

TAC ATTACK

MARCH 1973



WHEELS ARE SQUARE
Pg 12

for efficient tactical air power

TAC ATTACK

MARCH 1973

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Tactical Air Command

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Angle of ATTACK



DECAY

At a time when we must look within ourselves to strip away the lethargy, and get down to getting the job done, and get it done safely with resources that become more and more limited, two reports have come across my desk to indicate that some decay in our attitude may be creeping in. The first one concerns an ORI/MEI of a TAC unit, and I quote directly from the report:

"Gun shop technicians were observed kicking the internal components of a gun pod during troubleshooting."

The second concerns an out-of-command multi-engine aircraft accident in which numerous violations of regulations and an obvious lack of crew discipline were evidenced which may not have directly affected the accident but which nevertheless established the climate in which the accident occurred.

Both situations reek of immaturity and the lack of dedication. We can afford no such deficiencies in TAC.

There's a word which is used, and probably over-used . . . professional. It means we must accomplish our jobs, regardless of what they are, to the best of our abilities. The situations I've described hardly fit the mold and if we allow decay in our attitude to enter and subsist, we cannot maintain our readiness as a combat command.

It takes a continuing personal evaluation and reevaluation of ourselves and of those whom we supervise to keep our motivations channeled in the right directions.

Self-discipline, attitude, motivation, professionalism, and dedication are all synonyms for safety.

E. HILLDING, Colonel, USAF
Chief of Safety

MY FIRST GCA



ED NOTE: The GCA of today is a precision approach in which all pilots are trained to the teeth. We take great pride in our instrument approaches and the GCA is the perfect example of ground controller-pilot coordination. But that was not always the case.

Imagine yourself in the soup, which bottomed out at terra firma, no place to go that had good weather, no gas to get there even if there were such a place, having only read a pamphlet on the ground controlled approach, an eleven year old for a copilot, when somebody says, "How about a GCA?"

We had a young Air Force Captain in Hungary who left his quarters one morning to go to work. He went behind his apartment to get his Jeep and discovered a Russky Soldaten in the process of stealing it. The Russian had sawed off the chains which we always wrapped around the steering wheel and the left front wheel, and was engaged

in pushing the vehicle down the street where he would eventually reach a Russian garage, get a key made, and own a Jeep.

The Captain overtook the would-be car thief, hit him a few times, then got in the Jeep and attempted to start it. At this point, the Russky pulled out a small calibre revolver and motioned the Captain away. Our Captain jumped out of the Jeep onto the Russky and tussled for the gun. In the ensuing melee the gun went off, and the Russky was killed.

I had been scheduled for a flight to Paris the next morning, so I persuaded our Commanding American General that no good could come of keeping the Captain in Budapest. I suggested that he go with me to Paris where I could leave him until the incident involving the death of the Russian soldier became clarified. The General approved, so I carried the Captain to Paris and left him with the U. S. Attache.

Upon my return to Budapest several days later, the

LANDING

by Colonel Walter G. Rishel, AFRes

Russians had become hot and heavy about getting the General to turn the Captain over to Russian custody. They, the Russians, also knew he was no longer in Budapest. After considerable exchange of vituperation over a three-month period, and after SHAEF Headquarters had been consulted, the Captain was to be brought to trial before an American court-martial in Berlin. The Russians wanted to send some witnesses to the trial and asked me to take them there in my plane.

I was, at this time, flying a C-47 without any crew. All American airmen had been returned to the ZI for one reason or another, and the Russians would not allow any replacements. They were hoping I would stop flying my one-plane airline behind the Iron Curtain, but I had refused to do so as long as the Air Force allowed me to continue flying. I had the only American plane operating in Russian territory, and I was determined to keep it. I was armed with a letter from Headquarters AAF which authorized me to fly under these difficult conditions.

It is my belief that the Russians really had a lot of "guts" to ask me to take their witnesses to the American court-martial in Berlin under the operational conditions they imposed on me. However, I could not refuse, for either they might overrule my Russian friend, an Air Officer who made it possible for me to fly at all, or stop me completely.

My normal flights, under the strict rules the Russians imposed, usually occurred on Tuesday. I had to take off from Budapest every Tuesday morning at 9:00 A.M. sharp. However, since the court-martial was slated to start on a Tuesday, the Russians suggested that I make my flight to Berlin with the Russian witnesses on Monday. Further, they offered to clear me over Prague, and direct to Berlin. This was an unheard-of precedent. Only once before had I been allowed to take that direct route. Usually I had to go to Vienna and all the way around through Frankfurt, and in through the Western corridor, when I was en route to Berlin.

I agreed to all of these conditions and was cleared by the Russians for the flight. On the day before (Sunday), my wife and I were playing bridge with friends. Their

eleven-year-old son heard us discussing the flight and the trial. He pleaded with his father to let him accompany me on this trip, as he had previously done. I was glad to have his company and added my voice to his request. The Colonel decided that since I expected to return by noon and Johnny would miss only a half-day of school, he could go.

I was using a cow-pasture for a flying field since the Russians would not allow me and my American C-47 on the main Budapest airport. The field was about 2300 feet long, and was about 150 feet higher on the west than on the east. I always took off downhill and landed uphill, regardless of the wind. Many times I had to buzz the cattle off the grass strip before I could land, even though this was an airport originally made for light planes.

Johnny and I arrived at the plane at 6:30 in the morning. We found we were to carry three Hungarian and two Russian witnesses to Berlin. None of them had anything to say, so we loaded them in silence. I went over to the Russian weather shack and, surprisingly enough, they gave me a comprehensive weather briefing. This was also a very unique event. I was quite impressed, that is, until I got airborne and found that what they had told me had nothing to do with the facts. At Budapest we had a 3000 ft ceiling with drizzle, which was expected to improve by noon to broken clouds at 5000 feet, and unlimited visibility. I had planned to go on top of the clouds, and so filed my clearance, which the Russians were supposed to forward to Berlin.

I returned to the plane, got the bulky and surly passengers to fasten their belts, found Johnny tucked in the copilot's seat, started the fans, and took off.

I climbed through the overcast and found some quiet air at 7500 feet. Over Prague, while temporarily flying instruments due to a front in the area, I talked with the tower and found that the weather was deteriorating, but that Berlin was open.

We landed in thick haze at Templehof and found, of course, that the Russians had not forwarded my clearance, and we were not expected. I had to wait until a car and an interpreter were called for my passengers. I then had my plane serviced. When I checked the weather section they had nothing but old reports, so could not help me. I reasoned that, since I had just flown up, I could probably get back to Budapest. So I filed a clearance and took off at 10:15.

The weather had worsened considerably. Over Prague I began icing badly. The tower told me their field was closed. Shortly afterwards I lost my main antenna due to ice. I was able to find Budapest by homing on the commercial radio station and, after arrival, made two passes at the field without seeing it. No radio aids existed there. All landings had to be visual. I normally dropped to

my first GCA landing

200 feet, and if I could not see the cow-pasture, I would go somewhere else. So it was this time.

I turned back toward Prague, but I was now handicapped by my loss of long-distance radio. I could not pick up Vienna and thus learn what the weather was in other parts in Europe. Further, I was navigating solely by radio compass. Over Prague again, I could barely "read" the tower, but I learned they were still closed and knew nothing about the weather West of them.

I continued on to Berlin, constantly on instruments, and finally contacted Templehof. They told me they had closed the field shortly after I had left, and that Stockholm was open. I replied that I did not have enough gas to get there. (We had now been in the air over six hours.) They informed me that Paris was also open, but that no other place in Western Europe could land me. I pointed out that Paris was even farther distant than Stockholm, and asked for further suggestions. They then inferred that the British field at Gatow, just south of Berlin, might be willing to land me on GCA.

GCA was something that had been developed while I was overseas, and all I knew about it was that it meant "Ground Control Approach." I had read an explanatory pamphlet about it which said nothing about technique. What next?

I transferred to the British channel and asked for instructions. The operator used up a lot of my gas giving me what he considered very detailed instructions after he learned I had never landed on GCA before.

It has always been difficult for me to understand the British on the radio or telephone, and now my poor small remaining set with a very weak signal, did not make it any easier. About all I could count on for sure was that, if I followed his instructions, I would eventually see two barrels full of burning gasoline at the end of the runway. Or so he told me!

He vectored me around the pattern, got me in a too-rapid descent, and suddenly announced I would land in five seconds. Well, since I still had my wheels up, I didn't want to land. In about four seconds I saw the burning gas, and pulled up. When I reached 1500 feet he asked me what was wrong, and I told him. He explained that perhaps I hadn't heard him say "prepare for landing." I hadn't but meant to lower wheels and flaps [anyway].

He vectored me around again, continually talking in a reassuring tone. I listened very carefully and felt I was doing all right since I now knew enough to disregard the

instruments and do exactly what he told me. I was again on the final descent when his voice stopped. He had told me he would talk continuously on my descent, and that I was not to answer. However, I was to pull up if his voice stopped. He stopped talking, so I pulled up quickly — back to 1500 feet!

When I reached 1500 again, he told me they had had a momentary power failure. I reminded him that I was now very low on gas. He said he would bring me in faster this time. Once again I was listening to his vocal drone on my final descent. "Increase your descent, — that's fine! Turn right one degree, — hold it! Decrease your descent slightly, — that's fine, — that's fine — that's fine! Turn left one degree, — hold it, — you're coming in fine! —" I had my wheels down, my flaps down, my throttles back, — everything was ready, and I felt very confident.

"Decrease your descent, — that's enough! That's good, — keep coming. (I should quit?) Turn left one degree, — that's fine! You will see the fires in four seconds, —tha—." There were the fires, and I was right on them! At this point Johnny leaned clear across my line of vision and said, (pointing): "Hey, look, Salty! There's a house!"

Back to 1500 feet! I told Johnny to go back in the last seat and tie himself down, and not to move until I told him. Meanwhile, my British friend came on to ask what the trouble was. He thought he had me down that time. I gave him some excuse, and he asked me if I wanted to jump. I said I did not, and that I now felt very confident I had enough gas for another 25 minutes, and let's go!

This time the welcome fires soon appeared again and I plunked the plane hard on the grass. It was a zero-zero field. It took the ground crew ten minutes to find me in a Jeep, and lead the way to the parking ramp. It was now 6:30 P.M. and quite dark on this February day. They were surprised when only Johnny, my copilot, and I stepped off. The Major sent us to our quarters and asked me to join them at the club after dinner.

We ate, I put Johnny to bed, and went back to the club to hoist a few. I was introduced to the entire crew from the GCA unit. They wanted to hear my story. I told it, and explained that the biggest trouble apparently was due to the fact that it was my first attempt at a GCA landing. The Captain in charge laughed heartily. He told me they had arrived from England just that morning on their first GCA tour. My landing was the first time they had ever brought anyone in for a zero-zero landing.

I was able to fly to Templehof the next day, but Johnny missed a week of school because the weather did not clear until Saturday.

