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TAC ATTACK

MARCH 1971

March 1971



ADI Problems... page 4

ADI PROBLEMS....Page 4

for efficient tactical air power

TAC ATTACK

MARCH 1971
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Tactical Air Command

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Jamie sez:

People are like tea bags . . . they are not usually aware of their own strength until they get in hot water.

current interest

ADI PROBLEMS	Pg 4
FOLLOW-UP ON SURVIVAL	Pg 12
THE LONG REACH	Pg 22
ARRESTING GEAR	Pg 28

departments

Angle of Attack	Pg 3
TAC Tips	Pg 10
SPO's Corner	Pg 16
Pilots of Distinction	Pg 19
Unit Achievement Awards	Pg 20
Chock Talk	Pg 26
Crew Chief/Maintenance Man Award	Pg 29
Letters	Pg 30
TAC Tally	Pg 31

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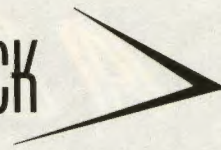
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Angle of ATTACK



WHOA!! We're missing the target area

In the first sixty-four days of this year the Tactical Air Command suffered seventeen private motor vehicle fatalities. That's way out of line with our goals for this year—no matter how you look at it, it's excessive. And the hard part to swallow is how these fatalities are occurring.

Failed to stop at a railroad crossing, hit by freight train.

Speeding, lost control.

Speeding, alcohol involved. Ran off the road.

Racing from stoplight.

We have a lot of work to do in the private motor vehicle area. It's always been a problem that we may never completely solve. By the nature of the beast it's difficult to keep a handle on this area. When a man gets behind the wheel of a vehicle there is no way to control his actions. THE WORK MUST BE DONE BEFORE HE TURNS THE KEY.

We've used many methods for curbing reckless and irresponsible driving in the past. If you choose to concentrate on any one, how about education? A good driver education program is a step in the direction we wish to go — preventing accidents. I'll not quarrel with some of the other tried and true methods, but remember, they are applied after the fact. So let's zero in on this trend we've started in '71. A bad start doesn't automatically lose the ball game... it just requires that you work that much harder to catch up.

GERALD J. BEISNER, Colonel, USAF
Chief of Safety

ADI PROBLEMS



The following article by Captain Dave Wilson was presented to the pilots of the 33rd Wing at Eglin at a recent flying safety meeting. Captain Wilson is a maintenance officer and a fully qualified F-4 pilot. A lot of work and research went into this briefing and Dave requested that Tsgt James V. Riner share the credit as he

supplied most of the technical information.

Don't be lulled into thinking that the ADI problem will be alleviated with the introduction of the two-inch standby gyro. To be sure, the problem has the priority that F-4 engine bay fires enjoyed as far as a fix is concerned. But a problem of this magnitude just won't be solved overnight. The pilot actions in each case will determine whether we get the bird back after failure of the front cockpit ADI — and I don't kid ourselves, we've got aircraft with an OPERATING ADI. Vertigo or disorientation will be sitting right on your shoulder when the ADI fails and you switch your attention to the standby indicator. Now is the time to practice your cross-check and learn to use everything you have in the way of attitude information — it may be too late when the chips are down.

The information and techniques described in this article have not been endorsed by TAC, rather, they are presented to get you thinking about what you'll do when your time comes. Right now it appears that one of the best investments you can make for your future is to spend the time needed to get yourself up to speed on this problem.



By Captain David E. Wilson
4533TTSq (T), Eglin AFB, FL.

This discussion is strictly from the pilot's viewpoint. It concerns four attitude systems available for use in the F-4, a couple of things that you won't find in the Dash One, and things which the Dash One doesn't tell us to do . . . things which are good to remember if you ever run into a bind.

Starting out, we have heard about some various accidents, incidents, and problems with ADIs. The ADI in the F-4 aircraft can no longer be considered a reliable instrument. IT CANNOT BE. Right now, there are 25 failures per week in F-4s in the Air Force inventory. This does not count the number of failed ADIs we have recently sitting in F-4s, some of which are on our ramp . . . y. There are about 250 ADIs going into depot every

month for repairs. Stop and think. This is your primary instrument in weather, and it doesn't work worth a hoot. I will get into why later, but first let's look at an incident where someone did everything wrong. I am going to use it as an illustration and go on from there. Everything was done wrong, but probably no different than the average jock would have done.

The pilot entered clouds with 30° of bank, looked down at his attitude indicator and read 60°. The first thing he did was shake the stick a little bit. The ADI did not move. The next thing he did was take his right hand off the stick, put his left hand on, moved his right hand and probably his head clear back in the back of the cockpit and changed to stand by, which didn't do him any

adi problems

good. By now, ten seconds have gone by. He thought, "I had better give it to the GIB and see if he can get me out of here." He gave it to the GIB. All the GIB's instruments were normal. He recovered the aircraft from a 110° bank, 30° nose low, 800 feet off the ground.

Lucky? You bet he was. Very lucky. Let's take a quick look at the attitude systems and how they work. We are going to look first, at the pilot, the front cockpit and what you have available. Very simply, you are working off your INS in the primary mode which feeds the attitude indicator in the front cockpit. The back seat is on stand by system. An important thing to bring up at this time, as we will see later, your sight and radar are both working off of the INS.

We will now go into the rest of the system. Starting out — stand by mode. The AN/AJB-7 powers both the back seat attitude and the front seat attitude indicators. Everybody knows that. It powers the radar horizon line but not the gun sight. The gun sight is on INS. Stand by does not power any turn needles in the F-4. The turn needle in the front cockpit is powered by a rate gyro which happens to be in the same black box as AN/AJB-7 but is not a portion of it. The turn needle in the back cockpit is a completely separate, independent system. In the primary mode, the back seat cockpit is still run by the AN/AJB-7. Four systems — the two turn needles, front cockpit — primary; back cockpit — stand by. Going back to our fellow who entered the cloud... what did he have? A frozen ADI. That was all. It took him ten full seconds to figure out that his ADI wasn't working. The turn needles and radar horizon line still were. Not only did the guy in the back seat have a good system, the pilot had a good attitude system in the front cockpit with a totally inoperative ADI! That is your system in a nut shell. I intentionally kept it simple. It's probably one of the more complicated systems existing in the F-4. But that is really all there is to it.

What does an off flag mean? An off flag in the front cockpit ADI means just what the Dash One says it means. Not a dang thing. It could mean that your stand by mode is not good. It could mean that your AN/AJB-7 is not good. But it doesn't necessarily mean that. There are 22 separate failures that can cause an off flag in the front cockpit ADI, only two of which will affect your attitude reference in the stand by mode. I am not saying disregard it. Cross check your stand by mode and find out if it is still good. The Dash One gives you the indication to

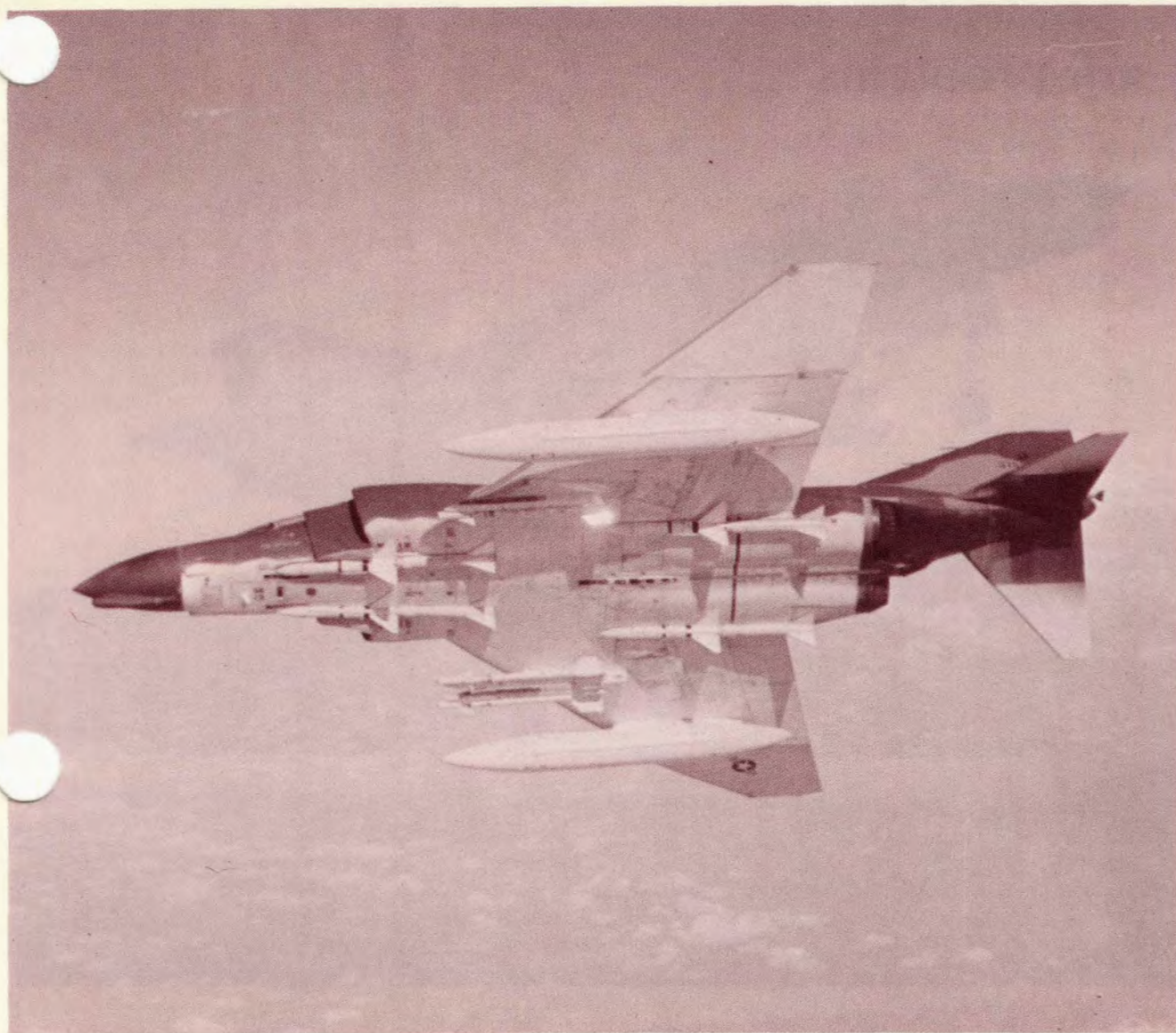
disregard it. Don't. Make sure you've still got a stand by system. But just because it's there doesn't really mean the whole lot.

