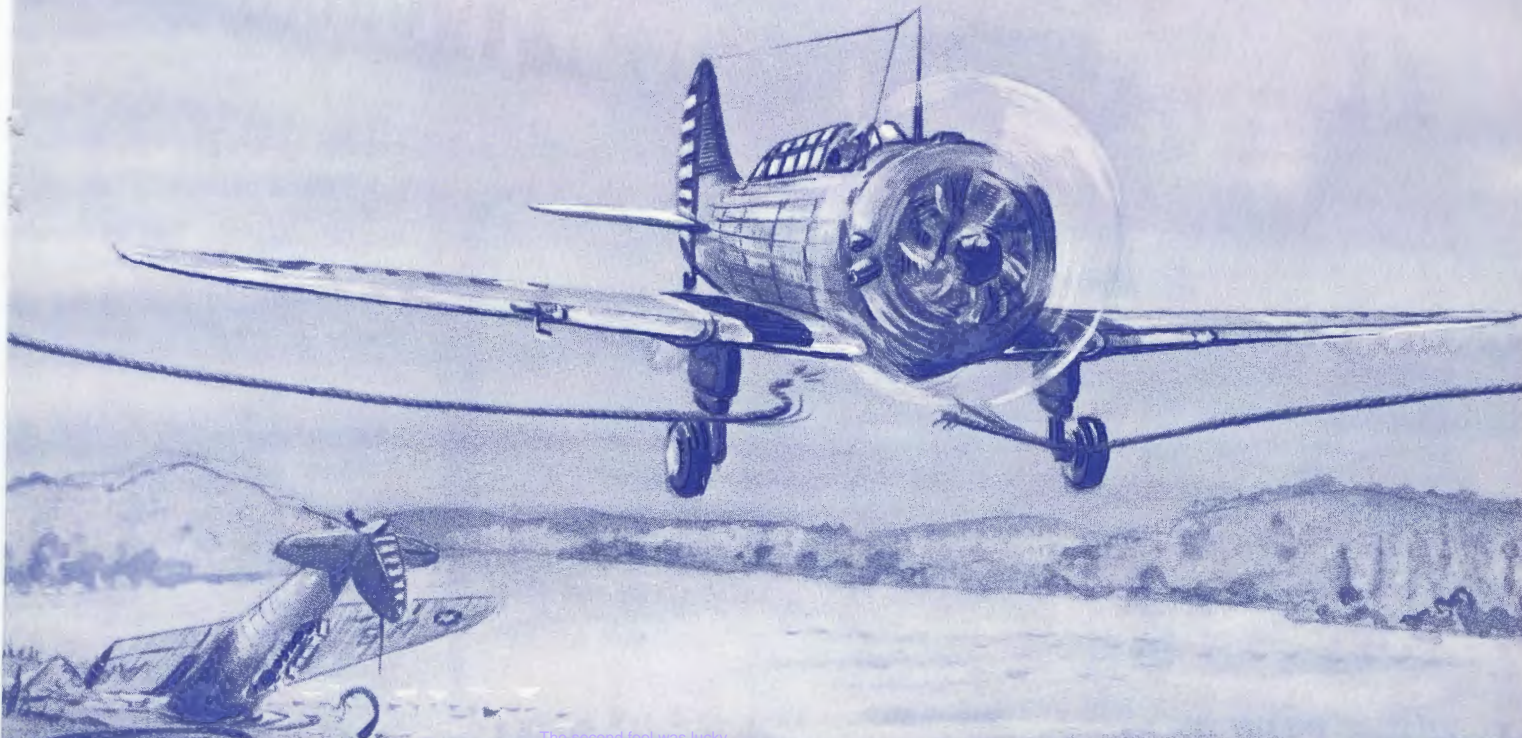
Despite all the problems encountered by aircrews in Southeast Asia, the airdrop capability provided by TAC airlift helped sustain friendly forces in some of the fiercest fighting of this conflict. An Loc, Kontum, and many other places that have become well known to all Americans, were successfully defended because ground forces, often completely surrounded, were fully resupplied by air.

The performance of the 61st TAS was truly impressive. During the time of this deployment, over four thousand flying hours were logged without a single incident. With much of the flying in rough, primitive conditions, the recoverable rate of over ninety-three percent of all supplies dropped attests to the skill and professionalism exhibited by our crewmen. The alertness and safety consciousness each crewmember displayed has made the 61st TAS's safety and cargo-delivery records ones to be envied by all airlift squadrons.



# Lessons That Live

No. 7 of 17  
Courtesy of Lt Col H. M. Butler, 4500 ABW/SE



## THE SECOND FOOL WAS LUCKY

Mickey was easily the most likeable youngster at the field, so I was naturally upset when one of my instructors came into the office and reported that Mickey's ship had crashed in the Red River, about fifteen miles from our field.

I took our emergency plane and flew directly to the scene of the accident. I had been flight commander only about a month and I had never before inspected a crash from the air.

It was a simple matter to locate the wreckage. The ship was nose down and partially on its back, resting in shallow water. Not knowing that Mickey had already escaped unharmed, I decided to go down and take a close look to see whether or not the front cockpit was submerged. I lost my altitude, changed propeller pitch, rolled down the necessary flaps, and dragged the river into the wind, all in accordance with proper flying technique. However, in view of my purpose, I felt justified in dropping down until

my altitude was not more than 20 feet. As I passed the wreckage I felt a slight but very distinct jar, but the flight of the ship was in no way affected.

After obtaining the desired information and marking a suitable route on a county road map to aid the rescue and salvage crews, I headed toward home. All the way back I worried about that jolt.

Later, I accompanied the salvage crew to the scene of the crash and listened to witnesses relate their versions of the accident. "The cadet had been 'buzzing' the river," one witness said, "and he did not see two one-inch steel cables stretched across the river and used by a ferry boat. He tore down both cables and carried them into the river wrapped around his landing gear. Then the second fool came along and cut the single strand of telephone wire."

Holy smoke! That second ship was mine, and that explained the jar I felt. My intentions had been all right, but while worrying about Mickey I had duplicated his mistake in flying so low.

Mickey was eliminated for violation of flying instructions, but I've always been grateful to him for one thing — taking both cables with him when he washed out instead of leaving one for me!



# The Good Old Days

by Major Jack W. Drummond

The following orders were published by the Confederate Air Force in preparation for an aerial demonstration.

## Confederate Air Force



  
National Headquarters  
Rebel Field, Harlingen, Texas.