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TACTICAL AIR COMMAND

AIRCREWMAN of DISTINCTION

AIRCREWMAN OF DISTINCTION



CAPT GOLD



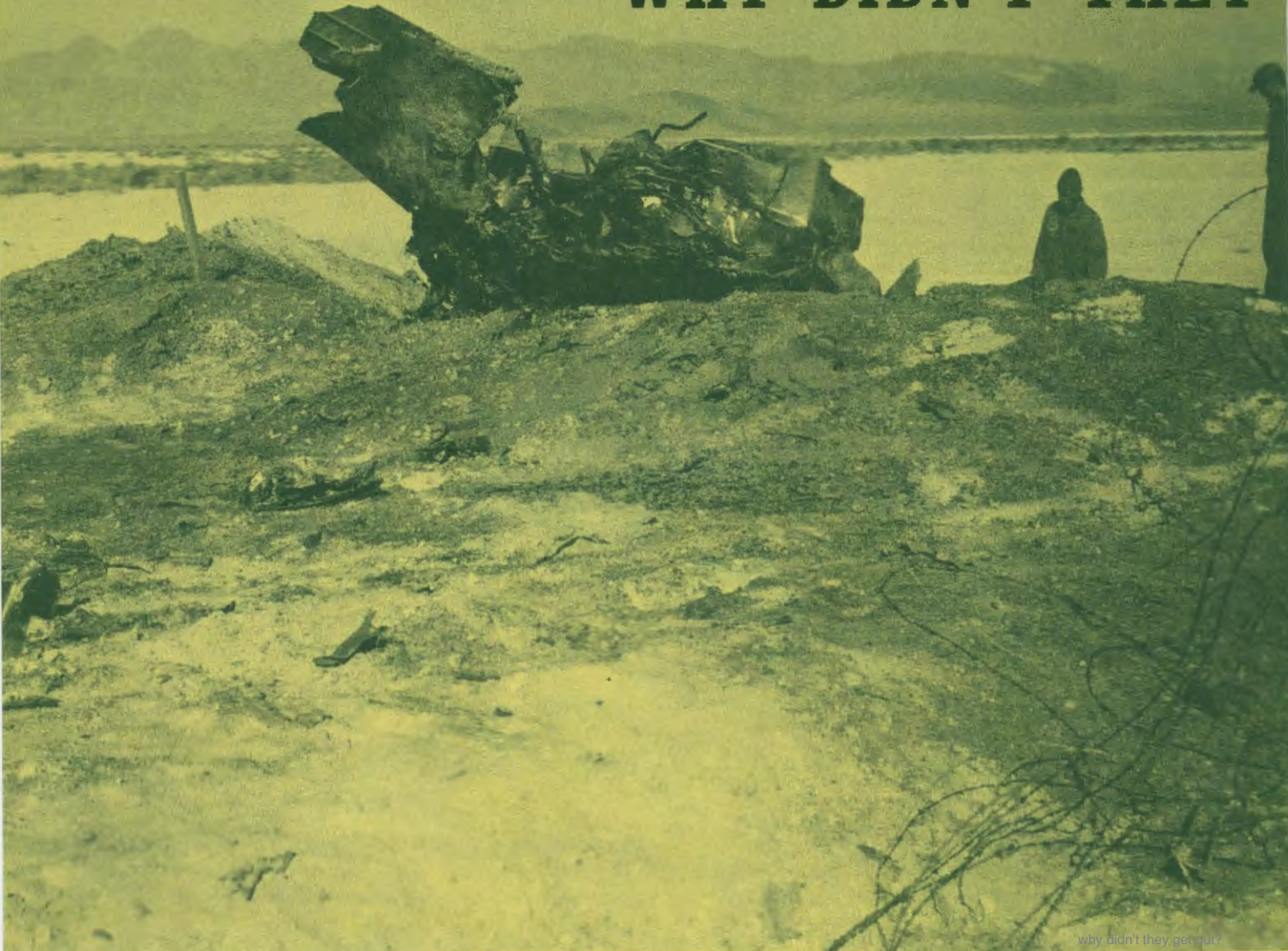
Captain Bruce J. Gold, 4554th Tactical Fighter Replacement Squadron, 354th Tactical Fighter Wing, Myrtle Beach Air Force Base, South Carolina, has been selected to receive the Tactical Air Command Aircrewman of Distinction Award for January 1973.

On 6 October 1972 Captain Gold was flying an A-7D on a test profile at 40,000 feet when the tactical fighter's single engine began to experience a severe compressor stall. Captain Gold retarded the throttle, placed the aircraft in a dive, and selected manual fuel control, but these actions did not clear the engine stall. He declared an emergency as he turned the aircraft toward home base. Turbine outlet temperature increased dangerously as the compressor stall continued. Captain Gold extended the ram air turbine to provide emergency hydraulic and electrical power and shut the engine down to prevent overtemperature and further engine damage. He then attempted an airstart but rapidly rising turbine outlet temperature forced him to shut the engine down a second time. He continued to glide under ground radar control towards final approach at Myrtle Beach Air Force Base.

Captain Gold requested the launch of a rescue helicopter as he prepared to eject over water to prevent the crippled fighter from crashing in the populous coastal area. Captain Gold decided to make one final attempt to restart the engine at 10,000 feet. Engine acceleration was normal and, following three minor compressor stalls, temperature stabilized within limits. Realizing that high power settings would not be available, Captain Gold planned and perfectly executed a minimum power precautionary approach and landing. Elapsed time from the first compressor stall to a successful landing was less than five minutes. Captain Gold's prompt and correct actions resulted in the safe return of the aircraft which was subsequently used in a deployment to Southeast Asia. His gliding approach was planned and executed to minimize danger to the local population area if a bailout should have become necessary.

Captain Gold's demonstration of professional airmanship during a serious inflight emergency qualifies him as a Tactical Air Command Aircrewman of Distinction.

WHY DIDN'T THEY



why didn't they get out?

by Major Jim Downey
TAC/DOXBL, Life Support

As the accident investigation team arrived at the burning hole, there was no longer any doubt that two young tigers had just brought their promising Air Force careers to a sudden halt. The stonefaced stares and questioning expressions of the team members seemed to tell the story.

"Look at that crash pattern," said Jake, the safety type, "it doesn't cover any area at all. It looks as though a giant

hand snatched that bird out of the sky and slammed it down with no forward velocity at all." On the way to the scene Jake had been talking to Tom, the stan/eval officer who would be the pilot member on the board, but now he turned to the life support officer.

"Sam, you were on that last investigation; in fact, you'd given them their egress training just that week. If I recall correctly, they were practicing slow flight in a landing configuration, then had a BLC warning light, followed by a cockpit overheat condition. Everything indicated that they should have been able to bring it back and land but they apparently got engrossed in the

GET OUT?

problem and stalled it, spun, and never got out.”

Sam nodded, “Yeah, I was on it; as I recall they even called the command post and explained about the BLC before they really got into trouble. Not once did they mention or hint at the fact that they might have to get out.”

Sam had been in the life support business even prior to checking out in the F-4. He had a couple thousand hours in the old Hun and was about to crack a thousand in the F-4. He continued, “That one really shook me because, as you mentioned, we’d just given both those guys the whole nine yards, ejection seat drill, hanging harness, the works. I was convinced both of ‘em knew that seat like the back of their hand.

“Of course, I can’t prove it, it’s only my opinion, but I always felt like those guys just couldn’t believe they were faced with a possible ejection situation. I couldn’t put that in the accident report because I didn’t have any proof or even the slightest evidence to substantiate it, but I felt that way. I think when they finally realized they were going to ding, they were too low and just couldn’t make it. At least they pulled the handles, but it was about five seconds and a thousand feet too late.

“Something else about that one. I’m a firm believer in getting some key ejection points out of the charts in the Dash One. There’s no way you can memorize all those dive angles, altitudes, and airspeeds, but if you pick out some key points that you determine to be important to you during routine flight then, at least, you can have some decision points established to use if necessary. If you’re going to wait until you’re faced with an ejection to try and establish your ejection parameters, then you’re just setting yourself up for the big PCS. I think you guys know I take a lot of pride in the ejection seat drills and how we’ve laid out the training room so you can go through show and tell with all the survival kit goodies. But it’s the same old thing. Training programs can be developed and all the jocks can be scheduled through them. However, if they won’t pick up the ball and do a little honest homework on their own, then a significant portion of the

life support program goes undone. Each man has to prepare himself and have a plan. If you think it can’t happen to you, man, are you ever in for a shock! By virtue of being in the life support business, I make it a point to talk to as many ‘ejectees’ as possible. Most of the guys I talk to say, ‘Well, first of all, I couldn’t believe it was actually happening to me.’ Then he tells his story. I’ll admit punching out can be hairy anytime, and even more so if it’s low altitude, but the big point here is, hairy or not, the guy’s around to tell his story. I think the wildest story I’ve heard was from an F-4 jock that punched out in a vertical dive at 500-550 knots and 5000 feet above the ground. He’d lost control of the bird due to a complete flight control malfunction and had plunged from altitude down to a deck of clouds which he knew was no more than 5000 feet AGL. He had absolutely no control whatsoever, but he was finding it very difficult to go for the handles. In his mind he visualized a large red neon sign flashing pilot error, pilot error, pilot error. Fortunately, the sight of the 5000 foot deck of clouds rushing up at him helped clear his mind. He screamed at the back seater to go, heard the bang and rush of air, then he pulled his handle. This was prior to the sequenced ejection system now installed in the F-4. Anyway, both of them made it but not without some rather severe injuries. In fact, he was telling me his story nearly a year after it happened and he was clinging to a crutch with a grip that turned his knuckles white as he spoke. But he was alive and I know for a fact he got back on flying status not too long after our conversation. But back to the ‘pilot error routine’ for a second. Two other birds had previously augered in while flying within the same theater as this guy. Both crashes were ruled pilot error and the aircrews were no longer around to explain what really happened. Our boy did mention that he too might have been a fatality if it weren’t for that deck of clouds. Oh sure, he had planned to go when the altimeter read ten thousand but when it passed, he wanted to try and recover just one more time. Wonder how many guys have tried that and were still pulling on the pole when they bashed?

WHY DIDN'T THEY GET OUT?

"Tom, I've cornered the conversation, do you have any thoughts?"

"Yeah, some," Tom answered. "I know what you're talking about. I've done a tremendous amount of soul searching about this type of thing from the stan/eval side of the house just like you two have done from life support and safety. I see some of the same things you've mentioned. I've also seen aircrews working as a team; they discuss these things and work out plans together. They have a plan for each phase of flight, takeoff, in flight, on the range, ACM, and so on. Some of them may even go overboard on this thing, if that's possible, but I doubt it.

"I agree with what you said earlier. I think the whole key is to have a plan. Lord knows, if you wait until the whole world turns to shinola before you try and determine where you'll have to pull the handles in order to make it safely, you're probably not going to pick the correct point. Under that kind of stress, you could very well be dead wrong. It may make you feel like a dummy or a fatalist, but I believe if each time you strap on the old bird, you should make a special effort sometime during the mission to ask yourself, 'OK Graceful, what would you do if you had to get out right now?' It's probably more realistic if you play the game all the way and touch each item to effect the particular egress you've invented for yourself, but mental drills are fine, too. Either one is a big step in the right direction toward being prepared. OK, I see the squirrely look in your eye, but don't tell me I'm wrong. I do it and I know other jocks do it too. Can't help but laugh a little. Just the other day we were in the arming area waiting to pull out and I looked over just in time to see the guy next to us sit up tall, put his head back, and finger both upper handles. He must have sensed he was being watched because he glanced to his right then over at me. When he saw I observed his little confidence building maneuver, he just shrugged his shoulders and sank back down in his seat. It was funny, but you know I wouldn't sweat that guy at all. I'm sure, just the same as he is, if he has half a chance and needs to get out, he'll ride that seat just like a cowhand busting a bronc. You mentioned talking to a few guys that have been forced to punch out. Well, so have I and I think a couple of things I heard are worth passing on.

"The first one is about a guy flying an F-100 on a strike in SEA. The target was in a valley surrounded by high ridges. As you might have guessed by now, he either took a hit or the old Hun just flamed out; anyway things started unwinding, including the altimeter. Here's where

the fearless fighter jock got in trouble. He started thinking logically and it almost got him killed. He thought if he could just nurse the sick old Hun over the ridge top, he'd be in a much more friendly environment to eject; also, you see, he really hadn't given up on getting the old bird going again. Anyway, he topped the ridge, hit the airstart and no nothin'. Still he thought he had room to spare so he kind of tidied up the cockpit, then pulled up the handles and squeezed the triggers. He swung once and hit the ground in a cloud of dust. He told me he had never been so shaken up in his whole life. I mean both physically and mentally. He was sure he had plenty of time to punch out but when he started going for those handles it was just like going into slow motion, except for the ground rush. The jungle canopy was coming up at him like gangbusters and his hands and arms just wouldn't move fast enough. It took forever for the catapult to fire even after he'd squeezed the triggers. After dusting himself off and checking for broken bones, his first thought was, 'I nearly killed myself.' The thought he wanted me to get, and I did, was that prior to his experience he'd read the usual accident reports and statements about don't delay the ejection. Yet, here he had planned this one and thought he had plenty of time but he nearly busted it.