Some other indications. Your pitch aug fails. Your stab aug comes directly off the AN/AJB-7 in the pitch mode only. If you have a pitch aug failure, you can pretty well anticipate that your stand by attitude mode is unreliable. INS off. Obvious. You probably have nothing in the way of a primary system. It comes directly off the INS.

The malfunction that currently exists in the ADI is probably within the bearings. It exists within three little drive motors that drive this ball around in a little circle. The motors are not strong enough if the bearing hits the smallest little piece of dust. This is our problem. This is where they are failing. More importantly, there's no way we can bench check it. Now, as a maintenance man, I can't go out there and find out how many good ADI's you have. The power source currently used for a bench check on the ADI is significantly stronger than the power source you utilize everyday in the airplane. Depot does not even have a test set for this. There is one way we can check them, and you know that just as well as I do — WRITE THEM UP. Every attitude indicator failure is treated as an incident right now. If it even jumps, sticks, fails to turn 1° when you move, write it up. Let's get it out before we kill somebody with it. Get them out of there as fast as we can. We are lucky in this Wing. We have had very few failures. One wing wasn't so lucky. Out of 16 that they received, six of them were bench checked bad at their station, which probably meant that more than that were bad. This is the problem we are fighting. We need your help from this aspect.

What is the Air Force doing? We are trying to beat the problem to the punch. Before, depot changed one bearing at a time. If you had a bad bearing, they changed it. Now, they are changing all the bearings if one goes bad. Secondly, they are in the process of making the attitude indicator a time change item. We pull it out and send it to depot for inspection and maintenance. Third, they are currently going ahead and taking the tester that they have developed and making it a field level piece of equipment so we can test the ADIs here. Starting in March of this year, you will see a small stand by indicator starting to show up in the F-4.

What am I suggesting? Let's go back to the indication and the little problem we started out with. The guy entered a cloud bank at 30° . The ADI indicated 60° . He moved the stick — nothing happened. DON'T GO TO STAND BY. It takes too long. Your attitude is unknown, you have to switch hands, and most of the time you turn your head. What three worse possible vertigo situations could you ask for? Look at your radar horizon line. If it's not reading the same as your attitude indicator, fly



radar horizon line. Talk to your GIB. He's looking at both of them. He's got the primary on his radar horizon line and the stand by on his attitude indicator. If they're the same, hunky dory. You can give it to your GIB. That is inherent in anything I say from this point on. If your GIB is qualified, give it to the GIB. It's the safest way to go. Go the radar horizon line. If it reads the same, then go stand by.

STEP 1: Cross check the indicators.

STEP 2: Go to stand by. If it doesn't help you, nothing is going to help you except the turn and slip indicator in the front and back cockpit. I don't know what you, but I would much rather fly off the radar horizon line than the turn and slip indicator any day of

the week. Remember you have a secondary source, and it is a good one. Next time you go out on an instrument or proficiency flight or you have enough gas left over to fly a GCA, try it. I tried it the other day, and it is not too difficult. Really, it's pretty easy. It's just about like flying with an attitude indicator and as long as you keep the bank angle fairly small, it is very simple.

My intention, and I will summarize with this, was to scare you into thinking that the ADI is not the instrument we have always been taught it was. I hope I have accomplished that because it is not — not in the F-4 today. If you figure out the total number of the F-4s flying and total number of ADI failures, you stand a good chance of seeing a failure yourself in the near future.

adi problems



Coincidentally, the article by Captain Wilson and the following information from Lieutenant Colonel Harris arrived the same day. They complement each other and will give you a better picture of what's doing in this area.

And keep this in mind — attitude indicator failures are caused by more than just bearings. Message traffic has identified other areas of material failure in different parts of the aircraft in addition to our old standby, personnel error.

At this writing, a minor accident is under investigation which points up our problem very sharply. The aircraft was number three in a flight of three. They took off individually for a radar trail departure. While in burner with gear and flaps in transit, the aircraft entered an overcast

indicating a ten to twelve degree climb on the ADI. Both crewmembers then experienced a zero to one-half G flight condition with no change in ADI indication. The aircraft commander immediately realized he was close to the ground and stated that he had to get positive G on the aircraft. He did so at that time . . . as they came out of the overcast the back-seater informed him that they were about to hit the trees and he increased his pull to about 5 Gs, then hit the trees. They recovered above the low cloud deck and after a controllability check, landed at another base. Five days later the investigators had not found a fault in the attitude reference system. Impact with the trees was about a mile off the end of the runway—oh, the weather was 300 ft

F/RF-4 ADI Improvement Efforts

Editor
TAC ATTACK Magazine
Langley AFB, Va. 23365
(Attn: Major Richardson)

1. Reference our phone conversation of 4 February and the recent ADI articles on pages 13 and 20 of the December issue, I believe some later information would benefit all your readers. In order to avoid further confusion and a continuing lack of confidence in the ARU-11A (front cockpit ADI) some clarification of what constitutes a newly overhauled instrument is essential. Your article undoubtedly referred to ADI's that were overhauled prior to issuance of new SRA instructions and procedures. No ARU-11A's reconditioned in accordance with these new instructions, issued on 25 December 1970, have been returned to the field.

Several separate things are being done to improve the credibility of the ARU-11A. When the instrument was assembled at the factory the MIL specification did not require particular lubrication of the tiny bearings installed in the small TACH MOTOR GENERATORS which drive the attitude reference sphere. This lack of lubrication has been identified as the primary cause of these small motor generators hanging up and failing to drive the reference sphere to the proper attitude position. Immediate action has been initiated to require replacement of all these bearings because it is impossible to determine their wear condition. Special lubricant is also being applied to assure continued satisfactory operation of the new bearing installations. After this repair has been completed the

instruments are put through a quality assurance test using newly modified depot test equipment that can test the instrument at a slow slew rate which will detect the most minute bearing hang up. These instruments are then marked with a "green dot" near the right hand upper mount screw so that they are easily identified. We intend to monitor these instruments to insure that the "fix" has indeed solved the ADI problem. In a parallel long range effort both AFLC and AFSC are looking at later state-of-the-art attitude reference instrument for possible use in our tactical aircraft.

3. As you may know, we are also working feverishly on accelerating installation of the 2" "Standby" indicator for the front cockpit. AFLC is planning on sending assistance teams to all the operating commands to aid them in installing this modification on a priority basis. The modification has been split into two separate TCTO's: one for the group A (Wiring harness and hardware) and one for the group B (2" indicator). Because of a difference in kit production rates we will be able to complete the group A installation in all operational aircraft by October. We should complete the 2" indicator installation by the end of January 72. AFLC is still working on a possible method of accelerating the 2" indicator procurement. Once we accomplish these events it should provide us with a much safer F-4 fleet than ever before.

Lt Col M. M. Harris, Hq USAF
F-4 Project Officer
AF/SMEMA

TAC TIPS

...interest items, mishaps

ATTENTION MILITARY PILOTS...SO YOU WANT TO LAND YOUR AIRCRAFT?