Colonel Jethro E. Culpeper  
Commander

The Octagon

TO: Rebel Air Crews

FROM: Office of Flight Safety

SUBJECT: General Instructions - Demonstration  
Wright-Patterson AFB, Ohio

Pilots and crew members participating in WPAFB Demonstration will assume all responsibilities in a manner which will reflect the superior knowledge and extraordinary skill of the typical Rebel Aviator. Your instructions are as follows:

1) Aircraft from Bomb Command and Fighter Command will rendezvous over Dallas at an altitude of 8450 ft. on Friday, May 19, 1967, at 08:00 to 14:00 + or - 1:72 hrs. (Compass heading Rebel Field to Dallas - 372° variable magnetic.)

2) Any aircraft with operational compass may serve as flight leader. (Charts published prior to 1936 are not considered reliable and should not be used.) Refueling stop will be Springfield, Mo. - compass heading 10° to 60° mag. approx. Your route will take you over six states; Okla. is the green one; Missouri is brown; Ill. is yellow; Ind. is red and Ohio is the tan one on your TEXACO MAP. (Advise Headquarters of change of location of any major cities or rivers encountered enroute.) Care must be used at inter-

section of US 66 a  
--- stay on US 40.

3) If you become  
land at nearest air  
are - Ask direction  
play confidence --  
location on front o

4) FAA Briefing:  
all FAA briefings -  
ing Officer that you  
have attended many  
elementary questions  
Officer is competent  
out the meeting to l  
that you are not mer  
you are a "smolderin

5) Have the CAF Br  
describe your aircraft  
wrong machine.

6) At takeoff time  
a wreckless, devil-ma  
a big impression on b  
over the power cables  
big impression on by-s  
small boy what type ai  
to make sure.

7) Conduct your pre  
deliberate manner. Ch  
see that all air has b  
Be sure to kick vigorou  
When you come to a comp  
plane, stare at it seri  
before going on. This  
pression on your crew  
standers think you know

8) When you have fin  
ask another by-stander v



nd US 40 East of St. Louis

e surrounded by lostness,  
port - Do not ask where you  
to nearest mens room. Dis-  
smile at everyone. Read your  
f hangar and proceed to Dayton.

Be a few minutes late to  
This will assure the Brief-  
are no amateur and that you  
uch sessions. Ask several  
to be sure the Briefing  
. Make witty remarks through-  
eave no doubt in his mind  
ely a "hot-rock" but that  
"boulder - Senior Grade".

riefing Officer carefully  
t to avoid takeoff in the

, approach the aircraft in  
y-care manner as this makes  
y-standers. Do not trip  
as this does not make a  
standers. Ask the nearest  
ircraft this is --- just

flight in a rapid but  
eck all fuel tanks to  
een removed therefrom.  
usly at all the tires.  
licated part of the air-  
ously for several seconds  
creates a favorable im-  
chief and makes the by-  
what you are doing.

ished the preflight,  
what aircraft this is.

Then proceed rapidly to your assigned air-  
craft and repeat steps 5 through 7.

9) To enter the aircraft, approach it  
from the left side and leap lightly onto  
the access ladder without looking.

10) Pick yourself up off the ground in a  
casual manner, locate an access ladder and  
climb the steps. (Note: Try to control the  
tense feeling in your stomach and above all,  
don't look down!) Enter the cockpit in any  
manner you choose. If at all possible, avoid  
going in head first.

11) Next, check stick and throttle posi-  
tions. If the stick is in your left hand and  
the throttle is in your right hand, you are in  
the cockpit backwards. Don't panic! Smile at  
the crew chief, wave to the by-standers and  
slowly rotate your body 180°. Now rearrange  
all shiny, well used switches, levers and  
buttons in the cockpit in a pleasing and eye  
catching manner. Don't bother the dull, corroded  
ones. Prepare to start the engine!

12) Upon starting the engine, advance the  
throttle smartly to military power and stand  
by for the crew chief's signal. When he be-  
gins waving to you, do not wave back. Rapidly  
rearrange the switches, levers and buttons,  
until the right combination is found -- where-  
upon the crew chief will stop waving. (Note:  
In making magneto check, move ignition switch  
as rapidly as possible to obtain lowest drop  
in revs -- and to prevent complete engine failure  
on inoperative magneto.)

13) When signal is given to taxi, advance  
the throttle smoothly, hit the "highblower"  
switch and jump smoothly over the chocks.  
Retard the throttle to military power and try



# the good old days

to avoid further use of highblower while taxiing as this irritates ground personnel.

14) When taxiing, an effort should be made to avoid collision with spectators as this causes damage to the propellor -- and creates an untidy condition on the ramp.

15) If, after turning out of your parking spot, you see a large gray wall, stop quickly, turn around and taxi back out of the hangar. You have committed a rather serious error.

16) After arriving in the general vicinity of the runway, immediately begin calling the tower at frequent intervals in a loud, authoritative voice. Do not take negative for an answer. This will accelerate the launching process. If you are on a downwind runway, take off anyway. This will demonstrate your self-confidence.

17) After leaving the ground, pull the nose up smartly, close your eyes and count 10. If contact with the ground has not occurred by that time, continue the mission as briefed. (Note: You may open your eyes for the remainder of the flight if you wish - However, this is optional).

18) You may now relax and amaze yourself (and the spectators) with your uncommon ability to perform incredible feats of aerial gymnastics. Note: All pilots are directed to maintain a one to one ratio between take-offs and landings. Pilots found in violation of this directive will forfeit parachute privileges!

Carry on, Colonel ---- in the highest tradition of the Corps.

Your Friendly CAF Flying  
Safety Officer

**T. Beauregard**

Throckmorton T. Beauregard  
Colonel, CAF



After reading the CAF orders, I'm sure you wonder what the "Tongue-in-Cheek" approach has to do with flying safety in today's modern Air Force. I have approached it by asking some questions, such as:

- **Flight/Crew Briefings:** Are they complete? Do they cover the flight in adequate detail? Are they on a level consistent with the qualifications of the people involved?

- **Publications:** Do you always check the currency of the navigation publications in the aircraft? Do you insure that someone on a previous flight hasn't removed a needed let-down? Do you write up NAV discrepancies so that they can be corrected prior to the next flight?

- **Professional Approach:** Do you hesitate to admit that you made an error? Do you learn from the errors that you make?

- **Taxi:** Have you noticed the havoc that is created as an aircraft taxis out of the chocks at high power settings? Have you considered the equipment damage and personnel injury that can occur under these conditions?