"Here's another point he made clear. He said, 'Thank God that air machine didn't airstart.' After he was rescued, which is a story in itself, he got back to the "Q" and got the Dash One out. It didn't take long to figure out what he suspected. The point where he was attempting to get an airstart was much much too low. If she'd rumbled and started, he'd have had about a 9-14 second wait until sufficient thrust would have been available to recover. He said he still wonders, 'If she'd lit, would I have sat there with the throttle bent over the mil stop trying to get full RPM when I hit the ground?' Makes you think, doesn't it? Wonder how many guys have punched the airstart button when they should have been pulling ejection seat handles? Time is the big factor. We know how much time it takes for a bomb to fall with given parameters, angles, and airspeed. We know time of flight for a 2.75" rocket when fired from a 3000 foot slant range, but how many guys can tell you how long it takes from the time your mind says NOW until you can pull the handle and get a good chute? It's all in the Dash One. Can you hold the pipper on a strafe target for 5, 6, or even 7 seconds? Probably not, that's a long time, but that's about how long it's going to take from the decision point to pull a handle and get a fully developed chute over your head."

The conversation was interrupted by the board president waving them to their duties. In their private thoughts they wondered, as they approached the wreckage, why the two troops in this one didn't get out.



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

Lessons That Live

No. 6 of 17

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



OVER THE WAVES

It was graduation day and we were getting our coveted wings at Kelly Field. "Look about you," an officer on the rostrum was saying. "Take a good look, because a year from now some of you will not be among us — and only because you shall kill yourselves disobeying flying regulations!"

We looked around, but it wasn't a serious look. We were pilots, weren't we, and a bit above such drill?

The officer spoke on:

"It isn't only for your own lives that I speak; it is for the passengers of your ship whom you will murder!"

We heard, yawned, and promptly forgot.

Just four months later I was working a radio range, improving my instrument flying. After an hour and a half of the hood I became bored and decided I needed some relaxation, so I headed for the sea. I was going to buzz the waves!

Like an utter fool I lowered more and more until finally I was just above the water. Only then did the thought of engine failure enter my mind, and in the brief moment that I allowed my thoughts to linger on what would happen if my engine sputtered, my landing gear struck a whitecap.

The ship lurched, but fortunately instead of flipping over, it bounced up and regained flying speed. I looked at my observer — an old Master Sergeant who had a wife and several children — with a sickish expression. He returned a weak smile, which should have been the glare of scorn and contempt which I so richly deserved.

I returned to the field to land, but without my right landing gear. The plane was damaged of course, and it was out of service for nearly as long as I was grounded.

For weeks I could think of nothing but that speaker's words on graduation day. When I'd close my eyes, I'd see only the wry, forced smile on that Master Sergeant's face. I couldn't eat, sleep, or think about anything except that accident, and my future with the Air Forces.

It was simple hell — those months on the ground. ➤

Wheels are SQUARE

by Maj Tim Brady



You'd have to look with jaunticed eye at someone who came up to you and said, "Hey Mister, lemme tell you something; wheels are square. I've got something here which'll turn that Herkything into an airplane that'll land on water, a beach, marshland, or just about anything else that doesn't have something funny like a tree or a mountain in the middle of it. Matter of fact, this beauty can taxi over stumps, ditches, rocks, and even the Great Dismal Swamp."

About now you're convinced the guy is some kind of a weirdo as he whips out a large sheet of butcher paper with a surprisingly accurate likeness of a C-130 sketched thereupon. Except it looks kind of funny; y'know . . . strange! Upon closer examination, an unusual feeling begins to creep in and finally overwhelms you. The tears begin to roll, a tremor starts at the tip of your toes and works itself upwards, finally you break out in uncontrollable laughter.

No wheels! I mean the thing has no rollers. It just has this big rubber doughnut whatzit that looks like an elongated inner tube on the bottom of the airplane. And the airplane is supposed to land on that thing? And taxi?

In your well-founded skepticism, you send the nut off to the loony bin, casting after him quips dredged from wisdom such as: "If it don't roll, it won't fly," and "Wheels are beautiful," and "Your grandmother wears an inner tube." You concede, begrudgingly, that the last remark was more emotional than born of wisdom, but after all, what a ridiculous idea.

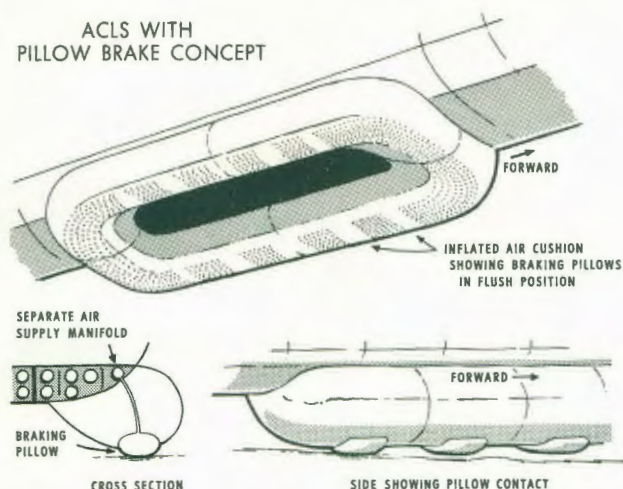
Months later you pick up a copy of AVIATION WEEK AND SPACE TECHNOLOGY which announces "Air Cushion Landing System to be evaluated jointly by the U.S. and Canada." The doughnut on the bottom of the test airplane looks familiar.

THE AIR CUSHION LANDING SYSTEM

Using its own funds, Textron's Bell Aerospace Division instituted a development and flight test program to evaluate the practicality of the Air Cushion Landing System (ACLS), using a modified LA-4 (Lake Amphibian) as a test-bed aircraft. Then in 1969, the Air Force Flight Dynamics Laboratory awarded a contract to Bell for continuation testing of the ACLS equipped aircraft. During the tests, the LA-4 aircraft was successfully operated from a variety of surfaces including snow, ice, water, rough surfaces, mud, obstacles up to 9 inches, a water-filled ditch, and standard concrete runways. The tests proved the feasibility of ACLS on light aircraft and the next, logical step was to consider the application of the system to medium and heavyweight aircraft.

In all honesty, the air cushion contact medium idea is not all that new. Presently, the English operate an air

ACLS WITH PILLOW BRAKE CONCEPT



cushion surface vehicle on daily runs across the channel. This monster weighs in at 163 tons or about twice the weight of a C-130. Here at home, the Navy has a 30 ton ACV and the Army has operated an 8 ton ACV in Viet Nam. The Air Force has been studying the concept and its application to aircraft since 1966. The Air Cushion Landing System is based on the "ground effect" principle which employs a stratum of air instead of wheels as the ground contact medium. A large rubber trunk (pneumatic bag) encircles the bottom of the fuselage, providing an air duct and seal for the air cushion. The bottom of the trunk contains hundreds of small vent holes (jets) which allow escaping air supplied from an on-board power source to form an "air cushion" beneath the aircraft. The on-board power source causes air pressure higher than atmospheric to be exerted on the area directly below the aircraft. This additional pressure produces a force equal to the weight of the aircraft. Because of the low ground over-pressure, the ACLS will enable an aircraft to operate from surfaces of very low-bearing strength. Additionally, the air bag is retractable, though not in the traditional conventional landing gear sense. After airborne, as the air bag is depressurizing, the rubber contracts and hugs the fuselage like a glove.

AIRCRAFT HANDLING CHARACTERISTICS

The only flight-test data available thus far on the handling characteristics of an ACLS equipped aircraft comes from the flight tests of the LA-4 aircraft. Of course many studies have brought out the anticipated performance of an ACLS-equipped tactical transport and in May of this year, the joint U.S-Canadian test of an ACLS-equipped C-115 (DeHaviland Buffalo) will get under way and will, undoubtedly, bring in a ream of data.

TAC ATTACK

In the meantime, using predicted performance coupled with LA-4 flight test info, we can take a look at the expected handling characteristics.

TAKEOFF

Let's turn first to the LA-4 test pilot's comments. "The handling and control qualities in the takeoff 'roll' are satisfactory. Steering control becomes more positive and simple as aerodynamic effect increases with speed. The aircraft can easily maintain a track along the runway centerline, and after transition to the airborne condition, requires less changes in attitude and heading to continue flight than the standard aircraft."

The takeoff distance of an ACLS equipped aircraft should be somewhat less than that of a comparable wheeled aircraft. The parasite drag of the smoothly contoured ACLS is about equal to the drag on a conventional gear but the momentum drag of the ACLS is less than the rolling resistance of wheels.



Photo courtesy of Textron's Bell Aerospace Division, Buffalo, N.Y.

The LA-4 modified with ACLS taking off over water.



Photo courtesy of Textron's Bell Aerospace Division, Buffalo, N.Y.

The modified LA-4 taxiing over an open farm field.

WHEELS ARE SQUARE

LANDING

New techniques and procedures are going to have to be learned by the pilot in order to handle the landing in the ACLS aircraft, especially to counter a crosswind situation. The LA-4 test pilot made these comments concerning a crab landing. "The true effect of the gradient winds could be observed during approach. On the grass landing, the wind was 90 degrees cross from the left at 10-15 knots. The selected grass area paralleling (the runway) was at least 10 feet below the runway level. A constant decrab was required as the aircraft settled into the depression downwind from the runway. The very steep wind gradient resulted in a "stalled" landing. On a wheeled gear landing this would have been a very hard landing. The ACLS absorbed the impact with no undue pitch oscillation and was under good control during rollout. The crab angle developed during heavy crosswind landing and rollout might look alarming to an external viewer, but from inside the aircraft they are the view a pilot would expect from a good to perfect crosswind landing gear or when "sailing" a sea plane to and from dock."

If you've never "sailed" a seaplane to and from a dock, it's obvious that landing an ACLS aircraft in a crosswind is going to call for a new bag of tricks.

TAXIING

With no wheels on the beast, the term "nosewheel steering" plummets out of the vocabulary. Consider for a moment the situation where you're parked on a standard ramp with aircraft on both sides and with a brisk 20 knot wind blowing from right to left. You start the engines, then flip a switch to inflate the ACLS. The ACLS becomes pressurized and the aircraft rises slightly as it's supported by the air flow underneath. With no additional inputs on your part, the airplane will begin to move downwind. Why? There's little or no friction between the ACLS and the ground and the force of the wind will move the airplane. So, again, a new bag of tricks is going to have to be learned. Differential power and brakes will have to be used to steer the airplane on the ground and counter any crosswinds. Brakes?

The brakes on the ACLS consist of a series of pads (or pillows) on the bottom of the cushion which, when activated by the pilot using the standard controls, will press against the surface. Studies indicate the same braking efficiency can be achieved with this system as with normal wheeled braking systems.

GROUND HANDLING

The maintenance troops are going to have their hands full with an ACLS airplane. With no wheels on the bear, it's going to make dragging the airplane around the patch somewhat of a chore. Also with nothing to support the airplane, once the ACLS is depressurized, the big machine is about as mobile as a beached submarmine. So, first, some method to support the airplane must be incorporated in the ACLS design. One method to accomplish this is to provide an inner bag which remains inflated once the ACLS is depressurized. Then, in order to give the airplane some ground mobility (without restarting the ACLS power supply engines), some attach points on the fuselage to hook up a set of wheeled dollies will, most probably, be provided. The ground handling problem appears to be the most severe limitation of the ACLS concept.

COST

The basic mission of tactical airlift is to provide transportation of personnel and equipment to the forward tactical locations within the theater of operations. It is essential that the cargo, whether air-dropped or air-landed, be delivered as close to the objective area as possible. To indicate the cost feasibility of ACLS, the Air Force Flight Dynamics Laboratory analyzed the cost effectiveness of ACLS over present resupply methods in maintaining a 5000 man fighting force in a forward, austere area. The following chart summarizes that study.