Ever been on an IFR stopover flight plan and had to cool it on the ground waiting for a departure clearance at the stopover? Ever been told that the Center didn't even have your flight plan? Be comforted! It happens every day to someone else. But it's probably your own fault! The way it is: Your flight plan goes to each stopover tie-in FSS. THEY HOLD IT (just like the procedures say) until they receive your ETD. They then call it in to the Center and presto, NO PROBLEM. (They have all been waiting for you to do what AFR 102-8, AR 95-11, OPNAVIST 3722.8G, Attachment 1, paragraph 2b requires of YOU.) So-o-o-o, if you're beginning to steam while waiting for clearance on your NOW ETD, it takes a while for the word (NOW) to get to the FSS (and only that can break the impasse).

There's a simple solution — just try it: As you approach your stopover point, call the tie-in FSS (255.4MHz) and give him your ETD. You'll be surprised how ready your clearance will be!

REX M. STEWART
FAA/TAC Liaison Officer

THE SINKHOLE REVISITED

Following two moderate compressor stalls experienced while coming off the range, this F-100 jock set up a PLP to recover. He entered a high downwind for a right turn to final, aim point was a third down the runway, airspeed 20 knots high. When he had the field made, he lowered the

nose but did not change throttle position. On short final he raised the nose to break his high sink rate and simultaneously reduced RPM. The aircraft rotated with very little reduction of the sink rate. Touchdown was hard, in the overrun, nose high. The tail skid broke on impact and the right main blew. Then the nose gear slammed down and the aircraft became airborne again, yawing right. The pilot stopped the yaw and managed to recover from the nose high attitude for a good second touchdown. He finished in the BAK-12 on the far end.

F-4 FLIGHT CONTROLS

During a straight-in GCA the aircraft began oscillating in yaw and roll. As airspeed was reduced below 190 knots, gear and flaps down, the oscillations increased to about fifteen degrees in yaw and roll. The aircraft commander declared an emergency and initiated a go-around. As airspeed increased, the oscillations decreased but were still noticeable at 300 knots. A controllability check was made at 200 knots with gear down and flaps up, roll and yaw stab disengaged, and the ARI, aileron trim, rudder trim and trim control circuit breakers pulled. The bird remained spastic. A GCA was flown at 200 knots, they planned an approach end arrestment into the BAK-12. As airspeed was being bled over the overrun the oscillations again increased. The aircraft commander deployed the drag chute which stabilized the aircraft just prior to touchdown. A successful engagement was made at 190 knots. All tape was pulled from the reels, then a severe rollback and swerve occurred.

The aircraft broke left, going backwards, and was departing the runway when the tailhook dug in, buckled and stopped it. The aircraft commander was on the br

with morals, for the TAC aircrewman

but they were never effective. They found the rudder actuator had failed internally. A good show by a sharp crew!

F-4 RICOCHET

This aircraft was leading a flight of four on a tactical gunnery mission. All went well till strafe. The last strafe was on a simulated bunker, dive angle was 10 degrees a cease fire of about 3000 feet, bottoming out at 300 feet. As they departed the range the cockpit filled with smoke. Cabin pressure was dumped, then they noticed the number one engine oil pressure at zero. The engine was shut down and recovery was accomplished without further incident.

A ricochet, probably 20 mm ball, did the dirty deed. It impacted six feet inside the intake causing a dent an eighth inch deep by four inches long. The object then struck and punctured the oil cooler at the twelve o'clock position...and continued through the engine causing extensive damage.

F-4 PITCH UP

When climbing through 11,000 feet after takeoff, this F-4 crew got quite a shock when their aircraft pitched up violently. During this unplanned maneuver the stick came back to the stop and could not be moved forward until the paddle switch was engaged. Fuel was burned down and a landing was accomplished with pitch-aug off.

They found the stabilator power control cylinder had failed internally. The failure caused massive by-passing of pressure within the cylinder which, by an

undetermined sequence, caused the stabilator to go to the full down position and violently move the control stick to the rear.

An EUMR was submitted on the failure. We'll watch for the answer with interest — post-flight trouble shooting showed that this sudden pitch-up tendency could have occurred at any time during the flight, especially during the application of back stick. How'd you like to eat that one during a high angle of attack maneuver?

F-4 ADI

After a gunnery pass while on a wings level downwind, the front cockpit ADI tumbled in the primary mode. The warning flag did not appear until three minutes after the failure. All bank and pitch information was unreliable and no change occurred when standby was selected. The rear cockpit attitude indicator was not affected.

After takeoff the front cockpit ADI stuck in a thirty degree right bank. The aircraft commander switched to standby, then back to normal and the system operated normally for about five minutes, then stuck. It worked in normal following that for about five minutes and so it went for forty-five minutes. At that time all systems operated normally.

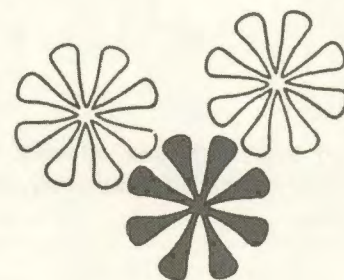
After takeoff the ADI jumped in pitch, at the same time it rotated rapidly to the right about 120 degrees. Following that, it corrected itself and worked properly for the rest of the flight. No off flag appeared.

After twenty minutes of flight the front cockpit ADI rolled to a 90 degree bank. The radar horizon followed it. Standby was selected and the ADI and radar horizon worked properly. The primary system was checked periodically and continued to indicate failure till just before landing. It corrected itself at that time and worked properly through engine shutdown.

FOLLOW-UP ON...



SURVIVAL



The Editor, TAC ATTACK
Langley AFB, Va 23365

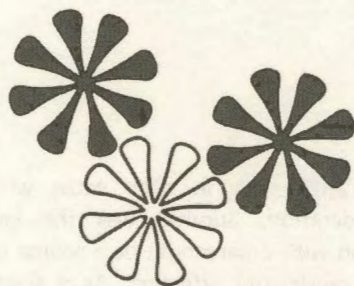
1. Your article on Cold Weather Survival was interesting (December 70 TAC ATTACK) but seemed, in my humble opinion, to be a bit short on clues the neophyte could use to better his chances under semi-arctic conditions. A few items that I have yet to see in print just may help someone survive or, as a minimum, increase the comfort factor. You may wish to write a short squib based on the following items.

2. The new insulated one man life raft is an ideal item of survival equipment for the frozen land masses of the world. Approximately two weeks ago an initial test was performed by our Survival Training Officer and the Simulator Section to evaluate the insulating quality of the raft under reasonable severe conditions. Captain Conway, the STO, was dressed in what he would normally wear for a flight under winter conditions over the plains of Colorado; insulated underwear and boots, nomex suit, summer flying jacket and gloves. The free air temperature in the test area was 0 degrees Fahrenheit with a light wind of about 8 knots. Since the sun was shining at the time, the raft was placed in a shaded area on approximately 2 feet of loose snow; a situation not unlike the average conditions to be found over half of the state these days.

3. With no further preparation, our fearless STO entered the raft equipped with only a thermometer. The s,

hood was closed and the hood pulled inside to further diminish heat loss. In just 30 minutes the temperature inside the raft was 48 degrees Fahrenheit — too warm for comfort considering the attire at the time. There were cold spots under the hips, eliminated by the seat cushion, and also under the feet. Parachute, kit shell or any of many kit items could be used to insulate the feet as long as nothing was used that might puncture the raft. Due to the wind barrier afforded by the raft, we feel it would be more effective than the sleeping bag above timberline or on the open plains where a parachute shelter would be nearly impossible to construct. In a snow cave with only three items, the bag, raft and parachute canopy, there should be no excuse for frostbite. We also tested the raft with the long-burning candle held inside but it was a warmer day and did not give a true picture of temperature rise under sub-zero conditions. We hope to field test these theories with an overnight stay in the mountains sometime this winter.

4. It is interesting to note some of the camps established during hunting season in Colorado. Many people like to camp adjacent to the streams that flow through the mountain canyons; evidently to avoid carrying water. Of course, this is always the coldest spot. Even moving 100 (vertically) up the hill can, and usually does, involve a temperature change. At night as the breeze changes to a downhill flow and starts packing the coldest air into the lowest part of the valley it can be very uncomfortable. A sheltered area on a hillside reasonably near water is far preferable to the penetrating cold that settles into the



valley floor adjacent to the streams. I would imagine that the humidity factor would also be involved but have no firm information on this. In a critical situation the degrees of temperature could affect the degree of survivability or, as a minimum, the degree of comfort.

5. I do not consider the standard TAC Survival Kit optimum because of one simple item — a means of melting ice. We have obtained a waiver from TAC to permit installation of a sheet of heavy foil, size 3 by 3 feet (GSA item) which folds nicely into the kit, weighs practically nothing and uses no space. Any number of utensils can be made from this and it is without equal as a heat reflector. This should be listed, as a minimum, as an optional item for the survival kit and should probably be mandatory for arctic/mountainous areas. Pans can be made, albeit fragile, for cooking, melting ice, carrying water or many other functions. Ingenuity is the only limiting factor. This recommendation was made about 1963 but to date no action has been taken. Perhaps a field evaluation by the responsible agency would be enlightening.