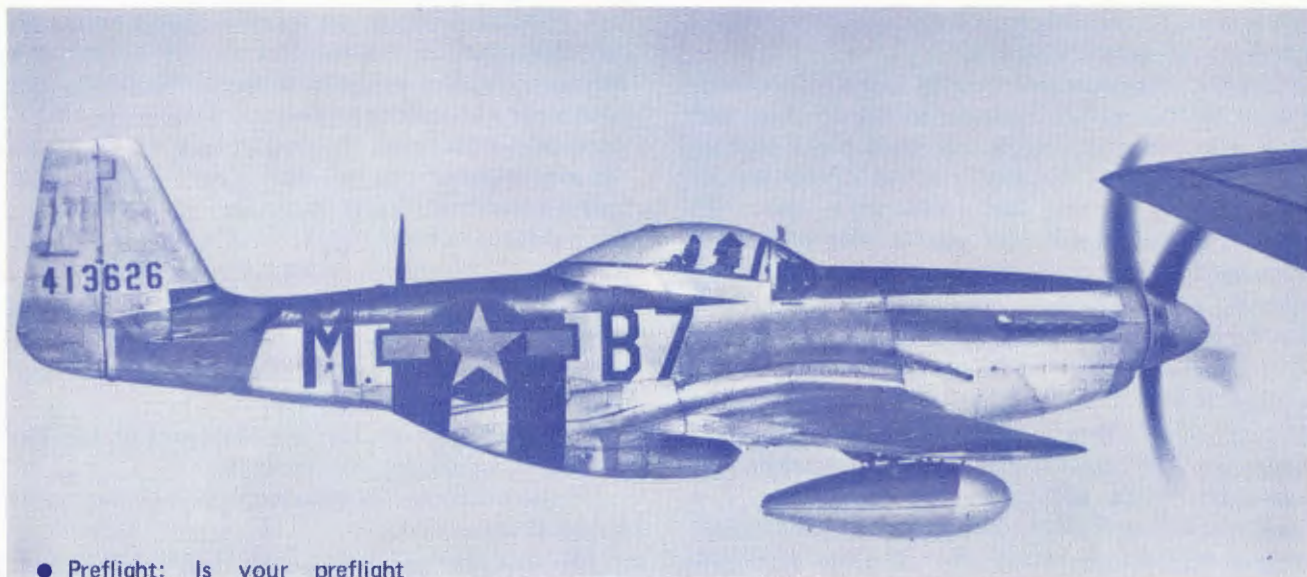
- **Radio Discipline:** Are you considerate in your use of the radio? Do you really feel that harassment of the guy on the other end will expedite your clearance?

- **Professionalism:** Are you a professional? Do you act like a professional? Do you really feel that spectators will be amazed with your uncommon ability to perform incredible feats of aerial gymnastics?

Your answers to these questions should help you analyze your own feelings about professionalism and flying safety. Do you think the situations outlined in the CAF article were the good old days? If so, remember that the loss rate in the good old days was much higher in training than it was in combat. Our job is to accomplish the mission effectively and efficiently.

**CARRY ON, COLONEL** — in the highest tradition of the Corps.

*Your Friendly 23rd TFW  
Flying Safety Officer.*



- **Preflight:** Is your preflight thorough, complete and by the checklist?

- **Cockpit Procedures:** Do you use the checklist or do you use your own shortcuts? Are you completely familiar with what you are checking when you check the aircraft systems?

- **Takeoff Data:** Do you compute your takeoff data correctly? Do you know what you will do if the aircraft doesn't perform as expected?

Confederate Air Force orders reprinted by special permission of the Confederate Air Force.



# TAC TIPS

...interest items,

## *I NEVER HAVE TO GO AROUND*

by Lt James B. Bladen  
41 TAS, Pope AFB, NC.

We Air Force pilots take pride in our approaches and landings, and on occasion unwisely salvage a bad approach or landing rather than go around. But what happens when you're on short final and tower says "an uncleared Cessna 150 just pulled onto the runway — GO AROUND," or "we have an emergency in the pattern — GO MISSED APPROACH." Let's analyze why this is a demanding and sometimes dangerous maneuver.

Weather approaches and descents to landing have been refined by GCA and ILS systems to a series of smooth, exact adjustments to heading and descent rate. Flying a correct approach of this kind requires a great deal of concentration. If the controller's voice says "GO AROUND" and breaks the reverie, the pilot must immediately change from this slow descent to a climbing attitude, and as soon as practicable he must change heading and configuration. When this sequence is rushed, as on final when the aircraft is low and slow, or when the emergency in the pattern is close on your tail, then problems start to occur. Executing a hurried go around or missed approach causes rapid changes in pitch, bank, and yaw which quickly add up to the IFR pilot's nemesis — disorientation. And what better place to be disoriented than on short final!! Now is when all those go arounds you've been practicing come in handy.

The uneasy feeling you get maneuvering low and slow in a tight situation must be offset by positive knowledge of what to do on a go around, and by positive execution of the maneuver. So next time you get a little wide or low on an approach, don't try to salvage it; practice your go around procedures and show the controller how a professional does it.

## *ICY BREATH*

During climbout in the F-4E, the crew noticed that cockpit noises seemed amplified. The WSO made mention of the fact and the pilot began checking the operation of the air conditioning system. Passing FL 200, the WSO complained of shortness of breath and the pilot noticed that the WSO's voice sounded funny. Leveling off at FL 260, the pilot observed the cabin altitude to be 22,000 feet. Deciding the WSO was hypoxic, the pilot began an immediate descent, selected 100 percent oxygen, and directed the WSO to do the same. The WSO acknowledged but seemed to be out of it. During the descent and RTB, the pilot had his wingman visually check the WSO. The wingman reported that the WSO was slouched and his head was nodding. Passing 10,000 feet, the WSO began to talk coherently but complained of tunnel vision and had trouble moving his hands. At 8500 feet, the WSO returned to normal. After an uneventful landing, the flight surgeon grabbed the two crewmembers and ran them through the standard tests. Suffering no ill effects, the crew was later returned to flying status.

Maintenance found that the pressurization problem was caused by a kinked rear canopy seal.

The aircraft oxygen system was checked but was found to have no deficiencies.

Life support types checked the WSO's oxygen mask immediately after the crew landed and found no deficiencies. They did, however, find excessive moisture in the mask and hypothesized that the moisture froze in the exhalation valve and caused the WSO's breathing difficulty. This is further substantiated by the fact that the cockpit heating system was also affected by the pressurization leak making the rear cockpit colder than normal.



# mishaps with morals, for the TAC aircrewman

## **ASR-FULL CIRCLE**

Remember when the controllers used to give you recommended altitude at each mile on a surveillance (ASR) radar final approach? We have completed the circle and that procedure has now come home. Effective 1 April

1973, USAF controllers will provide the pilot recommended altitudes at each mile on a surveillance radar final approach, down to the last mile which is at or above the published MDA. But there's a kicker. The option is yours. If you want this service, you must ASK for it from the controller.