SUMMARY OF DELIVERY SYSTEMS					
Cost Criteria	MODE OF DELIVERY				
	AIRDROP		AIRLAND		
	CDS*	LAPES**	* CLG (unsurfaced runway)	* CLG (AM2 MAT runway)	ACLS
Max tonnage per mission	17.5	25	12.5	25	25
Operational cost per mission	\$9,096	\$1,266	\$ 16,200	\$ 500	\$500
Operational cost per ton	\$ 520	\$ 50	\$ 1,300	\$ 20	\$ 20
Fixed cost of site preparation	Negligible	Negligible	\$157,000	\$2,757,000	Negligible
Fixed cost per ton (5,000 men for 3 months)	Negligible	Negligible	\$ 13	\$ 220	Negligible
Total cost per ton (5,000 men for 3 months)	\$ 520	\$ 50	\$ 1,313	\$ 240	\$ 20

* Container Delivery System

** Low Altitude Parachute Extraction System

• Conventional Landing Gear

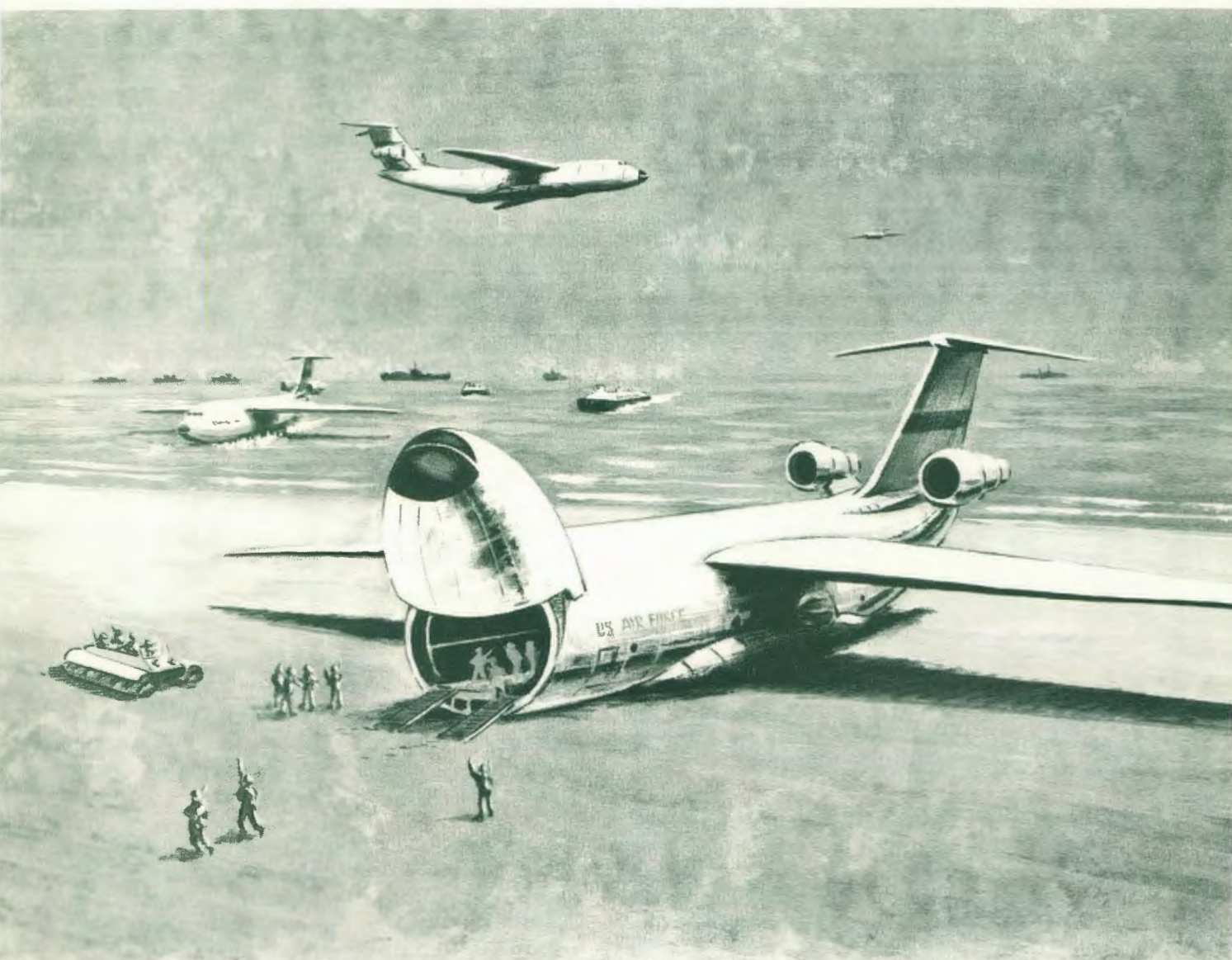
When concerned only with mission cost, it's clear that an ACLS equipped tactical transport will gain startling savings over any delivery method presently being employed. The closest thing to it is LAPES (Low Altitude Parachute Extraction System) which costs \$50 per ton (5000 men for 3 months) as compared to \$20 per ton for ACLS. Note the site preparation cost of an unsurfaced runway and an AM2 MAT runway. ACLS practically eliminates site preparation cost.

SUMMARY

To call upon a familiar cliché, this has been a "broad-brush" look at ACLS. Not all of the factors which

affect development, testing, and employment are presented. There are limitations to the system which haven't been fully explored here, and which, indeed, may not surface until the testing program gets under way. But, should the tests with the C-115 Buffalo prove the concept to be practical, and the decision is made to so equip tactical airlift aircraft, the impact on the mission of airlift will be astounding. It will open vast areas of the battlefield that have previously gone unexploited by tactical transports. It will make airfields out of cornfields, lakes, beaches, swamps, snow, ice, and most other terrain features with a relatively smooth surface. The entire complexion of the battlefield will change.

Keep your eye on it. ➤



upright, UPTIGHT, and 0

In June of last year we received an article that caused quite a stir around the hallowed cubicles of TAC ATTACK. The author of the article, Major Dick Penn, who was imprisoned at 9th AF at the time, was telling us that the F-4 Dash One was all wrong in its "Ejection Seat Failure" procedure and that if anyone ever used it they were likely to get themselves dead. Included in his article was the math which, he said, proved his point. The article was a dandy but unfortunately we couldn't validate his computations so we fired the package off to ASD. At the same time, Major Penn submitted an AF Form 847 to get the action started via the "formal organization." As the 847 was making its way through the channels, ASD came back with its evaluation of the math. They said that although the math was not completely accurate, the upright manual bailout procedure was the better procedure. Many telephone calls later plus some visits with the author and the omni-presence of the 847 finally paid off. MCAIR informs us that a change to the Dash One is to be (or has been) published this month and should be in your hands soon.

Here's the article that started it all.

1. "Manual Bailout," by Maj Robert Vanden-Huevel, AEROSPACE SAFETY, June 68.

2. Fighter pilots will believe almost anything, it's the smart flight manual writers who cling to the discredited old doctrine and poison aviators' clean minds.

3. If, in the course of an aviator's day, he recognizes that an ejection is his best way out, he's in a heap o' trouble a'ready. If next, the ejection seat doesn't function as advertised, a man of even minimal analytical capabilities (e.g. recce pilot) should realistically conclude that today jus' don't look like it's gonna be his day. Before doing

OK, Guys, you've probably heard this before,¹ but there are a few of you out there who still won't buy it.² Should the manual bail out³ trick ever turn out to be your LAST hope for survival, don't roll the aircraft inverted hoping you'll fall clear of it; rather, stay right-side-up, roll in full nose down trim, and allow the aircraft to fly quickly down and away, leaving you sitting on thin air.

My proposal is so simple that even fighter pilots can understand it, it's so easy to perform that even recce-gators can accomplish it, and us intrepid T-bird wizards don't need it because that nimble device can be dead-sticked⁴ into a parking lot.⁵

Unerring, computerless, mathematics prove conclusively that the following crawl-over-the-side technique will work in a go-fast jet airplane.⁶

1. Ejection handle — Pull. (Pull it again, just to make sure.)

2. Maintain 200-250 KIAS. [Ed. Note: The author recommended 210-230 knots; however, this was changed to 200-250 knots at ASD.]

3. Emergency harness release handle — Pull.

4. Do NOT release sticker clips.⁷ (Saves time, also.)

anything rash, however, the ejection system should be afforded every opportunity to do its thing. If the chair is THEN a confirmed failure, I propose that it's preferable to crawl over the side than to contribute a pink body to the fireball. There are some old, bold pilots around who've done the former, and there are some airports named for followers of the latter course.

4. "Dead-stick" is an archaic term that refers to a non-rotating aeroplane propeller, not the stirring device attached to a pilot's forearm. If you're old enough to have known that already, you've probably long ago proved yourself a wily aviator. Read no further, arise now from

UT O'SIGHT

by Major R. L. Penn
36 TFS, APO San Francisco 96570

Ed. Note: This step is valid but it will not be included in the Dash One change simply because the Dash One addresses only those positive actions. Since the sticker clips were already engaged and the procedure does not tell you to release them, you would leave them engaged. Check the author's footnote for rationale.

5. Full nose down trim, full rudder trim⁸ (right-handed pilots use right trim, left-handed pilots are gauche and shoulda been navigators anyway), and aileron trim to counteract the rudder trim.⁹

6. Release stick (is not necessary to push on it).

7. Parachute — deploy, ASAP¹⁰, lest all prior actions shall have availed thee nothing.

8. Survival kit release handle — rotate aft.¹¹

9. Surface of earth — contact.

10. PLF — execute (if required).

The writers of how-to-fly books fall prey to two fundamental errors:

1. They can't properly handle the fact that God's gravity acts equally¹² on man, navigator and machine — salvation must depend on the airplane's AERODYNAMIC capability to fly away from a falling object (i.e., one pulling zero G).

your stool and continue preaching to the fledglings (who have probably long since tired of your interminable stories).

5. An aviator who tries to dead-stick ANY jet airplane should be set upon by the shrinks about fear of parachutes. Alternatively, the sheriff ought to lock up any aviator who would jump out of a good airplane just for funzies.

6. Discussion applies specifically to F-4. This should not be construed as casting dispersions on Martin-Baker's fire equipment 'cause I well appreciate that it works real good;

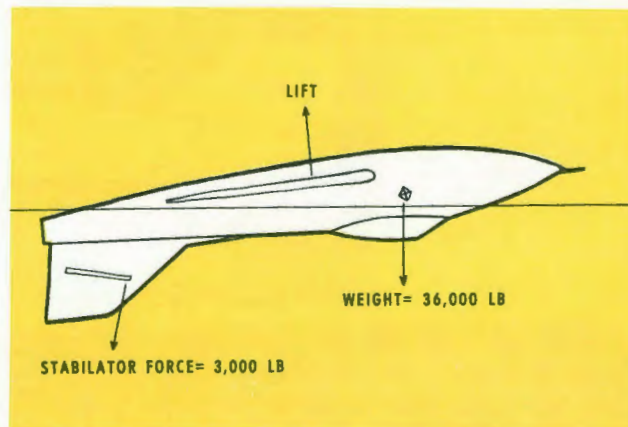
2. Contemporary fighters are poorly qualified in inverted flight, and their pilots are noticeably more inept. With a little thought (that's max effort), fighter pilots can grasp these great truths.¹³

WHY THE BOOK PROCEDURE WON'T WORK (INVERTED METHOD)

Such tricky maneuvering (rolling inverted at low airspeed) is beyond the capabilities of most fighter pilots. Please don't try me on this because you could lose the whole ball o' wax; but just imagine how your acrobatic performance would be impaired by a serious fire (is there any other kind?), flight control problems, or flameout. Some pilots are pushed to their limit turning a practice no-flap base at 200 knots.

Most ejections are initiated at low altitude. If the roll-inverted method could be made to work at all, it would have to be done at a high altitude. Starting from, say, 3000 feet, it would quickly eat up all that altitude and you'd be part of the final fireball.

At 230 knots, the F-4 will not maintain inverted flight by trim force alone.¹⁴ The reason for this is that there is very little stabilator leading edge up travel, and only a part of that can be trimmed in. Fighter pilots have been looking for a picture, so grab your crayons. Estimating a few values, the forces on an inverted machine look like this:



I talk F-4 cause many of you readers (and fighter pilots, too) are stuck with that machine.

