TAC ATTACK

MAY 1972

THE LONGEST FLIGHT...Pg 16

for efficient tactical air power

TAC ATTACK

MAY 1972

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Tactical Air Command

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CURRENT INTEREST

DEPARTMENTS

TACRP 127-1

Angle of ATTACK

THE CAUTION LIGHT

The familiar pattern of the traffic signal — green, amber, or red — triggers our reflexes instantly on our city streets. A similar reaction occurs in the cockpit or at the controls of other Air Force equipment. The green light tells us that systems are operating normally; the amber light warns of a problem that needs some troubleshooting; and the red light spells trouble now — stop or fix it quick.

It occurs to me a similar warning system should be on alert for all our activities. When our work is proceeding according to plan, a relay clicks in the brain and the green light is on. When things get binding in a hurry, the severe problem relay quickly triggers the red light and we put on the brakes until we solve the problem and feel that we can start up again. More often than not, a potential problem develops more slowly, turning on the amber caution light . . . and that's where the payoff can occur. It's smart money to take the actions to put out the caution light before the red light flashes.

Cases in point!

The weather man is hedging on the forecast, and in the wrong direction — (CAUTION LIGHT). Time to consider the alternate plan, whether airborne or on the ground.

The replacement part isn't fitting quite right — (CAUTION LIGHT). Time to dig into the Tech Order again and ask for some top level help.

The in-commission rate is down and the abort rate is up — (CAUTION LIGHT). Is the operational schedule compatible with the resources?

You feel as if your reflexes are dragging — (CAUTION LIGHT). Slow down . . . stay within your limitations.

It's no trouble to make up a list. In fact, we already have them in many of our IG checklists and recurring reports. It's inherent in the standup briefings and similar daily checks that many commanders use so successfully. But it needs to be used at every level — by everyone.

Each task, whether it be shooting an instrument approach to minimums, changing an engine, or just walking down the street, comes complete with its green, amber, and red lights. Our job is to learn how to recognize each and, more important, HEED the caution light. Slow down, find out why it came on, take extra precautions, and get it corrected. Change the caution to green before the red flashes. >

Gerald J. Beisner

GERALD J. BEISNER, Colonel, USAF
Chief of Safety

life support ?

Probably no two words are as taken for granted as the two used for the title of this article. Taken for granted, that is, until something doesn't fit or work right. Then watch the attention they get!

From the mundane to the exotic, new items are constantly entering the Air Force life support inventory. Look at survival radios, personnel lowering devices, pen gun flares, new parachutes, improved rafts, better clothing, better visors; the list goes on and on. Personal protection and survival have been important not only to the crewmember himself but to the Air Force long before it was called the Air Force.

Anyone who has ever strapped on an F-4 (or almost any fighter type airplane) will attest to the maze of buckles, straps, harnesses, garters, etc., that are required. Improvements are continuously being made, however, in an attempt to simplify the equipment and yet retain the necessary safety features. The changes in personal equipment aren't always obvious to the user, but they're often vital to his success.

Check the thumb actuated visor

NOMEX

Sometimes the change is striking and obvious, such as Nomex flight suits. Nomex has proven to be far more effective than Brand X in the fire protection area. If you fly airplanes, there's more Nomex in your future. Flight jackets, gloves, underwear, possibly even parachute canopies, will be Nomex in the not too distant future.

HELMETS AND VISORS

Better fitting helmets are another area in which strides are being made. A foam filled helmet is on the way. The beauty of this helmet is twofold – low expense and the capability to be produced locally. The F-111 troops will be the first to get this little number. Other low altitude, high speed, birdstrike prone aircraft will probably get them next. Dual visors are another item being improved. A lighter weight, thumb activated visor system is currently being tested. If it proves out, it's another item that should hit the field before long.

MAGNETIC LEG RESTRAINTS

The F-4 crews have a real breakthrough in the mill. It's known as magnetic leg restraints and here's what it is and what it does for you. First of all, the current leg restraint system is completely removed from the cockpit. (Hooray!) That's right, no more garters or leg restraint lines at all. Then two small electromagnetic plates are mounted on the lower front portion of the ejection seat. Next, you put on your G suit, which has small metal plates sewn in the back of the legs. That's it. Nothing more happens until you eject. When that happens, the seat starts up, triggering a small battery which turns those plates on the seat into electromagnets. Your legs swing back as the seat goes up and the plates in the back of your

G suit are captured by the magnetic field. Thus – no flailing legs. This system has held successfully in wind blast tests at 600 knots at all angles.

DIVESTIBLE HARNESS

Another rather exotic item being looked at is an automatic divestible harness for ground egress. For you F-4 types, it would go something like this. A small CO_2 container, mounted somewhere in the cockpit (probably under the canopy rail someplace) would be attached to a fitting that ties in to your harness releases. When you raise the emergency release handle, your harness releases would be opened. Thus, in a ground egress situation, assuming you were equipped with this harness and the magnetic leg restraints mentioned earlier, you would simply raise the lower ejection handle guard, lock up the emergency release handle, and you'd be completely free of all connections. All that's left is to step out of the cockpit and run like - - - - - ! This particular mod would do away with the manual bailout capability as currently envisioned. This system is, however, deactivated when you eject, so you don't have to worry about pulling the guillotine handle for manual seat separation after ejection. That feature won't change.