6. A recent field test of the highly advertised "space blanket," (Blanket, Survival, 84X56 inches in USAF language) was conducted by the Colorado Game & Fish Department. The Team also included a member of this organization who is a graduate of the Arctic Survival School. The most complimentary remark he could make was that it was "better than nothing." The test was

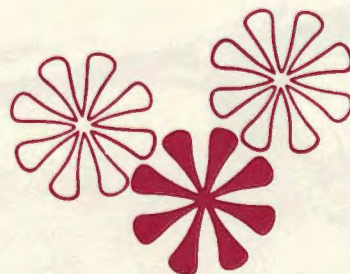
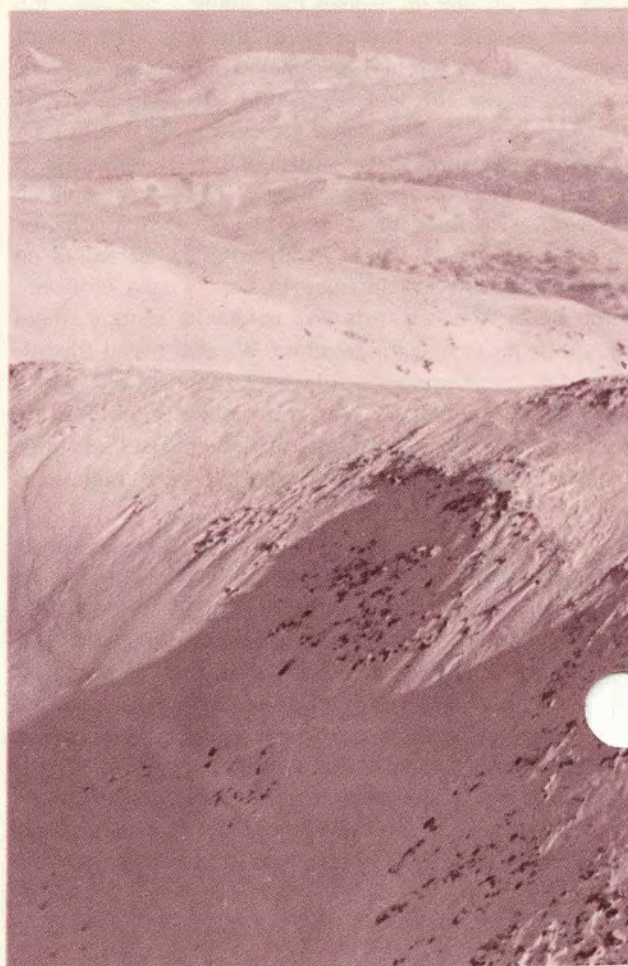


SURVIVAL

conducted at about 12,000 feet in deep snow with comfort not a consideration. Survival was the key question. In conjunction with a parachute or a source of heat the blanket was reasonably effective. As a single survival item it proved to be inadequate. This was a severe test to-be-sure, but that is what one of us would face if we ejected in the local area west of Denver. At the higher elevations of Utah, Wyoming, Montana, Idaho, Washington and Colorado this condition exists for 7 or 8 months of the year. A crash program seems to be in order to procure the proper sleeping bag — now!

7. There is one more area of concern that must be considered during any discussion of winter survival: The factor of mobility. There are many locations today, January 27, 1971, where an individual would be fortunate to move even a few feet. Stampede Pass, Washington is reporting in excess of 23 feet of snow. Here in Colorado, 48 inches is not at all uncommon, with some ski areas reporting nearly 6 feet and the heavy snows still to come. Without snow shoes, an individual faced with personal survival would be able to survey his entire domain from his point of landing. Even reaching another crewmember a short distance away may not be possible, although we hope to try the life raft as a crude sleigh. The difference between life and death could very well hinge on the reliability of the survival radio and the ability to make do with what is in the one man survival kit. At the right time, in the wrong place, land can be as hostile as the sea.

ROBERT C. CHERRY, Colonel, COANG
Commander
Buckley Air National Guard Base, Colo.



USAF SAFETY

ZERO
in

ON
GROUND
ACCIDENTS

1971 / 1972

spo's corner



Another Wild Ride!

The left wing of an F-105 dropped and the bird started veering to the left immediately after a "firm" night landing at a cross-country base. Thinking that the left tire had blown, the pilot deployed the drag chute and used right brake and nose wheel steering in an effort to maintain directional control. Realizing he wasn't going to be able to keep it on the runway, he stopcocked the throttle and shut off the fuel as he skidded off the side, 1800 feet from touchdown. The right main and nose gear collapsed as the bird bounced to a stop 300 feet off the runway. There was no fire and the pilot was not injured.

Investigators found that the left main gear strut had failed 53 feet after touchdown, dropping the bird on the left drop tank and strut stub. The strut had failed at a pre-existing fatigue crack, just below the strut scissors.

All F-105 main landing gear struts were immediately inspected for similar fatigue cracks and no other cracks were found. The investigators recommended that we maintain individual records of each strut assembly to determine the strut's service history and provide a data base for optimum materiel management. AFLC bought this idea, but not for the Thud! Too much of its service

history is unknown to establish any validity to records instituted at this late date. AFLC has also taken action to identify and change all main landing gear struts on aircraft that have not been through IRAN inspection.

The pilot had scraped the tail slightly during the "firm" landing but, expert analysis of the tire prints left on the runway determined the landing was well within the normal capability of the aircraft. The landing was made from a 7.25 feet per second sink rate; 10 feet per second is the maximum recommended landing sink rate.

There's not much more that the pilot could have done to avoid his "wild ride!" About all any jock can do is anticipate failures of this nature and respond as the pilot involved did. Shutting off the anti-skid may allow manual braking of the remaining wheel, allowing better directional control and minimizing the run through the boondocks. Other than that, it's up to the maintainers to thoroughly inspect and detect the fatigue bugs before they can rear up and bite us. Keep them on their toes looking for telltale age marks. It's an old bird that's been through a lot of service.

MAJ F.N. FRIZZELL

F-105

It Kind of Makes You Wonder

"Always use the appropriate TO and checklist while performing your work." Now that's a phrase we have all heard a few times. But you know . . . people still insist on trying their luck at memorizing or recalling an easy procedure to accomplish an assigned task.

Case in point: Two Air Force types were assigned by their supervisor to calibrate the fuel quantity indicating system of a T-29 aircraft. Armed with the capacitance values, they began working on the system. Both were talented at the task of balancing fuel systems, one had completed over 200 calibrations on 4 engine type aircraft in the past few months. The aircraft crew chief came on the scene and asked if a defueling rig was required. He was told that the specialists were going to use a calibration method termed "wet" or "alternate."

After approximately 45 minutes of work it became apparent something was wrong since the system would not balance. Back in the shop, and after discussing the problem with the shop supervisor, it was discovered one capacitance value given them was wrong. The two specialists returned to the aircraft and work again began. After another 45 minutes it was found, surprisingly, that no adjustments were required. The Form 781 was signed off certifying that calibration had been accomplished in accordance with TO 1T-29A-2-9 and the two returned to their shop.

In summing up the performance of this group, certain glaring deficiencies are noted. 1. The shop supervisor initially gave the two specialists an erroneous capacitance value. 2. All three were aware of the fact that the aircraft had fuel on board. 3. The TO did not specify an "alternate" system of calibration. 4. The TO did in fact require defueling prior to calibration of the fuel quantity indicating system.

At this point it might be said that I made this story up. That surely a combination of three Air Force trained specialists and a supervisor would not allow these deficiencies to take place. Unfortunately it did happen. The "alternate" method built in an error of plus 1175 pounds of fuel in the system. (That's a good one hour fuel supply for the T-29.)

The deficiencies became noticeable during flight as the bird was returning to home base about 50 miles out. First the engine and then the second quit. A night crash landing was made in a cotton field with no injuries to any

of the 25 personnel on board.

Cause: Maintenance error in that the fuel quantity indicating system was incorrectly calibrated. In short, they didn't comply with the TO.

Kind of makes you wonder, doesn't it? "Always use the appropriate TO and checklist while performing your work."

MAJ R.D. PEDERSEN

T-29

T-33

The T-bird driver filled the fuselage tank when he checked out the leading edge and main wing tank boost pumps before taxiing. En route to the arming area, he noticed that the fuselage tank gauge indicated full but the tip tank light was still on. He shut the tips off, but the fuselage tank remained full while he armed and taxied to a pre-takeoff position. The pilot suspected that the tips must have been partially pressurized and feeding and turned the tips back on as he prepared to "press on." Shortly thereafter, the bird flamed out with an empty fuselage tank.

The suspected cause of the erroneous fuel gauge reading was that the refueling troops damaged the fuel quantity float arm by using too much fuel pressure for a partially full tank. The Director of Aerospace Safety has taken action to have the T-bird refueling procedures revised. They recommend no over-the-top refueling of the fuselage tank and that the fuselage tank only be serviced by transferring fuel from the wing tanks.

This doesn't sound like a bad idea but, it may short change you on fuel. How much, depends on your aircraft's particular float valve settings and which wing tanks are used (LE or main) to service the tank. Make sure you know how your bird is serviced and that your fuel counter is set accordingly.