7. Sticker clip force allows aircraft G to build up to about -1/3G before aviator is broke loose. Thus, instead of floating out of his chair, the pilot will be popped out like a champagne cork.

8. Don't guess the rudder trim thing would be much help to F-101 and F-104 pilots.

9. Full trim will move the cutting edge of the vertical tail a good 3 feet off to one side. Except for a navigator of the

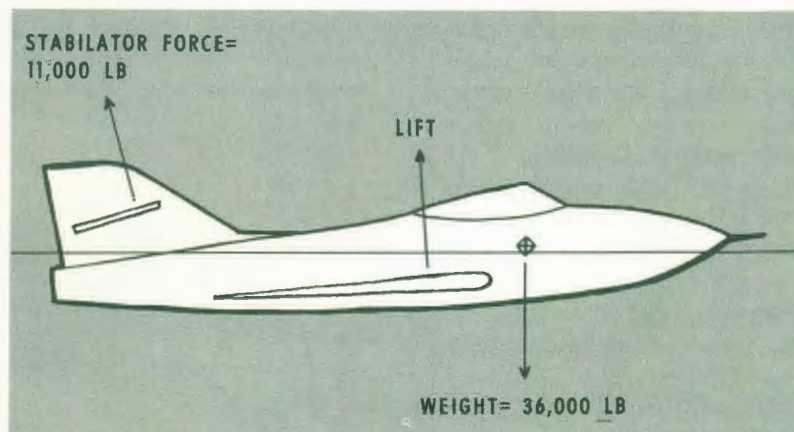
upright, uptight and out o'sight

Well now, if the airplane balances around the center of lift point (which is roughly a truism), CG is 5 feet forward¹⁵ thereof, and stabilator is 30 feet aft, then you navigators can multiply the forces by the lever arms, subtract the smaller from the larger, and readily conclude that since subject machine has a nose heavy moment of 90,000 ft-lb, it will rotate nose down into a screaming dive.

WHY MY PROCEDURE WILL WORK

It can be set up quickly and easily (even with a flamed-out airplane in a steady 215 knot, 8° dive).

The airplane will respond nimbly and predictably all by itself — just turn 'er loose. Adequate separation forces will be provided in due time. Now, you fighter pilots get different colored crayons and work on this new picture:



traditional anatomy, this should provide sufficient lateral separation distance even if vertical separation proves inadequate. If opposite aileron isn't trimmed at least far enough to hold steady-state sideways flight, the resultant roll due to yaw might cause the rudder to act like a big flyswatter.

10. Popping into the airstream without an ejection seat will result in an immediate, violent, tumbling motion (ask a sport parachutist). To stop the tumbling, pull ripcord; I done that trick once and it durn near snapped my head off, but it stopped the tumbling.

11. Actually, after step six, the rest is all downhill.

12. The Holy Writ says the rain falls on the just and the unjust alike.

Navigators multiply out the numbers again, but this time, ADD 'em together. A nose down rotation again results, but this time, it'll be rather brisk,¹⁶ because it's a right much bigger number. Unrestrained persons (or navigators) would be left hanging in midair about 1 1/2 seconds after stick release.

Well, that's about all I got. I don't really think your ejection seat will fail you if you'll pull the handle IAW TO instructions, but maybe this'll make you feel better about your fears of high places or claustrophobia. ➤

EDITOR'S POSTSCRIPT:

According to MCAIR the new procedure will read:

1. Maintain 200-250 knots.
2. Emergency harness release handle — LOCK UP.
3. Full nose down trim, full rudder trim, and opposite aileron trim as required to hold wings level.
4. Release stick.
5. Parachute — Deploy.
6. Survival kit handle — Pull.

13. If I can figure it out, anybody can; if you'd like to hear the issue thoroughly confused, ask my boss for a few thousand well-chosen words.

14. I guess this minor problem hasn't been called to the attention of the writers of how-to-fly books.

15. Depends primarily on the "Navigator Fatness Factor."

16. Why is there stabilator lift force this time? It's because of the way MAC nailed the wing and stabilator onto the fuselage. If wing AOA at a given airspeed is 5°, then fuselage AOA is 4°, and max travel stabilator AOA is 12°. But inverted, same speed, wing AOA is again 5°, fuselage AOA is now 6°, and stabilator AOA can be ONLY 2° at full travel. So THAT'S why it's so hard to fly upside down?!

TACTICAL AIR COMMAND



Maintenance Man Safety Award

Staff Sergeant Jerry L. Halfhill, 834 Munitions Maintenance Squadron, Hurlburt Field, Florida, has been selected to receive the TAC Maintenance Man Safety Award for January 1973. Sergeant Halfhill will receive a letter of appreciation from the Commander of Tactical Air Command and a Certificate.



SSGT HALFHILL

TACTICAL AIR COMMAND



Crew Chief Safety Award

Staff Sergeant Michael A. Phelps, 27 Organizational Maintenance Squadron, Cannon Air Force Base, New Mexico, has been selected to receive the TAC Crew Chief Safety Award for January 1973. Sergeant Phelps will receive a letter of appreciation from the Commander of Tactical Air Command and a Certificate.



SSGT PHELPS

TACTICAL AIR COMMAND



Ground Safety Man of the Month

Master Sergeant Bobby J. Dixon, 415 Special Operations Training Squadron, Hurlburt Field, Florida, has been selected to receive the TAC Ground Safety Man of the Month Award for January 1973. Sergeant Dixon will receive a letter of appreciation from the Commander of Tactical Air Command and a Certificate.



MSGT DIXON

TAC TIPS

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

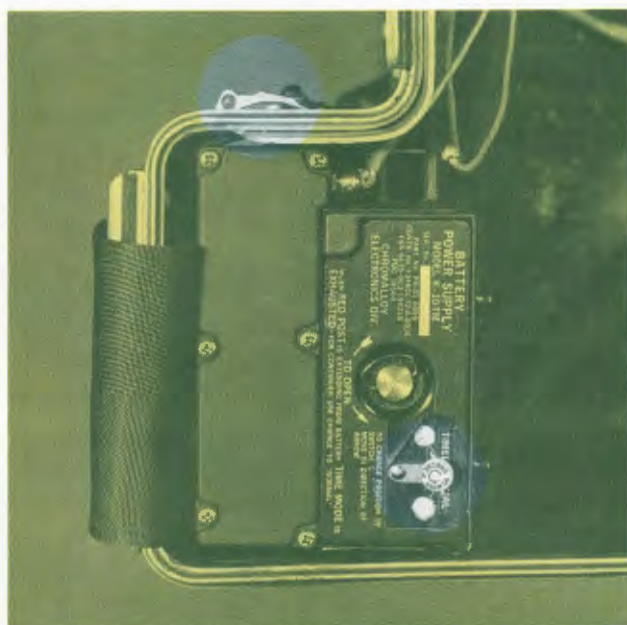
NEW PERSONNEL LOCATOR BEACON

The photos on this page are of the new PLB (Personnel Locator Beacon) coming into the inventory for the F/RF-4, A-7D, and OV-10. These shots were taken to show the F/RF-4 seat kit installation.

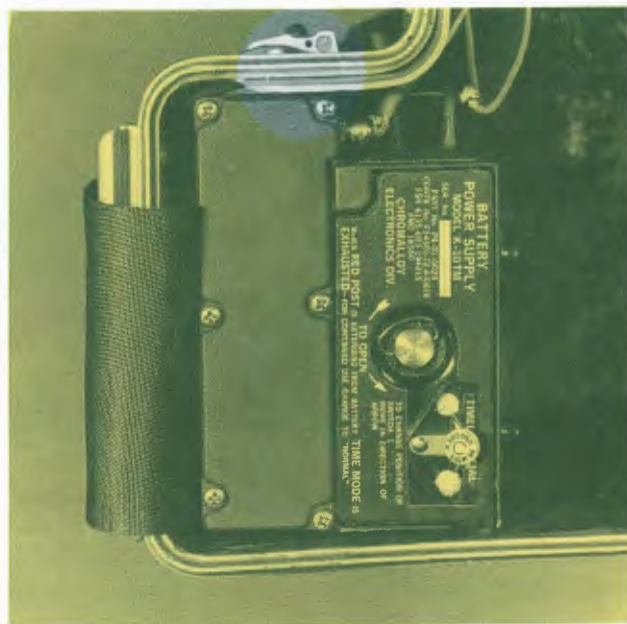
The new radio has some features you've all been waiting for. It has a fingertip switch which allows the jock

the means of selecting what he wants the radio to do. Putting the switch in the auto mode will trigger the PLB automatically upon seat/man separation after ejection, while the manual mode will turn off the radio entirely. Additionally, the manual position allows ground removal of the kit without worrying about an accidental activation of the beacon (you know how troublesome that is). Another feature you'll welcome is the timed (or combat) mode. This allows beeper transmissions for about ten minutes after ejection; then the radio shuts up. But once on the ground, the aircrewman can then remove the radio from the seat kit and put it into operation again.

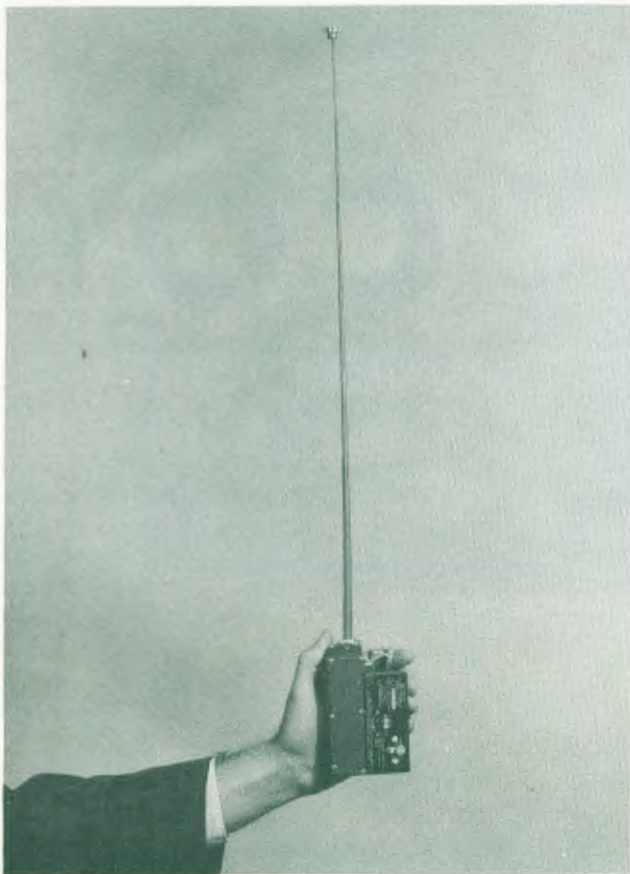
Early testing of this new PLB shows an outstanding improvement over our present equipment. Check the photo captions for more details.



The fingertip switch (top of photo) gives the aircrew member the capability of selecting automatic or manual. The PLB is pictured in automatic. At the lower right of the radio a switch is provided to allow the radio to be operated in either the "timed" or "normal" mode. If the timed mode is used and the fingertip switch is in auto the radio will transmit for ten minutes after seat/man separation and then quit. Once on the ground, should the crewmember choose to transmit a beeper tone, he would have to position this switch (lower right) to normal and the fingertip switch to auto. The beeper would then transmit continuously. Moving the fingertip switch to manual would shut off the radio.



Fingertip switch shown in the manual position.



When removed from the seat, the new PLB can be operated to transmit a beeper tone.