FORCE DEPLOYED PARACHUTES

One problem that faces designers and users of ejection systems is how to get the parachute open faster. Obviously, if you can get the parachute to open in a speedier fashion, all other things being equal, you will have an egress system with better capabilities. Such a design is now in the TAC fleet. It's called a force deployed parachute. When the parachute is pulled out of the pack, the bottom of the chute (the skirt) is forceably opened by explosive charges. This allows the parachute to open much faster. This system has a fail safe design in that if for some reason the force deployed portion fails to function as advertised, you still have a normal parachute available to you.

SEAT KIT BEEPERS

Did you ever have a seat kit beeper inadvertently actuate while you were taxiing out? Irritating, isn't it? Just as irritating is to hear one from someone else's airplane inadvertently actuate while you're flying. An awful lot of airplanes spend an awful lot of time flying around not monitoring guard because of bad beepers. Not

Present Seat

Proposed seat with magnetic leg restraints

LIFE SUPPORT

only is that potentially dangerous, but it could be downright disconcerting to the jock that punches out and then watches all the airplanes pass on by, either not monitoring guard or assuming it's just another#?X! inadvertent beeper. A new item under consideration should alleviate this problem. It's a new installation that gives you more room in the seat pack for survival goodies. (You can ALWAYS use more of those!) This installation will also cut down on inadvertent actuations by eliminating the lanyard. It retains the selective feature with a switch for possible combat use so you can turn it off when you don't want it. (You A-7 jocks be patient, your beeper is on the way.)

FLEXIBLE KNEEBOARD

A simplified clipboard (kneeboard) is on the way. As shown in the illustration, it's made of a durable yet flexible plastic board attached to the leg with velcro tape. The letdown book, maps, AF Form 70, or any other piece of material you care to put on it is held down by another piece of velcro attached to a transparent piece of plastic. You'll notice there is no light mounted on it. (They never seem to work when you need them anyway!) It's just a simple, small, inexpensive device to do the job. This one, even if it comes loose in flight, won't bind the stick or throttle, won't hurt you if it hits you, and won't come apart when you eject.

AUTOMATIC LIFE PRESERVER

There is a new life preserver in the mill. It's a rather radical departure from the underarm water wings you're now using. This one is a Mae West type, shaped somewhat like a horseshoe. It fits around your neck and down your chest in a neat small roll. It can be fitted and worn separately with its own harness or can be attached to a Martin-Baker type harness just as the ones you have now. One big advantage to this type preserver is its drownproofing qualities. It will hold your head out of the water even if you're unconscious. The most radical feature of this new preserver, however, is its ability to inflate automatically shortly (1-2 seconds) after immersion in water. It retains the capability to be deployed by the pilot by pulling the little tabs and also retains the oral inflation tubes as a backup system. All things considered, it sounds pretty good.

Down the road a little farther, but currently under development, are automatic parachute releases that are water actuated. Some obvious advantages are the elimination of being dragged through the water, and lessening the possibility of entanglement with your chute.

ARCTIC GEAR

TAC pilots have a worldwide commitment, as everyone knows. That means operating in Arctic conditions as well as tropical. Nowadays if you deploy to an Arctic survival region, you can have Arctic survival gear in your seat kit, but you give up everything else in the kit to get it. Not for long, though! A new seat cushion for the survival kit has been devised that's made out of your Arctic gear. It's molded into a seat cushion shape and vacuum packed. The gloves and Arctic boots are separately packed and end up roughly the size of a cigarette pack. You merely stow them in a pocket prior to flight. So, in the near future, you can deploy to a frigid climate and take your Arctic survival gear plus all your normal complement of regular survival gear. This one is a big plus in Life Support.

All in all, it's fair to say that the field of Life Support is one that is constantly changing and improving. The next time you grab your gear to go fly, think for a moment of the work, design, testing, and thought that goes into it. Life Support is something that you might get pretty personally involved with some day. ➤

Safety must begin in the mind of ma

STAGE II WHAT IS IT?

-Successor to the Pony Express?
-Missle Component?
-Wage and Price Controls?
-Second Act of a One Act Play?

by Col. Glenn V. Thomas TAC/DCF

In years past the term "Stage II" might have conjured up thoughts of theatrical stages or the large studios that were used by the motion picture producers. Today, most people would probably relate Stage II to large missiles, a television program, or even wage and price controls. However, to the well informed pilot, the term will mean "Radar Advisory and Sequencing Service for VFR Aircraft."

The purpose of Stage II service is to provide arriving VFR aircraft with wind and runway information, and to sequence the flow of the VFR traffic with the flow of arriving IFR traffic. This is accomplished by first establishing radar contact with each VFR aircraft when it is 20-30 miles from the airport of intended landing. The pilot is then provided with instructions to enter the pattern at a specified point, or is provided radar vectors to position the aircraft in the proper approach sequence. In either case, this traffic advisory information is issued on a workload permitting basis. When the aircraft reaches a predetermined point, normally about five to seven miles from airport, and the pilot reports seeing the aircraft which he has been advised to follow, he will be transferred to tower control. The control tower will issue final landing sequence and provide other information as applicable.