TAC had two mishaps last year where the birds quit with empty fuselage tanks. Both were pilot goofs and one cost us an aircraft. All three mishaps point out the validity of "gangloading" the fuel switches for takeoff, landings, and low altitude work. It's a great double check for possible procedural oversights and system malfunctions alike — use it!

MAJ F.N. FRIZZELL

T-33

SPO's CORNER

Taxi Accidents....AGAIN!

You won't believe it — but TAC had two more taxi accidents during the last couple months. So what's new? Well, you'd have thought the lesson was learned after all the wrinkled wing tips of last fall. There was much conversation over those incidents. Unfortunately, these last two incidents turned into a major and minor accident.

Both accidents happened at civilian airfields. The minor mishap took place while taxiing at night along a pair of painted lines on a dark taxiway. All of a sudden the wing tip mashed into a steel fence post. Of course the post lighting was out and to make matters worse, the painted lines were not taxi lines, but the center strip of the perimeter roadway.

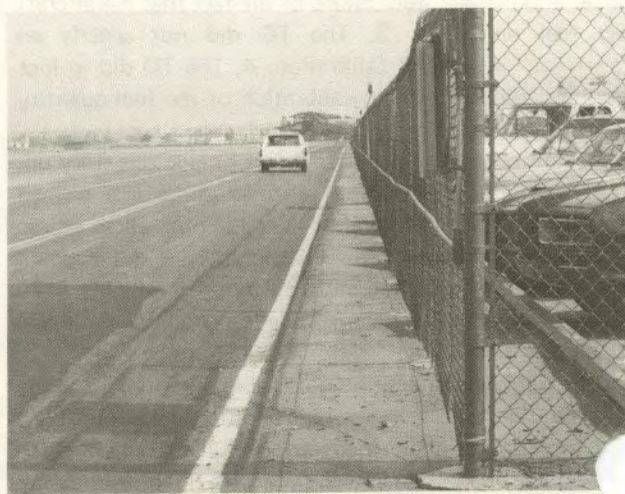
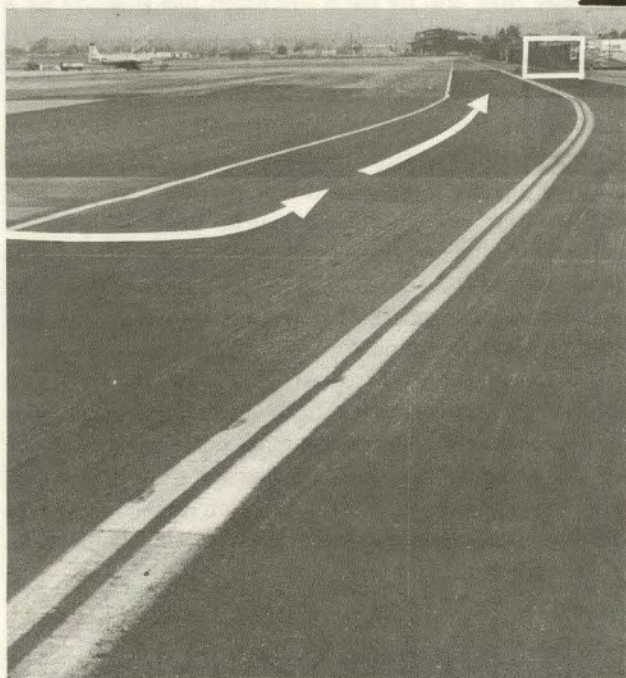
The major accident happened during delivery of a new type aircraft to an ANG unit. The field was quite crowded with VIPs attending another affair. As the pilot whipped his four-engine turbo prop into parking, the wing ripped a

gash in a hangar and clipped two feet off the wing tip. That's one way to make the Channel 10 news I guess.

When taxiing in congested areas and USAF signalmen are not otherwise available, the pilot may utilize crew members for taxi operation as signalmen. Be especially on guard at civilian airfields. Painted lines may mean anything from runup directions to pointing out the local beer joint, and were not necessarily painted with the dimensions of your aircraft in mind. Also there seems to always be some confusion as to where Air Force types are supposed to park on civilian strips.

When in doubt — stop the aircraft. You can't hit a fixed object with the brakes set.

MAJ R.D. PEDERSEN
C-130



TACTICAL AIR COMMAND

PILOTS of DISTINCTION

Major Keith E. Phillips and Captain Huey H. Moreland of the 69th Tactical Fighter Training Squadron, Luke Air Force Base, Arizona, have been selected as Tactical Air Command Pilots of Distinction.

Major Phillips and Captain Moreland were cleared for takeoff in a TF-104G en route from North Island NAS, California, to Luke AFB, Arizona. Takeoff and climb to 8000 feet was uneventful. Suddenly the engine violently compressor stalled. RPM dropped to 65 percent, EGT was rising to 700°C, and the exhaust nozzle was full open. The NOQIS gauge failed to zero, but oil pressure was normal and the engine low level oil light was not illuminated.

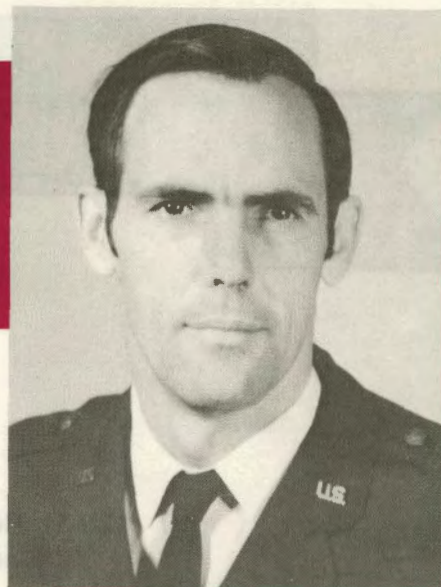
Major Phillips immediately accomplished the Stall Clearance Procedure, but when the engine stabilized at 65 percent it stalled again. Five stalls occurred between 5000 feet and 5500 feet entering overcast, but each time they were cleared. After the fifth stall the engine accelerated normally to 92 percent and stabilized with all instruments reading normal. Fuel flow was normal for the RPM, but the thrust was not sufficient for level flight and a slight descent was necessary to hold the best glide speed.

During the repeated stall clearing procedures the generators were not on the line long enough to advise Departure Control of their situation. After engine stabilized, an emergency was declared with North Island tower. The aircraft entered the undercast with both pilots aware of the possibility that they would not have enough altitude to make North Island. Although bail out was eminent both pilots unhesitatingly decided to stay with the aircraft until breaking out, in order to turn it away from the city of San Diego.

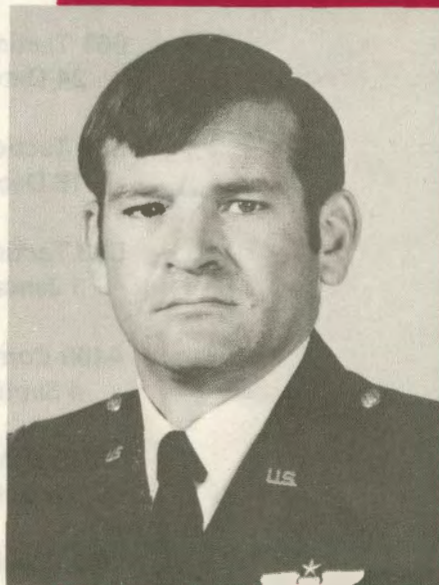
Upon breaking out of the overcast Major Phillips saw runway 29 at North Island, jettisoned the tips, and made a straight in approach, touching down at 200 KIAS. The drag chute was delayed until 170 knots but failed upon deployment. The hook was extended and a successful arrestment was made at 50 knots. Both crew members evacuated the aircraft without further incident.

Investigation revealed severe damage to the engine compressor by the ingestion of an unknown object.