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## **RECHARGEABLE FLASHLIGHT**

From the Navy we have this photo and the following narrative:

"The nearly unidentifiable photo below is all that remained of a rechargeable flashlight after it was plugged into a 400-cycle aircraft outlet.

"In the patrol squadron which submitted the incident report, it was common practice for the crewmembers who owned this type of flashlight to recharge it in the aircraft. A passenger in the P-3B plugged the flashlight (Sanyo Rechargeable Model NL 421, AC100-117V, 50-60 cycle) into the utility power receptacle above electronics bay 41.

After charging for a period of 5-10 minutes, the flashlight burst into flames. A towel was thrown over the flashlight and the utility power receptacle circuit breaker was pulled extinguishing the fire.

"Although the exact cause of the incident is unknown, it was the opinion of the squadron technicians that the charging capacitor or transformer broke down. Recharging flashlights in the aircraft is now prohibited in the squadron."

Looks like these are good words, not only for aircrew members but also for passengers who might be tempted to use the aircraft power receptacles to charge their flashlights. A small addition to the pax briefing checklist seems to be in order.





# SPO COR

## Read The Directions

**Lt Col John DesJardins**

The F-111 aircraft commander and the weapons system officer arrived at the aircraft on schedule and accomplished the preflight according to the checklist. The load was 20MK-82 bombs. All was normal until shortly after takeoff. As the flaps were raised, so as not to exceed 10 degrees angle of attack, the aircraft yawed to the left about 1¼ ball widths. This was trimmed out and flaps and slats were fully retracted. A buffet was apparent and the aircraft commander moved the wings to the 26 degree position in an attempt to reduce the vibrations. About this time, an F-4 photo chase aircraft joined up as briefed and informed the F-111 aircraft commander that the number four pivot pylon and BRU had pivoted about 45 degrees nose outboard and that the noses of the bombs on number four pylon were in CONTACT with the noses of the bombs on number three pylon. The fuses of the bombs on both pylons were vertically overlapped and the tail fins of the bombs on pylon number four were approximately ten inches from the side of the fuselage. (See photo.)

Because of the position of the bombs and pylons, jettison of the ordnance was ruled out and the decision was made to land at an alternate airdrome with all ordnance on board. As the airspeed decreased below 300 KIAS, the aircraft had a tendency to roll left. About ¼ right stick and ¼ right rudder was necessary to maintain wings level at 250 KIAS. The gear was lowered with little change in control surface pressures and as the slats and flaps were extended, the control forces returned to near normal. The landing occurred without further incident.

A weapons team was sent from the home base to assess the damage, if any, and to correct the situation. The bombs on pylon number four were removed and the pylon was realigned and torqued into place. The bird was

called in as ready for flight but higher authority ordered download of pylons and bombs on stations four and five. The aircraft was then flown from the alternate airdrome and the remaining ordnance expended on the range.

This particular incident raised many an eyebrow and further investigation revealed that not one but two separate violations of tech data occurred, the first during the initial loading and the second during the attempt to correct the situation.

For the initial loading, let's turn to a statement from the crew that installed the malfunctioning pylon. "The pylon, locked to the MJ-1 mounted pylon adapter, was raised into the wing station. The ring lock was started and checked for thread engagement by weight test. The pylon was then raised until the teeth were meshed. With the teeth meshed, the collar was torqued to 4000 inch pounds. THE MJ-1 BOMBLIFT ADAPTER WAS THEN RELEASED FROM THE PYLON AND THE PYLON WAS RETORQUED TO 4000 INCH POUNDS."

OK, now let's look at what the TO says about that particular operation. TO 1F-111E-2-11-1 states: "Engage ring nut with threads in wing cavity; tighten several turns by hand, THEN RELEASE TENSION of lift truck . . . Specialist on top of wing shall visually check to insure that a gap exists between teeth of pivot post and mating teeth in wing housing . . . Tighten ring nut by pushing back and forth on nose of pylon with force of 100 to 150 pounds while applying torque of 330 (± 30) foot pounds (3600-4320 inch pounds) with torque wrench."

The TO was not followed; notice that the MJ-1 lift truck tension is supposed to be released before tightening the ring nut. Just the opposite course of action was followed by the load crew. By torquing with MJ-1 pressure on the pylon, it is possible that the ring nut was torqued in a bind and subsequent vibration during bomb loading, taxi, and flight caused the pylon to settle, allowing the teeth to become disengaged, leaving the pylon to swing in the breeze.

The next disregard for TO instructions occurred when



# NER



the weapons load team dispatched to the alternate field attempted to correct the situation.

Take a look at this statement from one of the team members: "We turned the pylon ring approximately one turn and torqued it at 4000 inch pounds and reinstalled lockpin. It was determined that it was not yet tight enough. We then set the torque wrench to 5000 inch pounds and retorqued the pylon. The lockpin wouldn't line up properly and as the torque wrench didn't have any higher setting we pulled on the wrench further past the torque so the lock pin would seat in the pylon ring."

The team chief stated that 100 foot pounds (1200 inch pounds) of OVER TORQUE was required to tighten the pylon. That should have been a signal that something wasn't right, yet the airplane was released for flight. If that higher authority had not ordered a download, the same free swinging action may have occurred again.

We were lucky on this one. Had the bomb fuses made contact, it is quite possible a detonation would have occurred. It is not necessary to itemize what would have happened next.

Remember, when all else fails, read the directions.





## EMERGENCY SITUATION TRAINING

### C-130A Refueling Valve: Open or Closed ?

by Major Dave Woolwine  
TAC/DOV

During the twenty year evolution of the C-130, as each model came into existence, improvements and modifications were made until, with the C-130E, we have quite a sophisticated weapons system. However, many of the earlier models, including the "As", are still around, as are some of their shortcomings. One of the early C-130A system shortcomings became quite evident recently on a SEA ferry mission. The pilot of the bird in question had to make a two engine landing short of his destination with essentially all of the remaining fuel in the number one tank. Basically, the culprit in this situation was a refueling valve stuck in the "open" position.

The first series of C-130A aircraft, tail numbers 53-3129 thru 55-0022 (including the previously mentioned incident aircraft), is more susceptible to this refueling valve problem, simply because the refueling manifold and crossfeed manifold are one and the same. Aircraft 55-0023 and up are not affected with this problem since these aircraft have two separate fuel manifolds which are connected only by a ground transfer valve (ground use only).

Now getting back to the first series of aircraft (53-3129 thru 55-0022), there are several situations with which the aircrew could be confronted during the different phases of flight. These situations have cockpit indications and remedial courses of action. But you must first recognize that a malfunction exists.