Stage II service is available, on request, at many bases and commercial airfields throughout the United States. Due to the increased emphasis being placed on radar monitor/control of aircraft, it will soon be available at many additional locations. The IFR Enroute

Supplement contains information on which bases and commercial airfields now offer Stage II service and indicates the agency, the frequency, and when to call in order to receive this service.

Perhaps you will ask, "How will this help me since I always fly on an IFR flight plan?" Stage II will provide you an additional margin of safety by placing the other fellow, the one operating on a VFR flight plan, under radar surveillance at a time when traffic sequencing is most needed; that is, when you and he are both entering the heavily congested area where all pilots are competing to place their aircraft on the same little patch of ground.

Stage II, as the name implies, is a step toward more positive control called, logically enough, Stage III. Under Stage III participating VFR aircraft, as well as IFR aircraft, are provided separation as well as traffic information.

Before you are lulled into a false sense of security, let us dwell upon some of the shortcomings of these systems. Stage II participation is urged, but is not mandatory for either military or civilian pilots. Stage III participation is mandatory for USAF pilots, but for our civilian counterparts and military pilots of other services, participation is only urged, not required.

One more word of caution. If you are operating in VMC, regardless of the type flight plan you are flying or the type service being provided, YOU, the pilot, are still responsible to see and avoid other aircraft.

FLIP Planning, Section II, Pilot Procedures, Part IV "Arrival," contains detailed information on the three different stages of radar service. The Flight Facilities Officer at your base may be contacted for detailed information and procedures applicable at your location. This service is for our benefit. Let's make the most of it. >

AERODROME/FACILITY DIRECTORY 141

GOWEN FIELD. IDA. See BOISE AIR TERMINAL.

GRAHAM. S. DAK. 42°33'37''N 96°29'46''W — L–11
NDB (MHW) GRH 400 129° 0.9 NM to Fld. See VFR-S for A/D data.

GRAHAM. TENN. 35°50'02''N 87°27'06''W — L–14
RADIO- 122.1R 111.6T (NASHVILLE FSS)
(L) BVORTAC GHM 111.6 Chan 53 201° At Centerville Muni. See VFR-S for A/D data.

GRAHAM. TEX. 33°07'53''N 98°33'03''W — L–13
NDB (MHW) GHX 335 185° 1.0 NM to Graham Muni. See VFR–S for A/D data.

GRAND CANYON NATIONAL PARK. ARIZ. 35°57'N 112°09'W GMT–7 — H–2, L–4–5 (GCN)
P 6605 BL4, 9 H68 (ASP) (S40, T50, TT80)
FUEL- (NC-C1A1TA)
COMMUNICATIONS- (UNICOM 122.8) (TIE-IN FSS PRESCOTT)
RADIO- 122.1R 109.0T
RADIO AIDS TO NAVIGATION
(L) BVOR GCN 109.0 35°57'37''N 112°08'43''W At Fld. Wx bcst 1100–0500Z.
VOR unusable
030°–060° beyond 25 NM below 9500' 230°–270° beyond 15 NM below 10,000'
060°–100° beyond 20 NM below 9000' 340°–030° beyond 30 NM below 10,800'

GRAND FORKS AFB. N. DAK. 47°57'N 97°24'W GMT–6 (–5DT) — H–1–3, L–10 (RDR)
AF 911 BL4, 6, 7, 8, 9 H123 (CON) (S155, T280, TT470) (SWL 65/PSI 650)
JASU- 2(C–26), 7(MD–3), (MA–1A), (MC–1 Modified), 8(MC–11)
FUEL- A+J4, SP, O–128–133–148 PRESAIR LPOX LOX
J-BAR/A-GEAR
RWY 17 MA–1A (1)(2) (100' OVRN) BAK–9(B)(2) (40' OVRN) ——— BAK–9(B)(2) (9' OVRN) MA–1A (1)(2) (109' OVRN) RWY 35
AERODROME REMARKS- Overhead tfc ptn 2600', rectangular tfc ptn 2100'. VFR overhead and rectangular tfc ptn rgt hand rwy 17. No hgr space. Tran alert svc 1400–0600Z (DT 1300–0500Z) dly. Extv heli tfc up to 2000' MSL within 75 NM fr 180–360 rad dur daylt hrs. Oil aval in package product only, hand transfer rqrd. (1) Remote, interconnected with BAK–9. (2) 15 min prior ntc rqrd.
COMMUNICATIONS- (SFA) (TIE-IN FSS GRAND FORKS)
(R) APP CON – 318.1 118.1 (E)
TOWER- 349.0 236.6 126.2 116.7T (E) GND CON- 275.8 DEP CON- 363.8 118.1
STAGE II RADAR SVC- Ctc APP CON 25 NM out on 318.1 118.1.
PFSV: METRO- 239.8
RADIO AIDS TO NAVIGATION
RED RIVER (H) VOR(a) RDR 116.7 47°49'09''N 97°24'02''W 351° 7.5 NM to Fld.
RED RIVER (H) TACAN(a) RDR Chan 111 47°57'26''N 97°24'20''W At Fld.
ILS(a)
RADAR- 324.5 359.3 339.1 294.7 134.1 (E)