The coordinated efforts of both pilots during this



Maj Phillips



Capt Moreland

critical inflight emergency prevented the loss of a combat aircraft and possible loss of civilian life in the populous San Diego city area. Major Phillips and Captain Moreland readily qualify as Tactical Air Command Pilots of Distinction. ➔

Tactical Air Command

UNIT ACHIEVEMENT AWARD

Our congratulations to the following units for

**126 Air Refueling Wing, O'Hare International Airport, Illinois
13 June 1969 through 12 June 1970**

**178 Tactical Fighter Group, Springfield MAP, Ohio
26 August 1969 through 25 August 1970**

**910 Tactical Air Support Group, Youngstown MAP, Ohio
15 December 1969 through 14 December 1970**

**4410 Special Operations Training Group, England Air Force Base, Louisiana
13 November 1969 through 12 November 1970**

**561 Tactical Fighter Squadron, McConnell Air Force Base, Kansas
24 October 1969 through 23 October 1970**

**562 Tactical Fighter Squadron, McConnell Air Force Base, Kansas
16 December 1969 through 15 December 1970**

**563 Tactical Fighter Squadron, McConnell Air Force Base, Kansas
1 January through 31 December 1970**

**4408 Combat Crew Training Squadron, Lockbourne Air Force Base, Ohio
4 September 1969 through 3 September 1970**

**57 Fighter Weapons Wing, Nellis Air Force Base, Nevada
25 October 1969 through 24 October 1970**

**302 Special Operations Wing, Clinton County Air Force Base, Ohio
1 January through 31 December 1970**

**906 Special Operations Group, Clinton County Air Force Base, Ohio
1 January through 31 December 1970**

**414 Fighter Weapons Squadron, Nellis Air Force Base, Nevada
25 October 1969 through 24 October 1970**



completing 12 months of accident free flying:

**113 Tactical Fighter Group, Andrews Air Force Base, Maryland
6 November 1969 through 5 November 1970**

**130 Special Operations Group, Charleston, West Virginia
1 January through 31 December 1970**

**4409 Support Squadron, Homestead Air Force Base, Florida
1 January through 31 December 1970**

**124 Combat Crew Training Squadron, MacDill Air Force Base, Florida
1 December 1969 through 30 November 1970**

**106 Air Refueling Group, Suffolk County Airport, New York
1 August 1969 through 31 July 1970**

**160 Air Refueling Group, Clinton County Air Force Base, Ohio
1 August 1969 through 31 July 1970**

**834 Combat Support Group, Hurlburt Field, Florida
1 January through 31 December 1970**

**319 Special Operations Squadron, Hurlburt Field, Florida
1 January through 31 December 1970**

**7 Special Operations Flight, Otis Air Force Base, Massachusetts
1 January through 31 December 1970**

**422 Fighter Weapons Squadron, Nellis Air Force Base, Nevada
25 October 1969 through 24 October 1970**

**139 Air Refueling Group, Rosecrans Municipal Airport, Missouri
3 October 1969 through 2 October 1970**

**Tactical Reconnaissance Squadron, Mountain Home Air Force Base, Idaho
1 August 1969 through 31 July 1970**



HARDISON

THE LONG REACH

"The only time to do any sloppy flying is
when someone is firing at you."

By Lt Col David C. Schilling
Flying Executive Officer
56th Fighter Group
P-47

You reach out and pick up this VIII Fighter Commander tactics "Manual" dated 29 May 1944 with a respect bordering on reverence. You scan pages eagerly and recognize pictures of the fighter pilot contributors, names and faces ranking among our country's greatest World War II aces. The acronyms KIA and MIA appear all too often in their brief "biogs." You marvel at the obvious youthfulness and their friendly smiles, realizing that they have learned much about flying and compressed a lifetime of air battles into a time period of months, not years. They are trying to "reach," to teach, to impress those follow-on generations of fighter pilots who must follow them, and are as yet untrained in aerial combat maneuvering. They recount experiences, tactics, and pilot techniques proven in aerial battles beginning as mass formations in crowded skies and ending in single-ship or element versus element hassels. Not all of their tactics and techniques still apply, some are now impractical. However, they do present and show surprising agreement on some fighter pilot fundamentals. We think you will learn much in reading their personal accounts about flying "into the wild blue yonder," and respect the contribution they have made to a proud profession: the fighter pilot!

I feel it a privilege to write to you of what little knowledge of fighter tactics I have been fortunate enough to attain during my present tour of operational duty. I am not going to attempt to answer your questions by number but rather write a short narrative on each phase as you have outlined in your letter to me. It must be remembered that everyone indulges in his own intricacies and, even though to himself they more or less afford the desired ends, they may not be satisfactory for others. Bearing this in mind, I will do my best.

The old adage "That a good offensive is a good defense" holds true nearly every time. No matter how offensive an individual or group of pilots may be, when outnumbered, they will at one time or another get an enemy aircraft behind them. The only good evasive action is a tight turning circle and if that doesn't put you on your opponents tail or cause him to break or spiral down, then a series of diving aileron rolls until sufficient speed is built up will usually get you to safety. Once on the deck if still pursued, skidding and "jinking" is the only thing to do. Flying right on the treetops is not satisfactory as there is too great a danger of collision with ground objects.

When attacked, a break at the right time will cause the enemy to make a very high deflection shot and sometimes overshoot to allow you to pull in behind him. Never break up. Breaking up causes a loss of speed and affords an

THE LONG REACH

easier target for the enemy. If it is necessary to pull up into an attack, delay until the enemy aircraft is in a head-on position, then do so and fire. Incidentally, I believe that in a head-on shot "he who shoots first lives." You don't stand a very good chance of hitting anything but it frightens your opponent and shakes his aim. A few times we have been attacked by a superior number of aircraft. We got several turning circles going with enemy aircraft interspersed in the circle. If you work hard and do a lot of snap shooting, you can usually scare a lot of them out until you can get them whittled down to your size. Then you can bait them by having one element lessen its rate of turn, watching not to let the enemy close up or be able to pull enough deflection till the second element can close up and get into position to fire. Usually after several have been destroyed in this manner, the rest will become discouraged and break for the deck and can be pursued and shot down if everyone is on his toes. Two things to remember in combat are: (1) That the only time to do any sloppy flying is when someone is firing at you, and then if uncoordinated flying is necessary for evasive action, really get sloppy. (2) Always assume that the enemy is in the sun or clouds above.

When launching an attack always clear the sky above, and particularly, the sun. The number attacked makes no difference; attack anyway, but if you are alone or only have two ships, take the rear or side of the enemy formation. If you have a flight, always attack further up the formation to allow a good chance for your second element leader. If you have a squadron of twelve or sixteen, always attack the front portion of the formation by diving below and climbing up from the rear on the front planes. When doing this, the entire squadron has to be spread out in such a manner as to enable everyone to fire simultaneously. This is a ticklish thing for the leader to get set up and involves excellent timing, surprise, good initial position, and a high rate of speed. Such a case does not often occur, but when it does, every effort should be made to make a clean coordinated attack, otherwise someone is liable to get badly shot up and only a few of the enemy aircraft will be destroyed.

When attacking individually or with a wingman, success is usually dependent on the element of surprise. On a bounce that is a long distance below, a very loose wing over with power partially cut will reduce your speed. This will allow more time for trimming, sighting, and

shooting. I personally prefer to come out of my dive several hundred feet below the enemy aircraft so that I will not be so easily detected. I always prefer that my wingman fly well up so he can fire if I miss my target.

The number of airplanes that are sent down on a bounce is determined by the number of aircraft to be attacked. If the enemy aircraft outnumber our formation and we are certain that no aircraft are above, we send every available plane down in one simultaneous effort or use a rapid succession of flights. The last flight covers the first flight and as the last flight goes in, the first flight pulling up, covers them. If the general area is somewhat infested with pairs or small numbers of enemy aircraft, we always leave one flight up for cover to bounce anything that might come in on the attacking flight's tail.

My method of firing is definitely not very good and I find that my estimation of angle off is usually always in error on the underside. Therefore I am very careful to get a good line of sight and purposely over allow from three-fourths to one-half a ring more deflection than I think is necessary. I then decrease my lead slowly until I see strikes. Then I increase my lead to the point where the sight is in the same position as it was just prior to the time I saw strikes. This usually gives me a heavy concentration of hits and achieves the desired end. I break off my attack with a sharp climbing turn and recover into the sun.

The only reason for failure to attack enemy aircraft is a fuel shortage. If for any reason you believe that your combat will carry you to a low altitude where it will be necessary to remain for an extended period, or have to race home on the deck, don't attack if you do not have sufficient fuel to carry out your plans.

The group always flies with three squadrons in a "V" with the lead squadron in the center, the down-sun squadron from 800 to 1000 feet above, and the up-sun squadron from 1000 to 1500 feet above the group leader. To the enemy coast the flights are flown in a very compact formation, and the three squadrons together never form a formation more than a mile wide and two to three hundred yards long. This keeps the group as one unit and prevents mixing with other friendly units if encountered on the way in. At the enemy coast the squadrons slide out so that the lead ships of each squadron are approximately one-half mile out from the lead squadron. The flights fly line abreast so that

group appears as a flat "V," or jagged line 36 to 48 ships across. This formation is held until escort is begun, then two flights fly in staggered string, one flight slightly back and the third approximately 1000 feet above for top cover.

It is highly desirable that flights fly approximately one-half mile apart and try to stay in supporting distance as much as possible. Many times this has saved members of an engaged flight that was attacked, and resulted in higher scores and lower losses. Also in an extended formation, if an attack is made on them, only one section is placed on the defensive. This allows the others to become offensive and drive off the attackers.

Flights bounce independently on initial engagements after informing the squadron or group leader, if he is in the immediate vicinity. Elements never attack without the flight leader's permission unless they have become detached and are operating on their own. Under no circumstances does a wingman ever leave for a bounce unless his leader orders him to do so. After very heavy engagements the squadrons always reform on the flank of the bomber formation that they are briefed to escort. The squadrons are always assigned the same positions for every mission, that is, the 61st Squadron on the left, the 62nd Squadron on the right, and the 63rd Squadron well out ahead. If the bomber formation is considerably strung out, the 61st Squadron is assigned the rear, the 62nd Squadron the second box and the 63rd Squadron the lead box. To reform, the command is given by the squadron leader or the group commander and everyone orbits left in the assigned area and as quickly as possible forms four ship flights with no regard for who leads what. The main object is to get a formation together and to get it identified and resume escort.