It is unlikely that a failed refuel valve would be detected by the refueling operator or the flight engineer on preflight. The first likely indication and detection would be during the fuel crossfeed check during taxi. In this case, when the crossfeed valve for the tank with the malfunctioning refuel valve was open, a low fuel pressure warning light would illuminate either steady or intermittently. Additionally, actual testing has shown that with a refuel valve stuck in one of the following positions, the corresponding approximate fuel pressure would be:

valve fully open — fuel pressure 1-5 psi; valve one-half open — fuel pressure 10-15 psi; and valve one-quarter open — fuel pressure 18-19 psi. If the internal tanks had been topped off over the wing, there would probably be NO indication of a problem during the taxi check since the fuel float valve would not allow fuel to flow into the tank.

From the discussion to this point, we can clearly see that it is entirely possible for the aircrew to take off with the malfunction undetected. It would remain undetected until inflight fuel consumption has progressed to the point where the crossfeed valves would be opened for fuel balancing or pylon operation. At that time, fuel would immediately start to transfer into the tank with the "open" (malfunctioning) refuel valve accompanied by an intermittent low fuel pressure light and low fuel pressure on the gauge (1-5 psi for an "open" valve). Fuel transfer will continue until the tank is full and the float control valve stops the incoming fuel or until the crossfeed valves are closed by the flight engineer. When this transfer situation is encountered, all crossfeed valves should be closed and remain closed. The aircrew should realize that to open a crossfeed valve in this situation will cause fuel to flow to the tank with the "open" refuel valve and could aggravate and compound the fuel distribution problem under ANY crossfeed situation.

This malfunction would certainly create a high degree of aircrew consternation where cruise performance and endurance were of primary concern. When the problem is detected, plan for an immediate landing to have the situation corrected. If maintenance is not available — the refuel valves can be opened or closed manually.

The key here is the EARLIEST possible detection. Crewmembers flying C-130As 53-3129 thru 55-0022 (particularly flight engineers) should be alert for this problem and the indications associated with it during all phases of preflight/flight.



## TACTICAL AIR COMMAND



### Maintenance Man Safety Award

Technical Sergeant Johnnie M. Pohlers, Flight Operations Life Support, 1 Special Operations Wing, Hurlburt Field, Florida, has been selected to receive the TAC Maintenance Man Safety Award for February 1973. Sergeant Pohlers will receive a letter of appreciation from the Commander of Tactical Air Command and a Certificate.



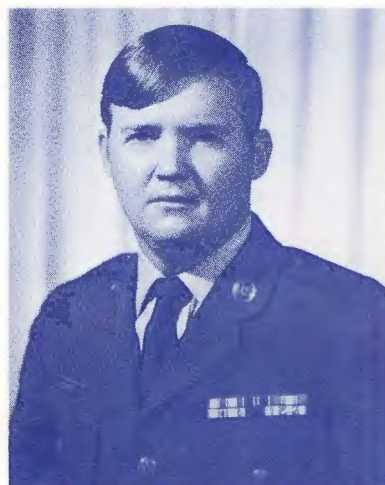
TSgt POHLERS

## TACTICAL AIR COMMAND



### Crew Chief Safety Award

Staff Sergeant James B. Satterfield, Jr., 547 Tactical Air Support Training Squadron, 1 Special Operations Wing, Hurlburt Field, Florida, has been selected to receive the TAC Crew Chief Safety Award for February 1973. Sergeant Satterfield will receive a letter of appreciation from the Commander of Tactical Air Command and a Certificate.



SSgt SATTERFIELD

## TACTICAL AIR COMMAND



### Ground Safety Man of the Month

Airman First Class Lloyd D. Baker, 354 Supply Squadron, 354 Tactical Fighter Wing, Myrtle Beach Air Force Base, South Carolina, has been selected to receive the TAC Ground Safety Man of the Month Award for February 1973. Airman Baker will receive a letter of appreciation from the Commander of Tactical Air Command and a Certificate.



AIC BAKER





# TO FLARE OR NOT TO FLARE - THAT IS THE QUESTION

by Major Jim R. Sharp, USAF  
Marine Corps Command and Staff College

**SCENE:** A-7 Checkout, recent pilot training graduate, full-stop landing, TR-1.  
**PLACE:** One-quarter mile from touchdown.  
**WEATHER:** Clear, visibility twenty miles, winds gusting to twenty knots.  
**ACTION:** Pilot, to himself: "Rough is hardly the word for this air... Airspeed looks okay... Added a gust correction like the book said... Don't quite understand this angle of attack. Wow! That gust really rocked me... Not long to touchdown... Descent too fast... A little FLARE will take care of that... Add power... ADD POWER... Pull the nose up... OH HELL!"

What happened? At best, the airplane touched down harder than the pilot desired. At worst, the airplane stalled, hit the ground hard, smashed the tail section,

rolled to one side, sheared a wing tip, and veered off the runway.

Each conclusion represents a possible result, but NOT the cause. The basic cause of the incident (or accident) was too much drag for the available thrust to overcome before the aircraft hit the runway. Of course other factors apply, such as engine acceleration, severe crosswinds, pilot experience, training, AD INFINITUM; however, the basic cause remains.

The A-7 was used as an example; however, the same incident could happen to any aircraft. The problem is distinctly pertinent to three operational aircraft in extensive use, the A-7, F-4 and F-111. These aircraft were designed for a simple, power approach and touchdown technique, that would produce excellent stopping performance.

The relative landing ease of these aircraft can provide a false sense of security and mask potential conditions that



can reach out and "bite" you at the most inopportune moment. Examination of a few factors influencing aircraft behavior during approach and touchdown should provide better insight into the landing technique recommended by the flight manual. Although this article is devoted primarily to a comparison and analysis of the approach and touchdown of A-7s, F-4s, and F-111s, the principles can be applied to any aircraft.

## FLARE, A MISUNDERSTANDING

The approach for each of the three aircraft is basically the same; that is, each is flown at an optimum angle of attack, power is essentially constant until touchdown, and NO flare is used.

In the problem action at the beginning of the article, you may have noticed the word "flare." That word along with "round-out" has been with aviation since the Wright Brothers. These terms correctly belong in the description of landing techniques in aircraft such as the T-38, F-100, and F-105.

The "flare" or "round-out" normally consists of changing the aircraft's attitude (pulling the nose up), reducing thrust, shallowing the glide path, and decreasing the descent rate and airspeed until a smooth touchdown is achieved. If you are successful, all of that is accomplished before the aircraft leaves half the runway behind.

A common error is to apply these terms to aircraft such as the A-7, F-4, and F-111. Neither "flare" nor "round-out" represents the events just before touchdown for these aircraft. The use of these terms leads to misunderstanding which in turn leads to actual application. If a pilot flares the A-7, F-4, or F-111 in the same sense that he flared the T-38, the result may be a hard landing, possibly worse.