	RWY	CATEGORY	MDA RVR	HAT	CEIL–VIS
ASR	17	A, B, C, D, E	1160/50	261	(300–1)
	35	A, B	1280/24	369	(400–½)
	35	C, D, E	1280/40	369	(400–¾)

	RWY	CATEGORY	DH RVR	HAT	CEIL–VIS
PAR	17	A, B, C, D, E	999/ 24	100	(100–½) GS 2.6°
	35	A, B, C, D, E	1011/16	100	(100–¼) GS 2.6°

	RWY	CATEGORY	MDA VIS	HAA	CEIL–VIS
CIRCLING	17, 35	A, B	1360–1	449	(500–1)
	17, 35	C	1360–1½	449	(500–1½)
	17, 35	D, E	1460–2	549	(600–2)

RADIO/NAV REMARKS- (a) No–NOTAM preventive maint sked: VOR–Sat 1800–2000Z (DT 1700–1900Z), 5000' ceil, 5 mi vis; TACAN–Sat 2330–0030Z (DT 2230–2330Z), 5000' ceil, 5 mi vis; ILS–Sat 2030–2330Z (DT 1930–2230Z), 3000' ceil, 3 mi vis.

GRAND FORKS INTL. N. DAK. 47°57'N 97°11'W (AOE) GMT–6 (–5DT) — H–1–3, L–10 (GFK)
P 844 BL4, 5, 6 H73 (ASP) (S130, T173, TT300)
FUEL- (NC-C1A1TA)
COMMUNICATIONS- (UNICOM 123.0) (TIE-IN FSS GRAND FORKS)
RADIO- 255.4 123.6 122.6 122.2 122.1R 109.4T (E)
(R) APP CON – 363.8 318.1 118.1 (E)
TOWER- 118.4 122.4R GND CON- 121.9 Opr 1300–0500Z (DT 1200–0400Z).
DEP CON- 363.8 118.1
STAGE I RADAR SVC- Ctc APP CON 25 NM out on 318.1 118.1.
RADIO AIDS TO NAVIGATION
(L) BVORTAC GFK 109.4 Chan 31 47°57'18''N 97°11'06''W At Fld.
VHF/UHF/DF

TAC TIPS . . . interest items,

THAT'S ROG'

Sometimes in listening to the radio traffic the feeling creeps in that the terms "Roger" is a catch all word meaning anything from "Yes" to "I will comply with your last instruction." Those in the know (all of you) are well aware of its meaning as well as other words in the aviation radio vernacular. But just in case you've forgotten, here's the lineup . . . Rog?

PROCEDURE WORDS AND PHRASES

ROGER:	"I have received all of your last transmission." (Under no circumstances to be used as an affirmative.)
ACKNOWLEDGE:	"Let me know that you have received and understood the message."
AFFIRMATIVE:	"Yes" or "Permission granted."
BREAK:	"I hereby indicate the separation between portions of the message." (To be used where there is no clear distinction between the text and other portions of the message.)
CORRECTION:	"An error has been made in this transmission (or message indicated). The correct version is . . ."
GO AHEAD:	"Proceed with your message."
HOW DO YOU READ:	"Unreadable, readable now and then, readable but with difficulty, readable, perfectly readable."
I SAY AGAIN:	Self-explanatory.
NEGATIVE:	"No" or "Permission not granted" or "That is not correct."
READ BACK:	"Repeat all, or the specified part, of this message back to me exactly as received."
SAY AGAIN:	"Repeat all, or the following part, of your last transmission."
SPEAK SLOWER:	Self-explanatory.
STANDBY:	Self-explanatory.
THAT IS CORRECT:	Self-explanatory.
VERIFY:	"Check coding, check text with the originator and send correct version."
WILCO:	"Your last message (or message indicated), received, understood, and will be complied with."
WORDS TWICE:	(1) As a request: "Communication is difficult. Please send every word twice." (2) As information: "Since communication is difficult, every word in this message will be sent twice."

mishaps with morals, for the TAC aircrewman

SKY BRIGHTNESS

Have you ever wondered why the sun's brightness is reduced during high-altitude flight and yet the sun's glare causes more eye discomfort and fatigue? The brightness of the sky is proportional to the atmospheric pressure and density. At ground level, the brightness is caused by the sun's rays being scattered by reflection and atmospheric particles. At an altitude of 18,000 feet, the brightness is reduced by 50 percent, by 80 percent at 40,000 feet, and so on.

Your eyes are shielded from the brightness of the sunlight at ground level by being recessed below your forehead and eyebrows. But at operating altitudes, more light comes from below that from above and floods the eyes. The light becomes a glare that overstimulates the eyes and causes loss of sensitivity, and vision is impaired. Your tinted visor and sunglasses are provided to protect your eyesight during this phase of flight. However, only Air Force issue or optically correct sunglasses will provide the needed protection.