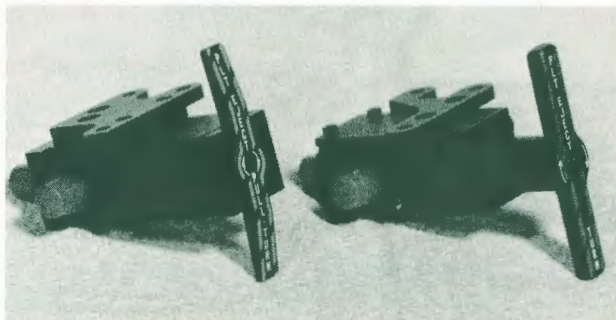
HOT TIP

You Phantom types are well aware of the many heaters throughout the bird that are activated when you flip the pitot heat switch on. One of those is the bellows venturi heater which has a thermocouple built into it that will turn off the venturi heater if it senses excessive heat. (Kinda like that little black box you've seen where you activate the switch on top of it, and the lid opens, a hand comes out, turns off the switch and disappears back into the box.) When it turns itself off, the heater will no longer work. There are only two ways this deactivation due to overheating can occur: either a lack of airflow or a defective heater. You, as a pilot, have no control over the defective heater, but you sure can control that airflow. If you operate the pitot heat during extended ground operation, you're laying yourself wide open to an inoperative bellows venturi heater. Go ahead and use the pitot heat when you need it — but don't forget the old airflow — burned out heater syndrome in the F-4.

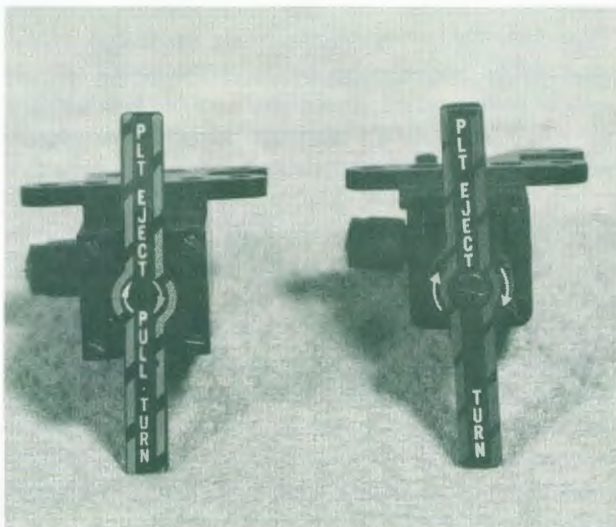
TAC ATTACK

DEMISE OF THE FINGER BITER

The F/RF-4 Command Selector Valve (CSV) is going to be changed drastically in its operation. Instead of requiring pulling and rotating to select ejection of both crewmen, a simple flick of the wrist rotation will do the job. The present pull/rotate system is a real finger biter, as attested by all those who have tried it. The new valve will be available for installation within the coming year and should provide a CSV which can be operated with ease if needed. Both the old (shown on the left in each photo), and new command selector valves are shown. The most significant difference to the aircrew member is the elimination of the word "Pull" on the new valve. For you maintenance types, the new valve has a 20,000 cycle life and will not need periodic replacement, which will save both funds and manpower.



This oblique view shows the different physical characteristics of the old (left) and the new Command Selector Valves.



Note the difference between the CSV presently installed on TAC F/RF-4 aircraft (left) and the new valve. With the new CSV it will not be necessary to "pull;" a simple flick of the wrist will do the trick.

SPO COR

DEAD PILOT FACTOR REVISITED

Last month, we mentioned how dead pilot factor had inspired creation of the TAC Aircraft Accident Investigation Branch. (In case you missed it, the title "Dead Pilot Factor" evolved when we found that 72% of nonsurviving crewmembers get tagged with the primary cause of their accident, versus 45% for those who survive). We also introduced the idea that we don't necessarily subscribe to the theory that pilots who blunder, stick with the aircraft to the end. Further, that many pilots are assigned primary cause simply because the opportunity was present for them to err and they aren't around to deny it.

We at the TAC Safety Office sincerely hope that our Investigation Branch will be a start in the reduction of dead pilot factor accidents. The members of the Branch have been to all the schools, have extensive investigation experience, are volunteers, and are available to assist (short term — long term — low key, or whatever) any TAC or TAC-gained aircraft accident investigation.

This is not to say that we may not show up, even if you don't ask. In these cases, we still don't wear the black hat, even if it looks a little dark from the board president's point of view.

The Investigation Branch has also recently "obtained" a complete set (over 1,000) FTD type vu-graph slides on all the systems, plus engines on the F-4/F-111/A-7/C-130 aircraft. Copies of selected vu-graphs will be mailed upon request to any TAC accident board. For instance, if you are investigating an F-4 accident which involves a leading edge flap malfunction, and you need visual aids, give us a call.

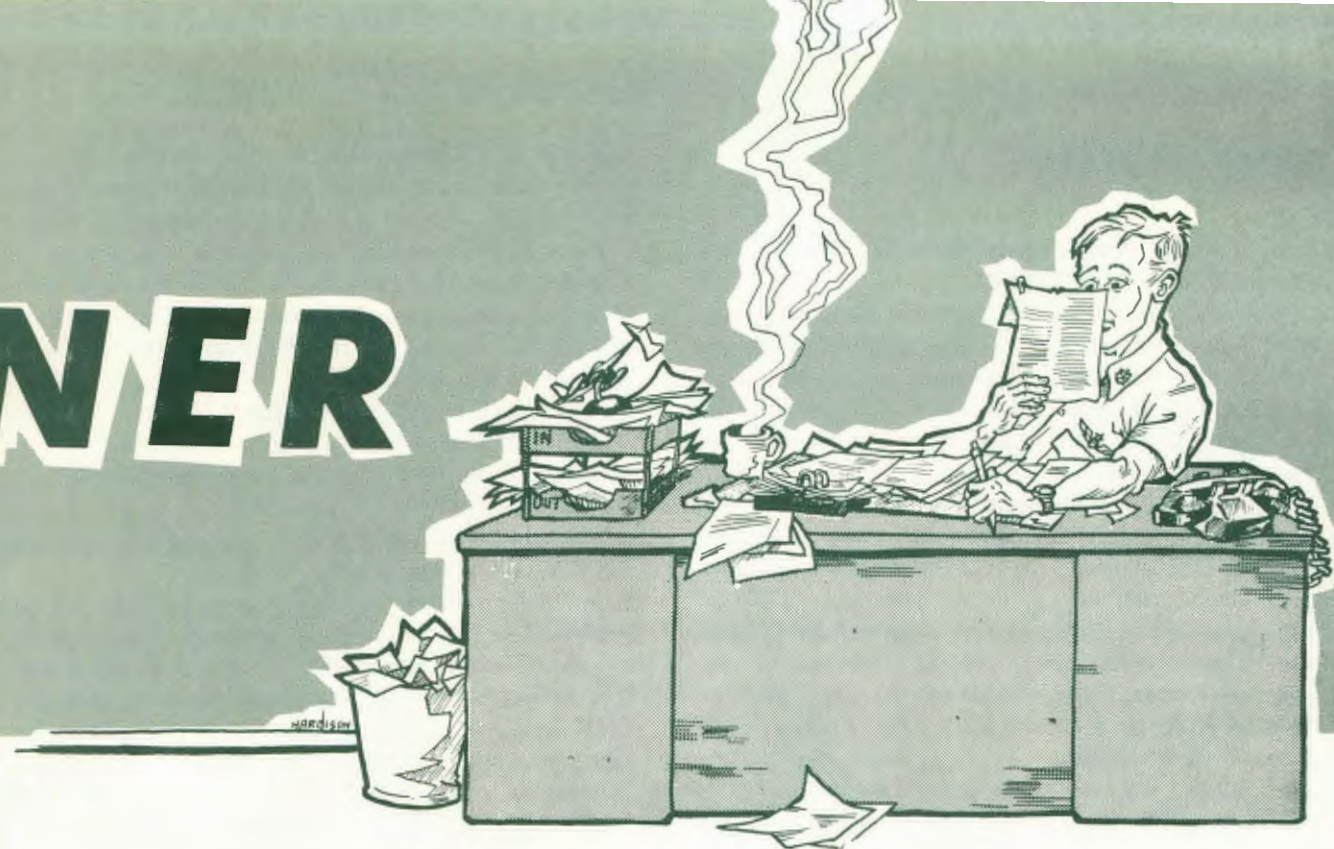
Other irons in the fire include a nuts and bolts manual on how to investigate the types of accidents that happen in TAC, a manual on pre-investigation planning, as well as some preliminary and, we hope, innovative ideas on a cheap low drag podable flight recorder. All these grand ideas take time to become reality, but as already mentioned, we have considerable capability — give us a call — we want to improve our accident investigations.

Lt Col Lou Kenison

SITUATION AWARENESS

During an ACM mission, number two went wide during a barrel roll attack and subsequently lost control of the aircraft while attempting to adjust his position.

NER



Number two, during a wing landing, started dropping back and wide as the flight passed over the overrun. Shortly thereafter he touched down with the right main gear in the sod.

Number three moved from the outside of a 360° orbit to the inside, dropped low and ahead of lead. Before the flight leader or the crew of number three became aware of the seriousness of this position, the number three aircraft hit the top of a mountain.

During a one-on-one ACM mission, the student AC, attempting a reversal, overstressed the aircraft (+ 10 Gs). He was not aware of his airspeed and altitude which placed him in the optimum area for stick force lightening.

The number four aircraft ran into number three during the base to final turn on the ground attack range. He had apparently mistaken two for three and was attempting to close his spacing.

During a night ground attack tactical mission, the back seater did not become aware of the critical aircraft altitude and attitude until it was too late to direct or accomplish a safe recovery.

All of the above events occurred during F-4 accidents or incidents during 1972. In each case, someone goofed! More specifically, he failed to recognize or maintain an adequate awareness of the situation as it developed. In some cases, a lack of this awareness only resulted in a short bomb, a long touchdown, a missed dart, or a need

to reposition the aircraft. In other instances, even a momentary loss of total awareness produced very fatal results.

Don't join this latter group, keep your head out!

Maj Burt Miller

T-37 VERSUS A-37

When many USAF pilots think about the T-37 Tweety Bird, they look back with nostalgia. For some, it was the first airplane they ever flew in pilot training — that fun-to-fly forgiving airplane in which they escaped the "surly bonds of earth." For us old heads who never flew the T-37, but who thrashed around with the T-6, T-34, and T-28 in primary pilot training, the T-37 reminds us of a cute little kiddie-car.

Some years back, USAF decided that there was a need in the inventory for a lightweight, easy to maintain, jet attack aircraft which could operate in a semi-permissive air-to-ground environment. Presto, Cessna provided us with the A-37 Dragon Fly. The trusty T-37 trainer was transformed into a tactical aircraft, equipped with two high thrust J-85 engines, guns, and a nifty camouflage paint job. The A-37 was then sent off to fight the war in South Vietnam. Both USAF and VNAF did a fine job

spo corner

there with the aircraft. Today the A-37 is also doing a yeoman job back in the CONUS.

Now this is where the rub comes in. Many of us have apparently transferred our nostalgic thoughts about the T-37 to the A-37. Why, who could get themselves in trouble flying the A-37? After all, it's just like the T-37 and look at the outstanding safety record that Air Training Command has compiled with the bird. Well, guys, the accident statistics don't bear out that contention. Granted the A-37 is a safe, forgiving aircraft, but it is NOT another T-37. For instance, the combined A-37 major aircraft accident rate in 1972 for TAC/ANG/AFRes units was 17.6 accidents per 100,000 flying hours (versus 8.5 in 1971). That's not a very impressive accident rate considering that the combined TAC/ANG rate for F-4s in 1972 was 6.7. Comparing the F-4 and the A-37 may be like comparing apples and oranges, but I think the point has been made. The A-37 is like any other fighter aircraft; it takes a highly professional pilot, combined with good maintenance and close supervision, to accomplish the assigned mission with the minimum amount of risk.

Even more disturbing than the high A-37 accident rate are the pilot fatalities. In 1971 and 1972, six of our pilots were killed in A-37 accidents and two have died in 1973. Of the nine A-37 accidents in 1971 and 1972, pilot factor was involved in seven accidents. Let's hope that in 1973, we can reverse this accident trend in the A-37 and get the job done in a safe, efficient manner. It's up to you guys who fly the airplane and those who back you up in the maintenance and logistics areas. Complacency, or lack of attention on anyone's part simply won't get it.

The A-37 is no kiddie-car.