## LANDING TECHNIQUES COMPARED

No gust correction is added to the F-4 or F-111 final approach airspeed since an "on-speed" (optimum angle of attack) approach provides sufficient control for any wind gust that might occur. Conversely, one-half the gust factor is added to the A-7s "on-speed" approach for better control and that airspeed is MAINTAINED UNTIL TOUCHDOWN.

The attitude of the F-111 and F-4 is held constant throughout ground-effect. The influence of ground-effect on the aircraft begins at approximately one wing-span of altitude. It causes an airflow change around the aircraft, which in turn reduces the effective angle of attack at the horizontal stabilizer. Stabilizer lift, which balances and counteracts wing lift about the center-of-gravity, is decreased and the aircraft tends to nose-down. To

maintain a constant attitude, the pilot must increase the stabilizer angle of attack by moving the control stick aft. The "slow" light should illuminate just before touchdown.

Moving the stick aft could easily be interpreted as a "flare." However, this is NOT TRUE since the action is taken only to MAINTAIN AIRCRAFT ATTITUDE.

"Flare" does not describe the A-7 landing. "On-speed" (or "on-speed" plus the gust correction) is maintained until touchdown. This technique, when compared with the F-4 and F-111, indicates that the optimum approach angle-of-attack is relatively higher; i.e., the angle of attack margin between optimum approach and stall is relatively less than for the F-4 and F-111, and "on-speed" does not provide the A-7 sufficient cushion for wind gusts.

If an "on-speed" approach is performed in the A-7, a slight nose-down tendency can be observed just before touchdown. Maintaining the "on-speed" angle of attack through ground-effect to touchdown, rather than a constant attitude, precludes the possibility of a near-stalled condition (remember the angle of attack margin). The near-stalled condition produces a high descent rate and results in a hard landing, possible tail-cone damage, and directional control problems if a severe crosswind or gust is present. The increased final airspeed for gusty wind conditions decreases the angle of attack and provides an airspeed cushion for wind gusts. The additional airspeed and lower angle of attack at touchdown also enhance directional control.

## LANDING TECHNIQUE

The T-38, F-100, and F-105 design requires a flare prior to touchdown. The A-7, F-4, and F-111 are designed to land WITHOUT a flare. Although a shallow flare maneuver is possible at the final approach conditions recommended by the respective flight manuals, the margin for error is low and the consequences of pilot misjudgment can be disastrous.

Adherence to the landing technique recommended by the flight manual will aid in keeping the aircraft on the runway, even in gusty winds. Good technique will prevent bent tail cones, sheared wing tips, overstressed landing gear, and irate commanding officers. ➤

*Ed. Note: This article was extracted from a study conducted by the author in which he expounded upon the mathematical equations used to substantiate his points. For a copy of the mathematical data write: The Editor, TAC ATTACK, TAC/SEPP, Langley AFB, Va. 23365.*



# CHOCK TALK

*...incidents and incidentals*

## UNSECURE PILOTS

Recently, during routine maintenance, a seat belt mounting link was found broken on one of the pilot's seats of a C-130. Although this was a phase card item of inspection, the unit decided to conduct a one time inspection of all assigned aircraft. Good thing, too. Six other aircraft were found to have broken seat belt links, all on the side from which the pilot and copilot get into the seats. All of the aircraft in which these discrepancies were found were 62 and 63 models. Although most of the C-130s in TAC regular forces are not of this vintage, it's a different story with the As, Bs, and Es possessed by the Reserve Forces. For those units, a quick check now might save you an unsecured pilot (or an insecure copilot) later.

## TWO AND A HALF TURNS FOR THE WORSE

During an acceptance flight test in an F-4 (another command) at FL 385 and at 0.9 mach, the stick began to oscillate in pitch with rapid, ratchet-like movements and the aircraft responded with a rapid pitch oscillation. The pilot hit the paddle switch. Following that, the pitch aug off, auto pilot disengaged, and master caution lights came on but the oscillations continued. When the stab-aug switches were turned off manually, the gyrations began to decrease and the pilot was able to overpower the stick movements. During the descent, the movements abated except for an occasional jerk and when the gear was lowered everything returned to normal. The jock said that the pitch oscillations were not hazardous in that portion of the envelope where they occurred but at low altitude, high airspeed it would be a different story.

Maintenance grabbed the airplane and checked the auto-pilot, pitch aug, bellows, actuator, and linkages but could find nothing wrong and the oscillations could not be reproduced on the ground. They replaced the stabilator actuator and the bellows assembly but bench checking found no discrepancies with the old units. It was decided to fly the machine again, limiting the flight envelope to low Q.

About the same thing happened on the second flight but it was discovered that turning off the pitch-aug switch had no appreciable effect on the oscillations.

This time maintenance concentrated on the auto-pilot and pitch augmentation components. The auto-pilot amplifier, auto-pilot control panel, stick force transducer, and pitch rate gyro were replaced but again bench check didn't find anything wrong with the old units.

Another flight was scheduled and the airplane gave a repeat performance; this time it was discovered that the occurrence of the oscillations were not related to airspeed. Additionally, the pilot found out that the only sure way to stop the oscillations was to turn off both generators and extend the RAT.

Back at the patch, troubleshooting concentrated on the possibility of a high resistance short or electro-magnetic interference. A "megger" was used to try and locate a short in one of the wiring bundles and during this investigation a VISUAL inspection was made of plug 65P717. The plug was 2 1/2 turns from being tight and when it was jiggled, the stabilator would chatter. The plug was tightened; end of problem.

During past maintenance, one man didn't spend the one minute necessary to tighten that plug and it cost the taxpayer the price of 300 manhours of work; it could have cost us an airplane and a pilot.



*with a maintenance slant.*

### **NO DIVOTS AT LANGLEY**

The golfers at Langley AFB have perfected divotless iron shots, not because they can't stay down on the ball but for fear that if the divot is too deep, the ball (also the cart, the golfer, and the nineteenth hole) might go further than anticipated. There is an underlying reason.

A few years ago when the contractors were clearing the ground for a portion of the golf course, the blade of the Cat suddenly clunked into something metallic. The driver (being nobody's fool) dismounted to investigate and found an ominous looking cigar shape protruding from the excavation. A bomb! EOD was promptly called to the scene and in the ensuing months, uncovered the material you see in the accompanying photos. The bombs, most of them sand-filled but with LIVE impact firing devices, dated back to the time when General Billy Mitchell was doing his thing at Langley. The area in which they were discovered was a bomb storage dump at the time. When

the bombs were no longer needed they were simply covered over, apparently, along with the records of their existence.