Courtesy of F-5 Service News, March-April 1972

EWAS DELAYED

The West Coast element of the FAA's Enroute Weather Advisory Service (EWAS), announced on page 8 of the April TAC ATTACK as becoming operational in late March 1972, has been slipped due to funding limitations. It is now expected to get going sometime this fall. Keep checking the "SPECIAL NOTICES" Section of the IFR-Supplements, U.S. for announcements of the activation of specific stations.

G WHIZ-LEAD!

The mission was a four ship ACM mission. During an attempt to maneuver into the 6 o'clock position of his opponent, the second element lead found himself in AB and pulling like mad. After the flight, it was discovered that the left and right flap stops were broken; and the left and right speed brake web cracked. Inspection of his wingman's aircraft revealed a cracked panel, cracks in left and right speed brake wells, left dump mast cracked, structural assembly of a door panel cracked, and left flap stop broken.

How did all this happen? Lead pulled . . . and pulled . . . and pulled! His IP told him to ease up . . . then pushed forward on the stick. What did Two do? Hung in there . . . NINE AND ONE-HALF G's worth!

Hey! pass it along... nine others are waiting.

"HEY TOWER, HAVEN'T YOU GOT MY CLEARANCE YET ?"

by Colonel Robert E. Darlington
Hq TAC/SE

Not too many years ago, there were a few outfits which required sort of a cross-training program for air traffic controllers and aviators. The idea was to strap a young tower or GCA controller into the back seat of a Hun and let him enjoy the thrill of a dwindling fuel supply while trying to work into the landing sequence. The pilots, on the other hand, were required to visit tower, GCA, or RAPCON on a recurring basis so they could see how much fun it was to handle a mix of fast airplanes, slow airplanes, IFR traffic and VFR traffic with only one or two runways to play with and no less than a million people talking at the same time.

The result of the program was a healthy respect for the other fellow's problems. Unfortunately, the decrease in available cockpit/flying hours and the increase in recurring ground training duties make it tough to keep that kind of program alive.

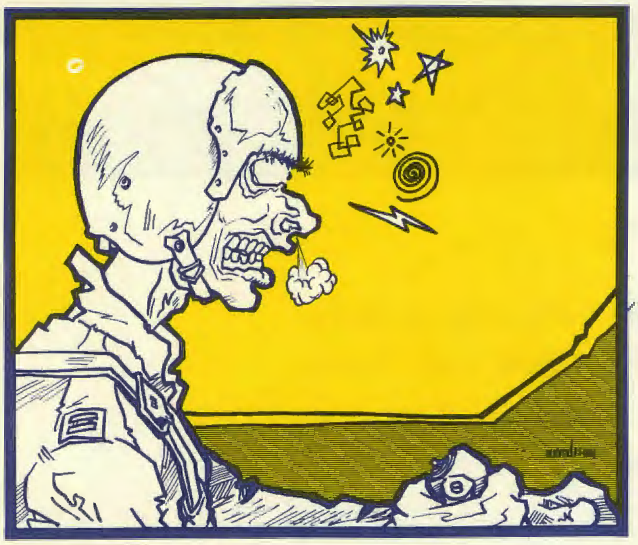
The need for mutual respect within the air traffic control/aviator team hasn't decreased at all.

There seems to be a natural law which demands that the growth of air traffic shall always outpace the supply of modern equipment and experienced controllers. Given this fact, the best thing the pilot can do is to help ease the situation with some plain, old-fashioned radio discipline — well tempered with courtesy, consideration, and composure.

When I hear a pilot arguing with an air traffic controller, it always prints out in my mind as "adolescent aviator." If an airborne pilot has a valid reason for not accepting a clearance or lack of same, there are procedures, such as declaring an emergency, for seeking resolution.

If safety considerations are not involved, the only place to pursue an air traffic disagreement is ON THE GROUND, not over the radio.

There are two major reasons for this. First, the pilot is usually tuned in on only one frequency. Thus, he may not have as great an awareness of the total traffic situation as the controller who is listening in on several frequencies plus a couple of landlines. Lacking this appreciation, the wrong chatter, argument, or delay at the wrong time could very well be putting another aviator in a bigger pinch than the first aircrew thinks he's in.



Secondly, if a situation is getting so sporty that a crusty old aviator of 5 or 6 (or more) years experience blows his cool with a blast at the controller, consider this: If the pilot is THAT rattled, how will his blast affect the rattle-factor of the first term controller who possesses limited experience in aviation?

Good radio discipline is not entirely a matter of composure and minimum verbiage. It also includes waiting until you're sure the frequency is clear before transmitting after a channel change, and it includes letting the arrival controller know your complete intentions without making him play "20 Questions."

The courtesy and consideration part of the formula doesn't necessarily pertain to the use of "yes sir," "thank you," and "good evening." These are good phrases if you happen to be calling Salt Lake Center around midnight; but definitely out of order at 1100 hours local in the Washington Terminal Control area.

The increase in air traffic and corresponding radio traffic, as you know, has resulted in reduced mandatory reporting and clearance read-back requirements. But occasionally, radio discipline means talking a bit more than required by the rules.