Lt Col John J. Patterson

EMERGENCY SITUATION TRAINING

The F-4 emergency situation outlined in the Jan 73 issue is discussed by Mr. Bob Moore in the following letter. For you troops without access to an old issue, here's a summary of that situation.

"During takeoff roll, shortly after rotation, the fuel low level and master caution warning lights illuminate momentarily (5 seconds) and then go out. During climbout all fuel quantity indications are normal. Later, while in an afterburner pull-up to get roll-in altitude, the

fuel low level lights illuminate. You terminate AB and check the tape over counter at 5500/5500, but the feed tank indicates 700 lbs and slowly increasing, and boost pump pressure is zero for both engines." The answer to what happened (according to the Jan 73 issue) was that the hydraulic transfer and electric boost pumps had failed because the hydraulic fuel transfer check switch failed and stuck in the test position.

Here then is Mr. Moore's rebuttal.

Congrats on another fine mag. I like the new section "Emergency Situation Training." It is the type of article that causes the gray matter to activate.

I would like to point out an error or two with the "EST" article in your January 73 pub.

If the hydraulic transfer pump check switch malfunctions, it continues to complete the electrical circuit and will cause the No. 1 and 2 fuel cell fuselage fuel transfer level control valves to remain closed. It WILL NOT cause any pumps to be inoperative. In fact, the hydraulic transfer pumps will continue to operate when they normally should be in a static condition. The closed valves prevent pump pressure transfer of fuel; therefore, the only method left is gravity flow into cells 1 and 2. The boost pumps are not affected in any way by a malfunctioning transfer check switch, so you may have this problem and still have normal boost pump pressure indicated on the cockpit gauge.

I would suggest that if the feed tank low level light comes on during taxi out or during flight, and a check of the fuel quantity tape indicates a sufficient quantity of fuel, then make a quick check of the feed tank fuel level. If the feed tank quantity check verifies the low level light indication, it is probable that a transfer pump check switch in the left MLG wheel well is malfunctioning, causing the No. 1 and 2 level control valves to remain closed. This condition prevents the transfer of fuselage fuel into the No. 1 and 2 fuselage cells except by gravity feed thru another valve, which is dependent on aircraft attitude.

A positive means of alleviating an undesirable situation such as this is to interrupt electrical power to the check switch. This can easily be done in flight by pulling the "Fuel Valve Power" circuit breaker location H-1 on the No. 2 C/B panel for F-4C, F-4D, and F-4E, and location D-5 on the No. 3 C/B panel for RF-4C aircraft. No other circuits are affected by pulling this C/B.

If this situation happens before flight, naturally someone should take a look at the check switch before the mission is continued.

Bobby L. Moore
McAir Product Serv. Egn.
Hq TAC/LGMF, Langley AFB, Va.

PATTON:



The Babalas Investigation

by Chuck Applebach

The driver of the white Mercedes was traveling from the base into Mannheim, a short trek on the autobahn. The trip had been made many times in the past, and to the driver — executive officer of the 8081st Military Police Company — that clear, bright Sunday morning was like most others in post-war Germany.

But midway in this journey a cloud of dust rose over

the road, alarming the driver, who immediately determined that an accident had taken place. As the dust cleared, a Cadillac — four stars emblazoned on the back — came into view.

"My God . . . it's a four-star general," exclaimed the driver, "and the only one it could be is Patton."

The driver, a young lieutenant named Peter K. Babalas, was right. It was Dec 9, 1945. General George S. Patton, Jr., was critically injured, and, for the two weeks that remained of his life, proved to be a most unusual case.

In his Rotunda office, Norfolk lawyer and state senator, Babalas, revealed his role in this niche of history and produced conclusive evidence that Patton foresaw his death as early as the spring of that year.

"The war had ended," said Babalas, "and I had been assigned to a police company which consisted of an independent outfit controlling all the police activities in the city of Mannheim, a city comparable in size to Norfolk. We had complete charge of that area — nothing took place in that city unless our company was involved.

"When we took over this function, the first thing we

PATTON: The Babalas Investigation

did was to go around and pick the most suitable homes for the officers and the most suitable apartments — one whole street — for our men. We also took over a brewery that had a large recreational facility. The beer would be pumped right through to this facility where we had a band, a bowling alley, pool tables and the whole thing.

"On one of our usual Saturday night affairs we all had a good time and the next morning we got up and decided to drive into Mannheim."

The trip proved to be quite eventful. Babalas continued:

"As we came off the autobahn in the Mercedes — we all had white Mercedes and they used to call us the 'White Mice' — we passed through the industrial area that had a quartermaster warehouse on the right. A quarter of a mile before you got to the entrance to this, you had to cross railroad tracks with the usual signs around them saying to slow down and so forth. As we crossed these, right in front of me I saw the cloud of dust. I knew it was an accident, and I knew it was Patton."

The discovery that Patton was in the car surprised Babalas who, by virtue of his position, should have been informed of all movements within his area.

I hadn't heard anything come in on the radio or the telex telling us that there was a VIP coming through our sector. Ordinarily they would tell us that so-and-so is coming through, pick him up off the autobahn and escort him through the city.

"I pulled over immediately to the right, and in front of the Cadillac a two-and-a-half-ton truck — a GI truck — had cut into the path of the Patton vehicle headed into the entrance of the warehouse. A corporal (T/5 Robert L. Thompson) — all by himself — was driving that truck.

"My first concern was to see who was injured and the only one that I could see was Patton. He was seated just in the middle of the back seat and his head was slung over to the left, blood running down his bald head and forehead.

"The car was upright and I don't think that under today's standards there must have been more than \$200 worth of damage to the Cadillac's front end. It wasn't one of these devastating blows. What had happened was that the Cadillac saw the truck suddenly swing in front of him, applied his brakes, and just about the time he was ready to stop, they hit.

"My concern then was General Patton. General Gay (Major General Hobart R. "Hap" Gay, Patton's chief of

staff) was with him and he was beside himself — after all, they'd gone through the war together and nothing had happened and now there was this accident. Some people from the warehouse came out and I told them to get an ambulance to deliver Patton to the closest dispensary, which was within a mile from there.

"General Patton was conscious, telling General Gay, 'Damn it, just relax. The lieutenant will take care of it. Everything will be fine.'"

Babalas wasn't as sure, however. A broken neck was his first diagnosis.

"I made up my mind right then and there that the injury was more severe than appeared on the surface. I saw his head cocked over to the left at a bad angle.

"When the ambulance got there we put him in and escorted him over to Heidelberg. I decided that if I were right, and his neck was broken, he'd be better off in a big hospital than at a dispensary. It was a straight shot from Mannheim on another autobahn which wasn't in too bad a condition since it had been repaired after the bombings. We got him over there in less than 30 minutes.

"I made up my mind also that someone was going to catch it for the accident and that we were going to have to get a very fast report. It fell on me (as highest ranking officer on the scene) to do the investigating and come up with some conclusions."

When Babalas returned to the scene the vehicles had been moved to the side of the road, and the investigation began.

"I had one of my men shoot pictures of the vehicles and I interviewed the corporal and the driver of the Cadillac (Private First Class Horace L. Woodring). In reconstructing what happened . . . when General Patton saw the impending crash, he leaned forward, which put his weight forward. When they struck, it just lifted him up and he hit his head on the dividing partition between the driver and the back seat. It was one of those Cadillacs with a glass that would roll up and give secrecy to the people in the back. And there was a clock on this partition, and when he struck that clock it shattered and entered his forehead. You can break a neck very easily and that's what did it.

"I decided also that what happened was the general's car was speeding because it was about a quarter of a mile to where the railroad tracks were. They slowed down for the tracks and then built up speed again. They were doing in the neighborhood of 50 or 60 miles an hour. It was a

Sunday morning, and that really wasn't unusual for that time of the week. I also said the driver of the truck was negligent in seeing a speeding vehicle and cutting into its path. It was just a question of lack of judgment on both of their parts. No one else was injured and there was very little damage to the truck where it was hit in the front right side."

Babalas collected the general's personal effects on the scene, hoping to be able to return them and get Patton's version of the accident later in the hospital.

"I had never met the man and had never served under him. I was in Europe with another outfit before this military police assignment... already in Europe before Patton made the crossing."

(Patton entered World War II on Nov. 8, 1942, commanding units landing on the west coast of North Africa. In February 1943, he became commanding general of the Western Task Force and subsequently assumed command of all American forces in the Tunisian combat area. Patton assumed command of the Seventh Army in July 1943, while in Sicily and remained in that country until March 1944, when he was assigned to the European Theater of Operations as commander of the Third Army in France. From October 1945 until his death, he commanded the Fifteenth Army in American-occupied Germany.)

"After we had the battles in Normandy," Babalas adds, "Patton's armies made the big push all the way across Europe. This was a fantastic army and Patton had created such a tremendous aura of indestructibility about him. The way his tanks swept across Normandy and Germany, and how he outran everybody... I mean this guy was just a genius. I had nothing but the highest respect for Patton and his blood and guts ideas... his extreme ideas on discipline in battle which were good for his men. To me he was one of the outstanding generals in the war.

"I just thought that Patton was a soldier's general and a great tactician. He wasn't the most diplomatic man. He was just of the old, tough school — I'll beat you today, but I don't have to hate you for 25 years."

Babalas' opinion remained unchanged during the investigation and the weeks that followed, and when he saw Patton in the hospital, he discovered a new characteristic — the trait of compassion.

"He wanted to know what my conclusion on the accident was going to be. I went in and told him what my investigation revealed and that I was recommending that both drivers be held responsible. He said for me to tell them that as far as he was concerned, neither driver should be tried. An accident was an accident, he said, and that was all there was to it.

"He seemed to be in fine condition... he was talking and coherent. There wasn't a neck brace on him and so I

thought my early diagnosis had been wrong. He looked like he was going to come out of it, but actually death was just around the corner for him and he seemed to know it.

"Then I tried to give his effects back and he said, 'Lieutenant, I'm not going to need this stuff.' I joked with him and said that there might be another war or another parade around the corner. I asked him to be serious and he said, 'No, I am serious — you can have whatever you want of it because I won't need anything anymore.'

"So, still joking, I asked for his cap and he gave it to me. I took it and kept it until 1965.

"I couldn't understand why he didn't want his things. This wasn't Patton and I figured he was just down because of his injuries. The thought never occurred to me that he was going to die."

Within two weeks — Dec. 21, 1945 — news of Patton's death arrived.

"I got the same shock as I did when they announced the death of F.D.R. It was completely unbelievable... that was the furthest thought from my mind. I flashed back to that day in the hospital and, talking it over with some friends, I said that he'd told me he was going to die, but I didn't believe him. The nurses had been saying that he was coming along fine. I asked whether his neck had been broken, but they would never verify it one way or the other."

Although the official investigation report and the death certificate are not available, several of Patton's biographers — including Ladislav Farago in his book *PATTON: ORDEAL AND TRIUMPH* — make reference to the General's condition at the time. Several prominent physicians noted Patton's condition as "Fracture simple, third cervical vertebra with posterior dislocation of fourth cervical. Condition critical, prognosis guarded." In layman's terms, this means that Patton had broken his neck and was paralyzed from the neck down. In bulletins that followed, the General was seen to be making progress of a "very satisfactory" nature. On Dec. 19, Patton began having difficulty raising the mucus that was accumulating in the bronchial tubes squeezed by fragments of the shattered vertebra. At the same time, the pressure on the spinal cord increased. The next day he had an acute attack of breathlessness, convincing the surgeons that he had suffered a pulmonary embolism when a blood clot had gotten loose in his system and was pumped by his heart into his lungs. He died of acute heart failure. ➤

ED NOTE: It's difficult to accept the fact that such a minor accident led to the death of this great military leader, yet it did. Tragedies like this underscore the reasoning and logic behind our modern day seat belt programs.

Reprinted from the January 1973 issue of *Metro Hampton Roads Magazine* by permission."