At one time in the past, a portion of the ground on which the base now rests was used as a bombing range. The airlift wing found that out recently when, during the rehabing of the assault strip, a bomb which had been dropped in the twenties but did not detonate and which still had a live firing mechanism, was discovered under the assault strip. Watch those hard landings, troops.

The whole pitch here is to note that sins of the past always seem to come back to haunt . . . somebody. Let's just make sure that we haven't covered up any "bombs" that may explode fifty years from now.





# letters to the editor.....

## SWING WING AIRCRAFT

I have just read your very fine article in the February 1973 edition of the TAC ATTACK on swing wing aircraft. While Messers. Holder and George did a real fine job overall on the history of swing wings — there is one aircraft highlighted which in reality was not a swing wing, specifically, the Messerschmitt P-1101. Possibly the restriction on space and content had something to do with the brevity of the article, however, some very pertinent historical facts were omitted and, I think, should be brought out.

As I mentioned, the P-1101 was NOT a true swing wing, i.e., wing sweep could not be controlled from the cockpit. In fact, the prototype was originally designed and built with a fixed wing possessing a 40 degree sweep. Much later it was decided to modify the aircraft so that any one of three preselected sweep angles were to be preset and locked on the ground, and the aircraft was to be flown at each setting, thru its performance envelope. It was not intended as a variable geometry aircraft in the accepted sense. It was not until 1947 when Mr. Robert Woods of Bell Aircraft designed a mechanism which would allow the wing to be swept in flight by the pilot; however, the prototype P-1101 was damaged in shipment from Wright Field to the Bell factory where the mod was to have been made and the USAF Engineering Division at Wright Field objected to the mod and further development of the aircraft. They felt that the unusual structure arrangement would not be suitable for the desired armament and its size provided insufficient internal fuel capacity to make it a new interceptor.

The most important reason for the Germans dropping the P-1101 were the numerous strong points in the fuselage dictated by the basic layout which led to an increase in weight with an associated decrease in calculated performance and the low thrust line of the engine which it was thought would result in unacceptable trim changes with any increase or decrease of power.

Contrary to the article — even tho the war was going badly for Germany, work continued on the P-1101 and when the Allies reached the factory, the prototype was more than 80 percent completed. The engineering drawings and calculations were found! Prior to capture, the German engineers micro-filmed the entire complement of drawings and calculations and then hid them — away from the plant. These were stumbled upon by the advancing French Army and immediately dispatched to Paris.

The swing wing concept failed to receive more attention because at the time there was no immediate application that would have justified the use of a variable sweep; with its associated complexity.

Being an avid aviation history fan, I could not let this one get by without comment. In the past I

have provided historical data and photos to another command (ADC), for their safety magazine, the INTERCEPTOR, and would be happy to assist your fine magazine should the need arise.

TSgt Richard R. Sherry  
12WSq/DA (MAC), Ent AFB, CO

*Your addendum to "The Swingers" article is certainly appreciated and we welcome your offer of historical data assistance. Feel assured we'll be calling on you. Ed.*

## GALLANT LADY

As a former F-100 crew chief for about five years, I enjoyed your article, "Farewell to a Gallant Lady" in the August 1972 issue. However, I would like to make a correction to the article. The F-100 has been retired from TAC and active combat service, but it has NOT been retired from ACTIVE DUTY as yet. Air Force Systems Command (AFSC) is currently flying approximately 11 F-100s, this being two (2) F-100Ds and nine (9) F-100Fs at three (3) different bases. Plus, I believe that AFLC at McClellan AFB is still flying a couple of the F-100As.

As an F-100 historian, I am well aware of the great job that this "Gallant Lady" has done, and that hopefully it will never again fire its 20mm cannons or drop any more bombs in anger. I only hope that AFSC will continue to fly its Huns until Sept '74 so that the old girl will be able to "RETIRE" from active duty with 20 years of faithful service behind her.

In addition to having F-100F 56-3730 "Spirit of St Louis II" at the retirement from TAC, Cannon also had F-100D 56-3440 which was the

only F-100 that was painted all WHITE, plus F-100F 58-1227 "Excalibur V" which was flown by BGen Charles F. Blair and was the first aircraft to fly over the Pole, flying from Wethersfield RAF Station to Eielson AFB, Alaska (4735 miles nonstop).

SSgt David Colbert  
Wichita Falls, Texas

## SNEAKY WAYS

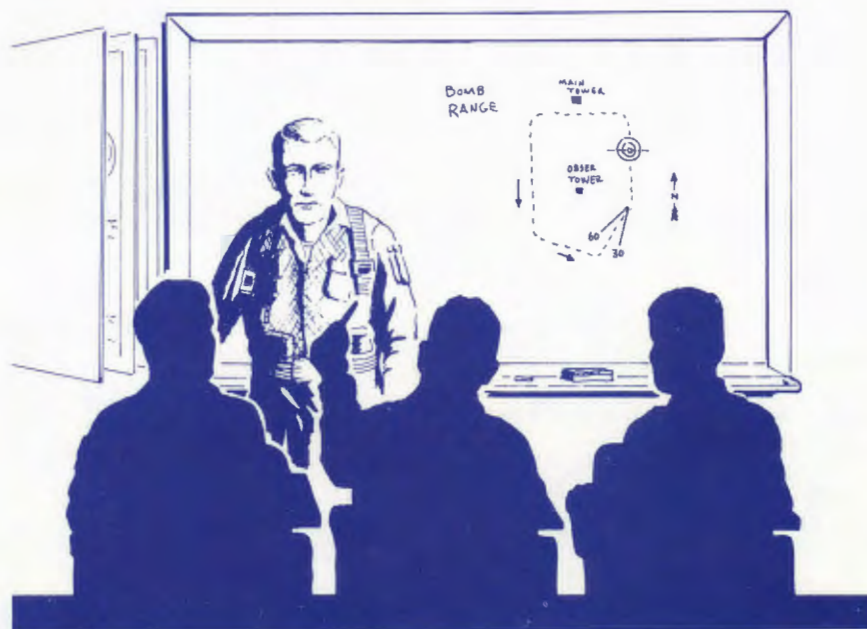
Dear Sir;

Captain Herron's letter in your January offering made excellent sense and reading. Since the operations and safety types here in our AFRES A-37 unit welcome and use a variety of input, we all try to get into the safety program.

I couldn't help wondering, though, if the illustration accompanying the article wasn't a throwback to Ol' Tat's sneaky ways. Could you have thrown us a fish for the monthly wrapper with that range example? Or are there really some ranges that have "main towers" down range from and under the pattern from the bomb circle?