There has been much controversy as to how far to leave the bombers to attack or search for enemy aircraft. If there is no enemy action near the bombers, the lead squadron pulls out ahead eight or ten miles and searches. Sometimes we have to go to very low altitudes to press home the attack but the recovery is always made below the bombers and doesn't take the element or flight away for very long. On several occasions the rumor has been spread that we left the bombers entirely and went down to 10,000 feet or below and engaged enemy aircraft and came home. We have, but because there were large numbers of fighters beneath the bombers, climbing and waiting for

us to leave. At the time the bombers were not under attack and our fuel was getting very low. If we could disperse and destroy them before we were forced to withdraw, we would indirectly aid the bombers by preventing attack after we would normally leave. There is no set thumb rule as to how far you can leave the bombers because the tactics and the strategy of the situation are mentally weighed and thought out on the scene of the engagement and can never be predicted prior to a mission.

I can sum it up in saying that the main object of every fighter group should be to avoid all engagements prior to rendezvous, and upon rendezvous, never leave the bombers without escort or support unless driven off by enemy attacks.

In closing, I wish to state that being on the offensive all of the time and attacking, although more than normal risk is involved, will give a group higher scores and lower losses in any engagement. Aggressiveness on our part shakes the enemy to such a degree that he becomes excited and discouraged.

POSTSCRIPT

Since I wrote my last letter the group has run into somewhat different enemy tactics, particularly so on the Berlin shows. On penetration, I feel it highly advisable to concentrate all the strength on the front box. The enemy usually sends in waves of eight to twelve for frontal attacks separated by forty-five seconds to a minute and a half. After we use a twelve-ship squadron to break up the first effort, the second for the second, and so on, the first cannot recover and reform soon enough to break up the fourth effort. Therefore, we like to have groups A and B well up to the front with one group two thousand feet above and in the sun. They stand by to come in after the first group gets fought out of position. This will allow the first group to reposition itself and do the same for the second if necessary.

For the first portion of the enemy attack no one should go below five thousand feet below the bombers because it takes them too far from the bombers to give them any further support. After all the initial attacks have been attempted and they are reforming for a second try, press home the attack but leave at least two squadrons or one group to stop any second wave. ➤

CHOCK TALK

...incidents and incidentals

chock talk

EXPLOSIVES SAFETY COURSES

Effective January 1971 the Explosives Safety courses at Lowry AFB underwent several significant changes. The Officers Course (30ZR1965) and Enlisted Personnel Course (3AZR24150-1) were combined into one course and four additional days were added to the training. These changes will enhance the value of the courses to the personnel working in the field by allowing time to cover the important aspects of explosives safety surveys, mishap investigation and reporting, along with review and analysis procedures for mishap reports to identify causes and make recommendations for necessary corrective actions.

There have been changes in the class reporting dates; however, these changes affect primarily the enlisted personnel. Notices have been sent to responsible CBPOs for those individuals affected. Due to limited class spaces, those individuals who attended either of the previous explosives safety courses will not be eligible to attend the new consolidated course. Personnel with primary duties in the explosives safety field receive priority for course slots; however, each year a few slots are open for additional duty explosives safety types.

JAMMED CONTROLS

This one occurred in another command to the older brother of our F-5s. It was during an FCF, during the push-over junk check. As he started the maneuver, the pilot heard a clunking noise from the back of the aircraft and felt something in the stick. He recovered and about thirty seconds later when he attempted to move the stick forward, he found it jammed. It would move aft so the pilot shook the stick vigorously and felt the restriction "work loose." He went home with no other problems except a rubbing in fore and aft stick movement near the

center position.

They found a stripped, castellated nut in the aft section. Scarring on the nut and control surface linkages pinpointed the binding area. But the real question here would seem to be, how did the nut get stripped? Will its replacement do the job? Would be interesting to see the bolt it came from.

WATCH THE KNIFE

This C-130 crew was practicing drops and all was going smoothly. Wind runs were completed and a dry run was made with no incidents. The next run was "wet" and progressed satisfactorily until the copilot released the extraction chute at the thirty second warning. The extraction chute did not deploy properly so a no-drop was called. The load was secured with safety chains and the primary loadmaster went to the rear of the aircraft to cut the partially deployed chute loose. He grasped his sheath knife, blade extended with the sharp edge down, and slashed down at the extraction line aft of the clevis assembly which was restrained in accordance with the TO. At that instant, the extraction chute blossomed. The chute was cut free but the movement of the line deflected the knife into the right leg of the loadmaster. One in a million? Watch it!

WOULD YOU BELIEVE?

On takeoff this F-4 crew got a shock when their left engine stalled as the aircraft commander came out of burner. Number one engine RPM was 80 percent at full throttle and setting up a severe vibration. At idle the vibration stopped, it was shut down after about fifty

with a maintenance slant.

minutes when the oil pressure dropped below 12 psi.

After landing they found that the engine ate a panel. The aircraft was being flown with a panel known to be missing. They suspect it was placed on top of the right outboard missile wing and missed during the preflight which was conducted in the dark. All were rebriefed and they didn't say they had ceased the practice of flying without panels. Might be a good cost reduction item. If they aren't needed during flight, let's get rid of them all.

W FOD

The F-104 was being run in preparation for an FCF. After about twenty minutes an unusual noise was heard. The engine was shut down immediately . . . it had eaten a static ground wire while running at idle RPM. The static ground wire had been disconnected from the forward grounding receptacle and was lying three feet forward and slightly to the right of the right intake. Anyone for screens?

EXPLOSIVE BOLTS BITE

A load crew was dispatched to an F-105 to perform an operational checkout of the arresting hook. The load crew chief was at the rear of the aircraft performing voltage checks assisted by two crew members. The fourth member of the team was on the cockpit ladder actuating the arresting hook release switch on command of the load crew chief. He was instructed to actuate the switch, and did. After about a minute, he felt something was wrong since he had received no further instructions. He released the switch and climbed down the ladder, shouting to the load crew chief, "Have you got it yet?" The load crew chief replied, "No, wait a minute." So he climbed back up

the ladder and reactivated the switch.

In the meantime, the load crew chief having finished the voltage checks told one of the men with him to disconnect power. He then began installing the explosive bolt. When electrical contact was made, the bolt functioned and injured the load crew chief's hand. A team member made a tourniquet using a screwdriver and a warning streamer and the injured man was rushed to the hospital.

The moral of the story is clear. If all hands are not in sight — suspect the worst and keep clear of explosives. You might all brush up on your communications among loading crews also. Remember the story of the pilot who gave his engineer the command, "Takeoff power" just after they broke ground?

JAWS

A T-37 was being pre-flighted on a Sunday morning at an RON base by transient alert. The airman opened the canopy in order to check the oxygen gauge, that is, he almost opened the canopy. He pushed the open switch with the canopy control switch in external position — and as the canopy was rising, he leaned over and put his head in the cockpit to check the gauge. Sometime during this operation he released the open switch and the canopy closed on his head.

There were heavy rainshowers at this base the night before, they suspected a malfunction of the open/close switch due to heavy moisture. The canopy malfunctioned in the same manner during several test actuations following the mishap. However, after some drying in the warm temperatures following, the canopy operated properly.

The moral of this story isn't applicable to the T-37 alone. ANY aircraft canopy can be dangerous. This crewman was hospitalized, it could have been worse.

ARRESTING GEAR?

The Editor
TAC ATTACK
HQ TAC (SEP)
Langley AFB, VA 23365

Sir,

Having read with justifiable interest over the past years your various articles on different types of arresting gear, including the most recent in the December 70 TAC ATTACK, I thought you, and perhaps your readers, might be interested in one developed by the Royal Laotian Air Force. As you can see in the attached photo, it's rather primitive yet quite effective for the type aircraft concerned. This "arresting gear" consisting of sand filled fifty gallon drums, is one of two options for the pilot; the other being a fifteen-hundred foot mountain. It certainly makes our sophisticated MA-1A and BAK's look good.

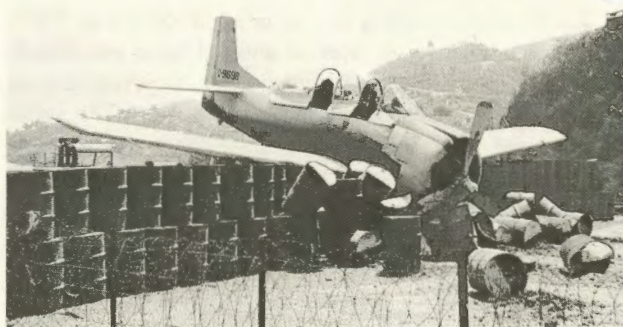
My friends in the Royal Laotian Air Force read your magazine with keen interest each month and express appreciation for your providing for them.