Now I realize that a simple "Roger" will suffice to acknowledge understanding of a new altitude clearance under the new rules. However, when it's obvious that a center controller is straining to sandwich other traffic into airspace I'm vacating, it's just good common courtesy to read-back the altitude clearance. It's also a good idea to put yourself in the shoes of the tower controller who, in an effort to expedite traffic, clears an aircraft to "Taxi into position and hold." While a simple "Roger" will do (WILCO would be more appropriate), an "active AND HOLD" acknowledgment would be better and will significantly reduce the air traffic control pucker factor. (I also acknowledge "holding short," when appropriate.)

One more pet peeve: There is no control tower in existence that can manufacture an ATC flight clearance, and probably darn few which would intentionally conceal or withhold a valid clearance. When a pilot is strapped into a 115 degree Fahrenheit cockpit, waiting to start engines, he can be excused for making an occasional query on the status of a clearance delay. On the other hand, I've heard aircraft commanders translate their embarrassment for late takeoffs by getting tough with ground control. The reaction simply means that the tower crew has to discontinue supervision of the younger controllers while he tries to reduce the noise from the irate aircraft commander. If a real problem is developing in the traffic pattern, cross off one pair of experienced eyes that could be helping to resolve a more pressing problem.

To this point, I've been painting the aviator as the villain of the radio discipline team, but it works the other way, too. Someday, I'd like to disabuse that fellow in RAPCON of the idea that I possess a photographic memory. I refer to the scene where I'm in the soup, in a descending turn, and I'm handed-off from center to approach control. Initial contact is made and, in one mouthful, I'm given a new altitude clearance, a new vector, altimeter setting, active runway, ceiling, visibility, winds, remarks, and missed approach procedure. It would be nice to claim that I'm smart enough to consistently assimilate all that. But to be honest, 8.4 flying hours per month just doesn't equip some people with that ability. WHEN TIME PERMITS, friend controller, please give me all those numbers a few at a time.

Tactical Air Command

UNIT ACHIEVEMENT AWARD

Our congratulations to the following units for completing 12 months of accident free flying:

428 Tactical Fighter Squadron, Nellis Air Force Base, Nevada
1 January through 31 December 1971

348 Tactical Airlift Squadron, Dyess Air Force Base, Texas
1 January through 31 December 1971

18 Tactical Airlift Training Squadron, Dyess Air Force Base, Texas
1 January through 31 December 1971

11 Tactical Drone Squadron, Davis-Monthan Air Force Base, Arizona
1 January through 31 December 1971

175 Tactical Fighter Group, Martin Airport, Baltimore, Maryland
1 January through 31 December 1971

126 Air Refueling Group, Chicago O'Hare IAP, Illinois
1 January through 31 December 1971

302 Tactical Airlift Wing, Lockbourne Air Force Base, Ohio
1 January through 31 December 1971

446 Tactical Airlift Wing, Ellington Air Force Base, Texas
1 January through 31 December 1971

135 Tactical Air Support Group, Martin Airport, Baltimore, Maryland
1 January through 31 December 1971

190 Tactical Reconnaissance Group, Forbes Air Force Base, Kansas
1 January through 31 December 1971

143 Special Operations Group, Theodore Green Airport, Warwick, Rhode Island
1 January through 31 December 1971

319 Special Operations Squadron, Hurlburt Field, Florida
1 January through 31 December 1971

4452 Combat Crew Training Squadron, George Air Force Base, California
6 January 1971 through 5 January 1972

336 Tactical Fighter Squadron, Seymour Johnson Air Force Base, North Carolina
15 February 1971 through 14 February 1972

16 Tactical Reconnaissance Squadron, Shaw Air Force Base, South Carolina
15 February 1971 through 14 February 1972

316 Tactical Airlift Wing, Langley Air Force Base, Virginia
19 February 1971 through 18 February 1972

37 Tactical Airlift Squadron, Langley Air Force Base, Virginia
19 February 1971 through 18 February 1972

704 Tactical Air Support Squadron, Shaw Air Force Base, South Carolina
23 February 1971 through 22 February 1972

193 Tactical Electronic Warfare Group, Olmsted Field, Middletown, Pennsylvania
26 February 1971 through 25 February 1972

121 Tactical Fighter Group, Lockbourne Air Force Base, Ohio
27 February 1971 through 26 February 1972

4430 Combat Crew Training Squadron, Myrtle Beach Air Force Base, South Carolina
1 March 1971 through 28 February 1972

317 Special Operations Squadron, Hurlburt Field, Florida
4 March 1971 through 3 March 1972

18 Tactical Reconnaissance Squadron, Shaw Air Force Base, South Carolina
4 March 1971 through 3 March 1972

318 Special Operations Squadron, Pope Air Force Base, North Carolina
17 January 1971 through 16 January 1972

THE LONGEST FLIGHT

An hour before dusk, the Caribous lumbered into the air on the last leg of a ferry mission that began in SEA and was to end in the land of the big BX. It was to be a seventeen and one-half hour flight that would drone away from a setting sun and would not see land again until the sun had completed its journey and was once again high on the horizon.