WILLIAM S. HALL  
Information Officer  
910th Special Operations Group (AFRES)  
Youngstown Muni Aprt, Vienna, Ohio 44473

*In every issue of TAC ATTACK we have "Letter Bait." Without such, this page would, most likely, blank out. You'll notice in the illustration, a member of the audience has his hand raised; presumably, to ask a question. Now you know what his question was to have been. Ed.*





# TAC TALLY

# AIRCRAFT ACCIDENTS

## UNITS

### MAJOR ACCIDENT RATE COMPARISON

	TAC		ANG		AFRes	
	1973	1972	1973	1972	1973	1972
JAN	5.0	0	8.5	0	14.9	0
FEB	4.9	1.6	9.3	0	10.4	0
MAR						
APR						
MAY						
JUN						
JUL						
AUG						
SEP						
OCT						
NOV						
DEC						

	THRU FEBRUARY					THRU FEBRUARY			
	1973		1972			1973		1972	
	ACDTS	RATE	ACDTS	RATE		ACDTS	RATE	ACDTS	RATE
9AF	2	5.8	0	0	12AF	2	3.8	0	0
1 TFW	0	0	0	0	27 TFW	0	0	0	0
4 TFW	0	0	0	0	35 TFW	0	0	0	0
					49 TFW	0	0	0	0
23 TFW	0	0	0	0	58 TFW	0	0	0	0
31 TFW	0	0	0	0	67 TRW	0	0	0	0
33 TFW	0	0	0	0	71 TASG	0	0	0	0
68 TASG	0	0	0	0	313 TAW	0	0	0	0
316 TAW	0	0	0	0	314 TAW	0	0	0	0
317 TAW	0	0	0	0	355 TFW	0	0	0	0
					366 TFW	0	0	0	0
354 TFW	2	45.0	0	0	474 TFW	2	38.7	0	0
					463 TAW	0	0	0	0
363 TRW	0	0	0	0	23 TFW	0	0	0	0

### TAC SPECIAL UNITS

1 SOW	1	12.3	0	0	4410 SOTG	0	0	1	18.8
2 ADG	0	0	0	0	4485 TS	0	0	0	0
57 FWW	1	30.3	0	0	4500 ABW	0	0	0	0
ADS	0	0	0	0	OTHER	0	0	0	0

TAC		
FEB 73	Thru February	
	1973	1972

8	8	2
3	6	1
0	4	7
2	5	2

1	5	2
1	2	0
100%	40%	0

## SUMMARY

TOTAL ACCIDENTS
MAJOR
AIRCREW FATALITIES
AIRCRAFT DESTROYED

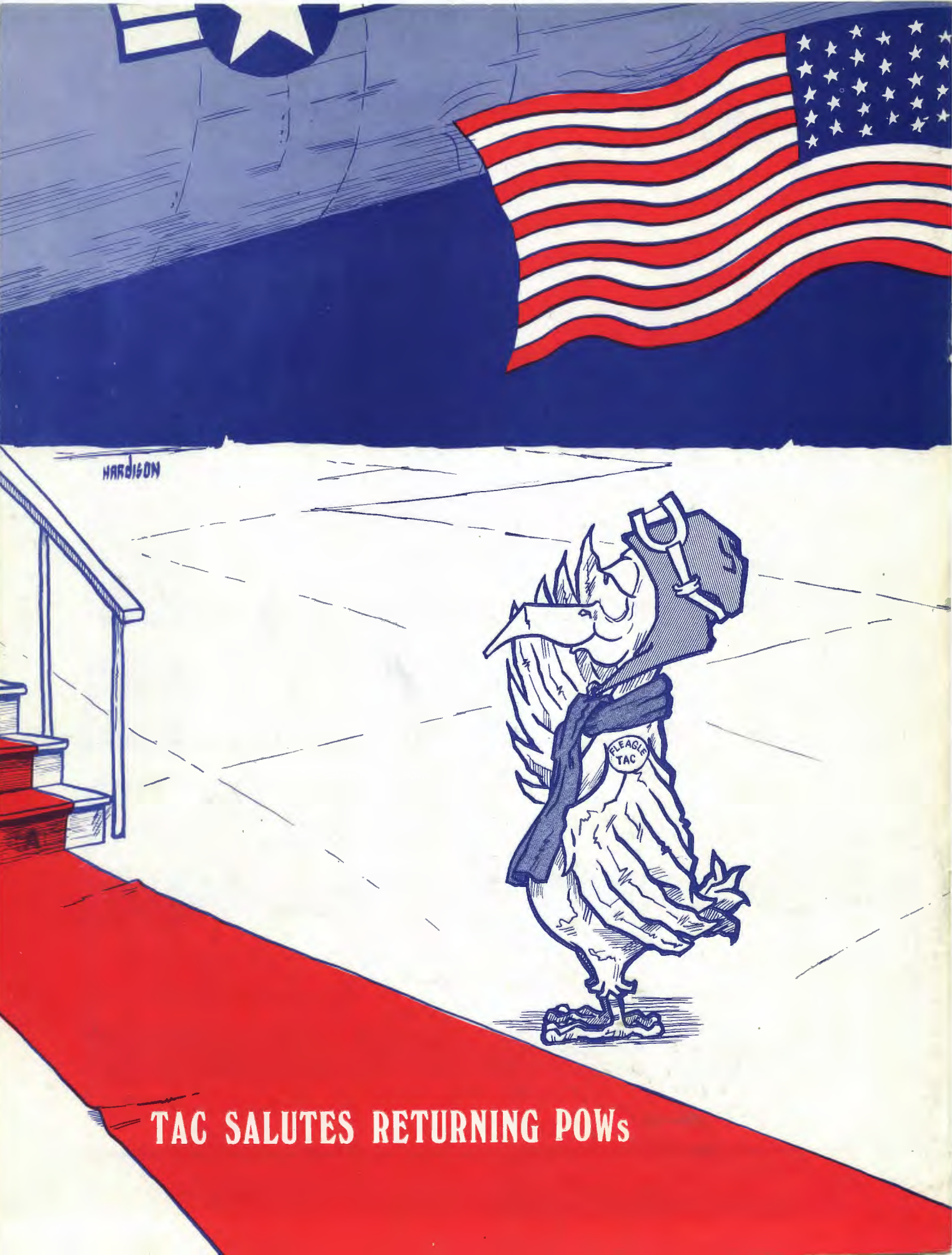
TOTAL EJECTIONS
SUCCESSFUL EJECTIONS
PERCENT SUCCESSFUL

ANG		
FEB 73	Thru February	
	1973	1972

2	4	1
2	4	0
1	1	0
1	3	0

1	3	0
0	2	0
0	66.7%	





HARDISON

**TAC SALUTES RETURNING POWs**