Incidentally, 698, the aircraft in the picture, will fly again.

Fly Safe;

Charles Loucks

CHARLES LOUCKS, Major, USAF
Assistant Air Attache
Vientiane, Laos



Tactical Air Command

Crew Chief of the Month

Staff Sergeant Laurence E. Gaskins, 66 Fighter Weapons Squadron, Nellis Air Force Base, Nevada, has been selected to receive the TAC Crew Chief Safety Award. Sergeant Gaskins will receive a letter of appreciation from the Commander of Tactical Air Command and an engraved award.



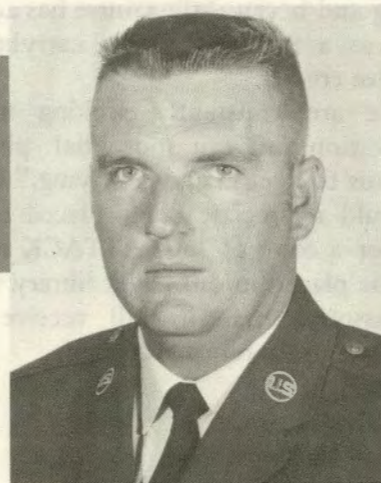
SSgt Gaskins



Tactical Air Command

Maintenance Man of the Month

Sergeant Dennis A. Treise, 1 Tactical Fighter Wing, MacDill Air Force Base, Florida, has been selected to receive the TAC Maintenance Man Safety Award. Sergeant Treise will receive a letter of appreciation from the Commander of Tactical Air Command and an engraved award.



Sgt Treise

LETTERS to the EDITOR

Letters to the Editor

The GUNFIGHTERS of the 366th TFW are having their Second Practice Reunion for all Officer members in Tampa, Florida, 30 April — 2 May 1971. All members, past and present, are requested to write for details and submit their address to: "GUNFIGHTERS," Box 6586, MacDill AFB, Florida 33608.

DISTRIBUTION

Air Force ROTC Detachment 620 at Bowling Green State University, boasts an unusually large and strong Flight Instruction Program each academic year. This is in part due to our continuing efforts to motivate the cadet toward flying and because the course has academic status here as a 90 hour course carrying 6 hours of elective credit.

We are constantly seeking to sustain the motivation of our potential pilots who are anxious to "get in and get flying." In this respect, I would appreciate being placed on the mailing list for a copy of TAC ATTACK each month. It will be placed in our cadet library where you can be assured that it will receive considerable attention from our pilot group.

Colonel M.A. Garuti
Professor of Aerospace Studies
Bowling Green State University, Ohio

It's a pleasure to add you to our distribution list. You're on for one. Ed.

MUNITIONS MAN OF THE MONTH

The TAC ATTACK is a splendid periodical, widely read and enjoyed by personnel of all ranks and grades. The articles are well written and to the point. Photographs, illustration — the entire magazine is professionally done and a matter of pride to all of us who have spent our careers in TAC or with tactical forces.

One thing seems to be missing. We have a Pilot of Distinction, Crew Chief of the Month, and Maintenance Man of the Month. Why not a Munitions Man of the Month? Munitions personnel, be they loaders, BB stackers, misers, technicians, or EOD men are hard work, undermanned, and are required to undergo certification and continuation training like no other specialties. Recognition of these personnel in your magazine would be of great interest to the 400 plus munitions personnel in each of our tactical wings; it might even assist in explosive accident/incident reduction.

The Director of Munitions would welcome the opportunity to assist your staff in developing selection criteria.

Colonel George H. Miller
Director of Munitions
Hq TAC

We thank you for your comments. Paperwork is in the mill to establish a monthly Munitions Safety Man of the Month Award. Recognition will be given to the outstanding Munitions Man in the same manner as the Crew Chief and Maintenance Man Awards. Ed.

MARCH 1

TAC TALLY

AIRCRAFT ACCIDENT RATES

* Estimated

MAJOR ACCIDENT RATE COMPARISON

	TAC		ANG		AFRes	
	1971	1970	1971	1970	1971	1970
JAN	1.6	4.8	16.1	5.9	0	0
FEB		3.9		2.6		0
MAR		4.6		1.7		0
APR		4.9		2.4		0
MAY		6.2		3.6		0
JUN		5.5		3.6		0
JUL		5.1		6.1		0
AUG		5.0		6.9		0
SEP		4.7		6.6		0
OCT		4.5		6.8		0
NOV		4.6		6.7		0
DEC		4.6		6.6		0

UNITS

	THRU JAN			THRU JAN	
	1971	1970		1971	1970
9 AF	0	4.3	12 AF	0	7.6
4 TFW	0	0	23 TFW	0	0
1 TFW	0	0	27 TFW	0	0
33 TFW	0	0	49 TFW	0	62.1
31 TFW	0	45.5	479 TFW	0	0
354 TFW	0	0	474 TFW	0	0
4403 TFW	0	0			
363 TRW	0	0	67 TRW	0	39.9
			75 TRW	0	0
316 TAW	0	0	64 TAW	0	0
317 TAW	0	0	313 TAW	0	0
464 TAW	0	0	516 TAW	0	0
68 TASG	0	0	58 TFTW	0	0
			4442 CCTW	0	0
			4453 CCTW	0	0
			71 TASG	0	0
TAC SPECIAL UNITS					
1 SOW	0	0	2 ADG	0	0
4409 SUP SQ	0	0	4500 ABW	0	0
4410 SOTG	0	0	57 FWW	0	0

TAC SUMMARY

	JAN 1971	THRU JAN	
		1971	1970
TOTAL ACCIDENTS	3	3	3
MAJOR	1	1	3
MINOR	2	2	0
AIRCREW FATALITIES	0	0	3
AIRCRAFT DESTROYED	0	0	3
TOTAL EJECTIONS	0	0	4
SUCCESSFUL EJECTIONS	0	0	3
PERCENT SUCCESSFUL	—	—	75

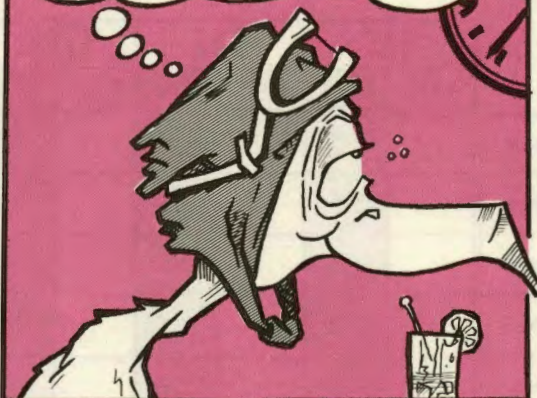
FLEAGLE

IT SURE TAKES A DUMB
JOCK TO FLY WITHOUT
CREW REST. ESPECIALLY
AFTER THE
CONSUMPTION OF
AN ALCOHOLIC
BEVERAGE.



HARDISON

... HOWEVER UNDER CERTAIN
CONDITIONS A LITTLE NIP
SETTLES THE OLE SYSTEM.



NOW DON'T MISHUNDERSTANDME,
I'M A BELIEVER IN
REGSULATIONS.

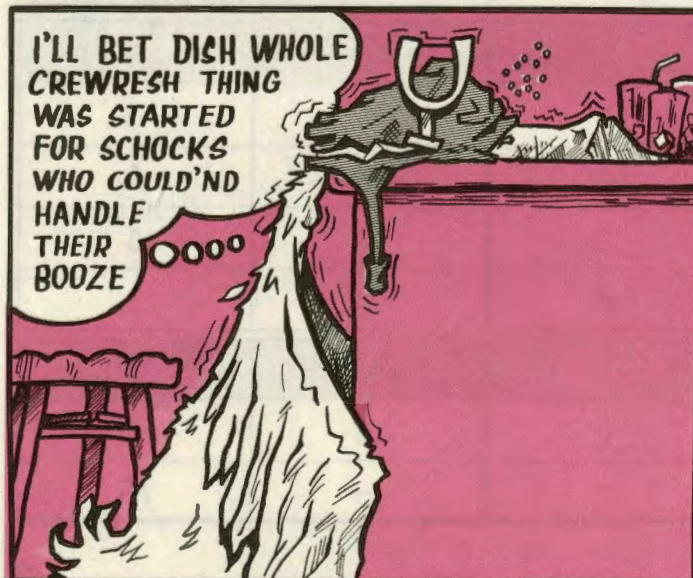


... BUT MEDICAL RESEARSH PROOFS
YOU'ER MORE EFECTIVE WHEN
YOU ARE LOOSH AND RELAXED.



© Stan Hardison 1970

I'LL BET DISH WHOLE
CREWRESH THING
WAS STARTED
FOR SCHOCKS
WHO COUL'DND
HANDLE
THEIR
BOOZE



WHERE'S FLEAGLE?

HE HAD AN
0600 TAKE OFF.