Each of the four aircraft in the section were crewed by a pilot, copilot, and flight mechanic. The aircraft had been equipped with special bladder fuel tanks carried in the cargo compartment to increase the range of the normally short-legged C-7s. There was no autopilot to decrease the pilot workload; the beast had to be hand flown the entire distance.

The flight climbed eastward and rendezvoused with a C-130 duckbutt who was to provide the navigation expertise and lead the aircraft across the big waters.

The first ten hours of the flight were uneventful save for numerous heading changes to avoid the cumulus buildups which littered the flight path. The ETP (equal time point) had been left behind over an hour previously; now there could be no turning back.

At about ten hours and fifteen minutes into the flight, the low oil quantity light for the left engine illuminated in the number two airplane in the stream. There was nothing alarming or unusual about it; the engine had been steadily using about a gallon of oil per hour on the previous legs. The pilot sent the flight mechanic to the rear of the airplane to reservice the oil quantity from the on-board reservoir. He completed the servicing and then began to transfer fuel from the bladders. Moments later he heard over the interphone, "Something is wrong with number one engine." He scrambled back up to the cockpit and couldn't believe what the engine instruments were telling him. They had lost number one engine. The pilot notified the mission commander who was in a trailing aircraft; then shut down the engine and feathered the prop. The copilot advanced the power to METO on the remaining

engine as the airspeed bled off and the aircraft began to descend from 10,000 feet. The pilot had his hands full trying to control the airplane in night weather conditions. With METO power, the pilot was able to level the airplane at 3700 feet; then as the airspeed slowly built back up he was able to climb to 4100 feet. Some structural icing had been evident prior to the time the engine was shut down. As the aircraft descended to a lower altitude, the outside air temperature was warm enough to rid the airplane of ice. When the pilot had the airplane under firm control, he told the copilot and flight mechanic to put on anti-exposure suits, LPUs, and parachute harnesses. After returning to the flight deck, the copilot flew the airplane while the pilot donned his survival gear. The airplane was equipped with parachutes (chest packs) and a seven man life raft carried in the cargo compartment.

The flight mechanic then jettisoned everything possible to lighten the aircraft weight. The fuel bladders still contained some usable fuel but they too would be jettisoned when their usefulness had expired.

For the next two hours, the pilot was able to maintain airspeed by alternately selecting METO and climb power.

At the time of engine shut down, the interphone went dead and the crew could not hear themselves transmitting on any of the radios; however, they were able to hear incoming transmissions. They discussed the possibility of attempting a restart on the left engine and decided to wait until first light to give it a try.

The first couple of hours after engine shutdown, the crew concerned themselves with keeping the machine in the air. This was not the time to be overly concerned about the fuel . . . that would come later. Initially, it looked as if the fuel remaining on board would be sufficient to get the airplane to the nearest airport. However, flight following agencies in the states had already begun to voice concern about the endurance.

At first light the crew attempted a restart on the left engine. Any hopes they might have had of once again having a two-engine airplane vanished as the pilot pressed the starter button. The engine was frozen. A windmill

The Longest Flight...

start was not attempted for fear of not being able to re-feather the prop.

The C-130 duckbutt aircraft which had been providing escort service was relieved by an Air Rescue C-130. Positions relayed by the rescue bird indicated that the fuel situation was going to be close. Then the C-130 began having difficulty with its navigation equipment, making accurate positioning impossible. Meanwhile the Caribou had squeezed all of the fuel out of the bladders and had jettisoned them. It looked at this time as if the crippled C-7 would arrive over the nearest airfield with about five to fifteen minutes fuel remaining.

The crew had discussed the possibility of bailing out of the airplane versus ditching. They were well aware that bailout was the preferred method. The pilot gave the crewmembers the option. The copilot felt that he had but one choice; since he couldn't swim, he decided to stay with the airplane. The flight mechanic also decided to ride it down if it became necessary.

Air Rescue had been alerted hours previously and they now had a Jolly helicopter (HH-53C) en route.

When the escort 130 came within TACAN range of the coast, the DME locked on and indicated 197 miles. From this position, it became painfully obvious that the C-7 could not make landfall prior to fuel exhaustion. The crew had been airborne for over seventeen and a half hours with seven hours of that time on a single engine.

A group of islands just off the coast appeared to offer the next best course of action. Although there was no landing field, the beach had already been cleared for the eventuality that the C-7 could make it that far. The pilot had queried the Jolly, who had by this time intercepted the aircraft, on the possibility of a carrier landing. However, none were within range.

The pilot decided to try for the islands, but if he couldn't make it, to begin the ditching run when the fuel on board was down to 50 pounds. It was imperative to ditch while engine power was still available. As he turned the Caribou toward the islands, the Jolly began relaying ditching information. The water surface was glassy with swells of two to three feet. In turn, the pilot of the Caribou relayed to the Jolly the ditching characteristics of the airplane, location of the emergency exits, and the position of each of the crewmembers. He had sent both the flight mechanic and the copilot into the cargo compartment where they would remain until the airplane either ditched or landed. The flight mechanic opened the cargo door and jettisoned the right rear passenger door in preparation.