CHOCK TALK

...incidents and incidentals

THE ROLLING SHRAPNEL FACTORY

The T-29 returned from a mission and was refueled in preparation for the next mission. A B-4 stand had been used during the refueling and, when the job was finished, a mechanic positioned the stand near the left wing tip. Shortly afterwards, two engine mechanics were dispatched to the airplane to correct an engine mixture control discrepancy. One of the mechanics inspected the forms and decided that an engine run would be necessary. During his inspection of the area around the aircraft, preparatory to engine run, he noticed the maintenance stand by the wing tip, but gave it no further thought. Later, during engine run, a combination of wind and caster effect of the wheels on the B-4 stand caused the stand to move toward the airplane. As the stand passed the front of the running engine, it was drawn toward the aircraft radome. The stand bounced off the radome and into number one prop. The whirling prop pulled the stand further into its arc, to complete the chewing-up operation. The stand was chopped into three sections, two of which landed on the ramp without damaging anything. The third piece, made up of parts of the stand hydraulic system and chunks of the flooring, was propelled into an adjacent T-29. The hydraulic arm of the stand penetrated the fuselage of the second aircraft just behind the aft escape hatch.

Some B-4 stands (as in the case of this one) require considerable oomph to get the locking lever past the over-center position in order to lock the individual wheel brakes. Unless the brakes are locked, the stand can (and will) move around. A double-check can save a lot of grief, and expensive equipment.

BALLAST

The F-101 was uprooted from the bone yard, then flown to the IRAN facility for refurbishing prior to being reassigned to a Guard unit. The aircraft went through the necessary functional check flights, after which the pilot picked up the airplane for ferrying to the unit. At the first en route stop, the pilot noticed that the nose gear strut was flat and he had it serviced to his satisfaction. Passing the Final Approach Fix en route to the second stop, the pilot lowered the gear but had an unsafe nose gear indication. He recycled the gear a couple of times but the nose gear remained up. Tower confirmed that the nose gear was up with the doors open. The jock went through the checklists, pulled Gs, and yawed the aircraft, all to no avail. Insufficient time remained to foam the runway and the jock put her on the ground firmly, trying to jar the nose gear loose. He deployed the chute and the nose started down at about 130 knots, still minus the gear. Both engines, master switches, generators, and battery were turned off and light braking was used to keep the airplane on the centerline as the 101 slid to a stop 3000 feet from the point of touchdown. A small fire developed and was quickly extinguished by the fire department. The pilot opened the canopy electrically and egressed uninjured.

Maintenance found that the ballast was improperly installed in the nose gear compartment. Marks on the ballast indicated that a hexagonal axle nut on the nose gear had made contact with the ballast on several retractions and extensions. The axle nut shaved away the lead ballast on previous flights until, on the final flight, the nut caught on a bolt holding the ballast and prevented the full lowering of the nose gear.

with a maintenance slant.

LIFE RAFT RAT RACE

After a short flight of seven and a-half hours and while at 29,000 ft, the pilot of the C-130 felt a jolt in the flight controls followed by several smaller bumps and light aircraft buffeting. The pilot suspected that a life raft had come out of its stowage location (a compartment below the top surface of the wing) and had flailed the tail, causing the jolts. Inspection (by use of the sextant, most probably) proved this to be true so the pilot performed a controllability check and found the aircraft responded normally. With no further complications, the AC brought the airplane home.

No conclusive cause factors were discovered during the ensuing investigation but a possible cause was listed. TO 14S-1-102 references a rubber dust and moisture cap which is placed over the life raft vent valve. The cap is installed in the fabrication shop and leaves the shop in that state. After installation in the aircraft, checklist and TO procedures require opening of the vent valve. This procedure necessitates the removal of the dust and moisture cap. If the cap is not removed, it might be possible for moisture to enter the valve, which subsequently freezes and renders the vent valve useless. This, in turn, allows trapped air to expand as altitude increases (the life rafts are not stowed in a pressurized compartment). The life raft expands, pops out of the compartment, and hits the tail.

That CO₂ bottle which inflates the raft under normal situations is a heavy chunk of metal which can rip through thin aluminum skin. In some cases, life rafts have been known to remain lodged on the horizontal tail until after landing. And in some cases, lodged life rafts have caused severe flight control problems.

In all cases, it's not much fun.

DON'T GET SUCKED IN

Recently, in another command, a T-38 was being ground-run to check for an unusual noise, which had been reported by a pilot. With the right engine at idle and the left engine at 90 percent, one of the mechanics was under the fuselage to check the air conditioning package. As the mechanic began moving forward in a stooped position, he lost his balance, started to fall, then stood up in order to regain his balance — RIGHT IN FRONT OF THE LEFT ENGINE INTAKE! His right arm, shoulder, and head were pulled into the intake and his earmuffs were snatched off, causing FOD to the inlet guide vanes and some compressor rotor blades. The intercom monitor immediately informed the engine operator who quickly shut down both engines. Fortunately there was no injury to the mechanic. But you can bet he used up his entire adrenalin allotment.

ROTOR BLADE FATALITY

It was to be a ground engine runup for a maintenance ops check on the rudder lock assembly of the HH-43F helicopter. Engine start was normal and the mechanic, who was also operating as a fire guard, went to the front of the helicopter to complete ground crewman duties. As the mechanic gave the pilot the appropriate hand signals, the pilot released the rotor brake lever and rotated the throttle toward flight idle (a standard procedure in this type airplane). The mechanic then moved to a position adjacent to the pilot's door. Suddenly, an uncommanded surge of power caused the helicopter to become airborne and the machine simultaneously entered a steep left bank and turned rapidly to the left. Startled by the sudden movement of the aircraft, the mechanic moved several steps to his right and then forward a couple of steps. The pilot applied flight control inputs which caused the helicopter to go into a sharp right bank while still in a left turn. At this time, one of the helicopter blades struck the mechanic in the head, killing him instantly. The pilot moved the throttle to cutoff and the helicopter landed while still in a right bank and left turn.

The cause of the power surge could not be determined; however, maintenance factor was listed as a contributing cause. A maladjustment of the blade flaps caused a high rotor cone on the right side which resulted in an uncontrollable turn to the left.

Additionally, the helicopter mechanic, in trying to get away from the helicopter, exited to the side, disregarding a warning in the Dash One.

letters to the editor.....

GREEN HORNETS REUNION

The 20th SOS Green Hornet Annual Reunion will be held 4 and 5 May 1973 at the Green Oaks Inn, Ft. Worth, Texas. FACs who worked with the 20th, and all members of the 20th, are welcome. For information contact Hornet Lead, 1550th ATTW (LGMQF), Hill AFB, Utah 84406, or call: Major Moore, 801-394-5989 or Captain Cullers, 801-825-1301.

DEAR SIR:

Stationed as I am, at an Army Post, I get to see copies of TAC ATTACK only rarely these days. Just recently, for example, I saw the November 1972 issue, and as a result of reading some of the articles contained in it, I decided to send this letter.

On page 22, the following statement was made in reference to, I believe, an F-4 incident. "The fire warning leads had been REVERSED on the fire warning lights in the front cockpit. Under slightly different circumstances, this condition would prove disastrous!" If you check some of last year's accident records from PACAF, I think you will find that it already has! In June or July of 1972, a PACAF RF-4C was lost for this same reason, fortunately without significant injury to the crew. As I recall, the fire developed in the left engine on takeoff, the right engine was shut down, and the flight lasted for another 25 or 27 minutes, with almost continuous high power settings on the already burning engine. If I recall correctly, a subsequent one-time inspection resulted in finding three more wired this way.

On another matter entirely, on page 19 of that issue, the following statements were made in the article on "Lost Century Series Aircraft." "The F-109 is the real stumper of the lost Century series fighters." "It's more commonly known as the two-seat version of the F-101. The F-109 designation was changed to the F-101B." I would like to know your source for that information? All the facts that you give on both the XF-103

and XF-108 are adequately documented in at least two commonly available reference books: "American Combat Planes" by Ray Wagner, and "United States Army and Air Force Fighters 1916-1961" by Bruce Robertson. On the other hand, nothing at all is said about the F/XF-109 in the former publication, but the latter one, which incidentally was jointly compiled by five people, including a USAF Lt Col and a USAF Capt, makes the following statement on page 252: "...the RYAN XF-109 (was) a similar experiment on the Navy XF-3R-1." The "similar experiment" reference is to a VERTICAL TAKEOFF fighter, and somewhere, I have heard that before! The emphasis, of course, is on the manufacturer, Ryan, and this implies that the XF-109 was the ORIGINAL designation intended for the aircraft which subsequently became much better known as the Ryan X-13 "Vertijet." If you've got a definitive reference, I'd like to know what it is, one way or the other.

Checking out in a new aircraft, albeit only the O-2, I still find that one of the best ways to "get a handle" on it is to go back and read old safety magazines and accident/incident reports, just to see where and how the "mistakes" were made. Thus, I did note from your Index in the December 1972 issue of TAC ATTACK, that there was O-2 information in three copies (Jan, Aug and Oct) last year. I did not get to see any of those, and I wonder if you might send me either back copies of these three magazines, or at least reprints of the O-2 articles/information? Also, ANY other accident/incident/unusual occurrence information you might have, and could send me, on the O-2, would be greatly appreciated.

Thanks very much, and sorry I've taken so much of your time.

Captain Henry R. Kramer, USAF
Fort Hood, Texas

Your back issues are on the way. In addition, we included several 1971 issues that have O-2 tips in them. As regards your comments on reversed leads, you're absolutely correct! Reversed leads to fire lights, and to a lot of other items in aircraft, have cost the Air Force quite a number of airplanes. As for your query on the F-109 — our original info on the F-109 came from an unpublished research paper on file at the Air Force Museum entitled "Century Series Fighters That Didn't Make it," by William G. Holder. We recently discussed this article with Mr. Holder, and he indicated that the F-109 (not XF) was a McDonnell designation, and was never used by the USAF. He further indicated that the XF-109 designation had been given to a one of a kind, never flown, North American airplane. Your RYAN XF-109 designation has only added fuel to the flames licking at our Assistant Editor's feet. Anybody else out there know of any other F/XF-109s? We need one more to make a four ship! Ed.

TAC TALLY

MAJOR ACCIDENT RATE COMPARISON

	TAC		ANG		AFRes	
	1973	1972	1973	1972	1973	1972
JAN	4.6	0	9.1	0	22.2	0
FEB						
MAR						
APR						
MAY						
JUN						
JUL						
AUG						
SEP						
OCT						
NOV						
DEC						

AIRCRAFT ACCIDENTS

UNITS

	THRU JANUARY					THRU JANUARY			
	1973		1972			1973		1972	
	ACDTS	RATE	ACDTS	RATE		ACDTS	RATE	ACDTS	RATE
9AF	1	4.9	0	0	12AF	0	0	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
23 TFW	0	0	0	0	49 TFW	0	0	0	0
31 TFW	0	0	0	0	58 TFW	0	0	0	0
33 TFW	0	0	0	0	67 TRW	0	0	0	0
68 TASG	0	0	0	0	71 TASG	0	0	0	0
316 TAW	0	0	0	0	313 TAW	0	0	0	0
317 TAW	0	0	0	0	314 TAW	0	0	0	0
354 TFW	1	41.4	0	0	355 TFW	0	0	0	0
363 TRW	0	0	0	0	366 TFW	0	0	0	0
4403 TFW	0	0	0	0	474 TFW	0	0	0	0
					463 TAW	0	0	0	0
					23 TFW	0	0	0	0

TAC SPECIAL UNITS

1 SOW	1	22.6	0	0	4410 SOTG	0	0	0	0
2 ADG	0	0	0	0	4485 TS	0	0	0	0
57 FWW	1	58.7	0	0	4500 ABW	0	0	0	0
ADS	0	0	0	0	OTHER	0	0	0	0

TAC

JAN 73	THRU JANUARY	
	1973	1972

3	3	0
3	3	0
4	4	0
3	3	0

4	4	0
1	1	0
25%	25%	0

SUMMARY

TOTAL ACCIDENTS
MAJOR
AIRCREW FATALITIES
AIRCRAFT DESTROYED

TOTAL EJECTIONS
SUCCESSFUL EJECTIONS
PERCENT SUCCESSFUL

ANG

JAN 73	THRU JANUARY	
	1973	1972

2	2	0
2	2	0
0	0	0
2	2	0

2	2	0
2	2	0
100%	100%	0