The pilot continued his slow descent still heading for the group of islands. The first island was no more than a rock jutting up through the surface of the water and offered no hope of a landing site. The larger island with the cleared beach was ahead . . . too far ahead. The fuel gauge read fifty pounds when the pilot turned the Caribou to the ditching heading. He lowered forty degrees of flaps, calling each ten degree increment to the Jolly. As the C-7 approached within ten feet of the water, the Jolly pilot could see the prop wash making a trail on the water. The airplane touched down on the aft fuselage slightly nose high in what appeared to be a good touchdown, then suddenly the nose dug in and the airplane stopped abruptly. The flight that had lasted over nineteen and a half hours was over.

In the cargo compartment, the water began pouring in immediately. By the time the copilot and the flight mechanic got unstrapped, the water was chest deep. They made their way to the rear of the airplane which had ankle deep water by the time they began unloading the raft. The flight mechanic put the raft into the water, inflated it, and the copilot jumped into it. The flight mechanic then jumped into the water alongside of the raft and then boarded it. Neither man was injured.

In the cockpit, the force of the impact had dislodged portions of the instrument panel and had pinned the pilot in the cockpit. He briefly lost consciousness, then came to and could see the surface of the water over his head. He was able to move around slightly to get his head above water but was not able to free himself of the debris. He managed to move enough to get his arm through the copilot's window. He began waving.

The Jolly had quickly lowered two para-rescue men who swam to the airplane and began tugging at the debris to free the pilot. The pilot was struggling for air with each wave that passed over his head. After the parajumpers were in the water, the Jolly maintained a hover position over the airplane. The pilot of the helicopter was intentionally maintaining this position to force the tail of the airplane down so that the cockpit would stay as high above the water as possible. It was a superb decision. Both of the rescue men began frantically tugging at the pilot and managed to free him of the debris. They laid him on top of the airplane and inflated his LPUs. Moments later, the airplane sank beneath him; it had remained afloat for only thirteen minutes, yet all the crewmembers survived. Only the pilot had any injuries and those were very minor.

In retrospect, it is easy to glean from this accident why ditching is a last resort in an aircraft of this type. However, there can be no fault leveled at the pilot. His primary concern was his crew and he brought them through in fine shape. Faced with the circumstances, the pilot did an outstanding job.

Not enough credit can be given to the crew of the Jolly rescue helicopter. Through their action the Caribou crew is still around to tell one hell of a war story.

TACTICAL AIR COMMAND

Maintenance Man Safety Award

Technical Sergeant Philip J. Poulin, 49th Tactical Fighter Wing, Holloman Air Force Base, N. Mex., has been selected to receive the TAC Maintenance Man Safety Award for March 1972. Sergeant Poulin will receive a letter of appreciation from the Commander of Tactical Air Command and a Certificate.

TSgt Poulin

TACTICAL AIR COMMAND

Crew Chief Safety Award

Sergeant Timonthy G. Lueders, 415th Special Operations Training Squadron, Hurlburt Field, Florida, has been selected to receive the TAC Crew Chief Safety Award for March 1972. Sergeant Lueders will receive a letter of appreciation from the Commander of Tactical Air Command and a Certificate.

Sgt Lueders

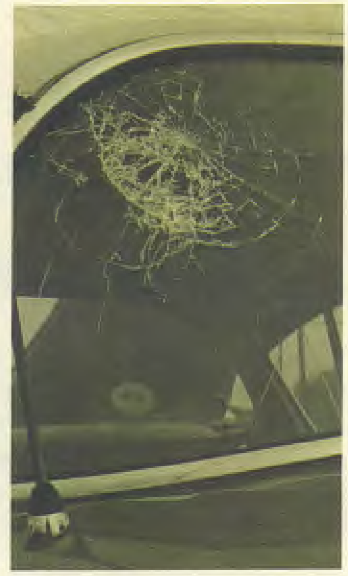
TACTICAL AIR COMMAND

Ground Safety Man of the Month

Technical Sergeant Howard L. Saxon, 347 Organizational Maintenance Squadron, Mountain Home Air Force Base, Idaho, has been selected to receive the TAC Ground Safety Man of the Month Award for March 1972. Sergeant Saxon will receive a letter of appreciation from the Commander of Tactical Air Command and a Certificate.

TSgt Saxon

hydroplaning, et al



by David Girling

After a season of lightfooting it around on snow, slush, and ice, a driver can get a mighty itchy right foot. So when the snow clears and it seems that for sure spring is just down the road, it's only natural to want to put a little verve into your driving. But go easy. Just plain wet roads might seem relatively tame after snow-covered or icy roads. But this isn't always the case. Some drivers – perhaps many newer drivers – aren't aware of just how treacherous rain can be, and fail to make allowances for it.

Rain opens up a whole bag of creepies for the unwary – from visibility handicaps to unexpected skids to altered maneuvering characteristics.

After winter's inhibited driving, what is sweeter than aiming your machine down an uncrowded freeway and blowing out the cubes as lustily as the legal limits allow. And this is fine – IF: 1. your car is in good shape, 2. you are in good shape, 3. the weather is clear, 4. the road is dry. We'll assume that the first three points check out "affirmative."

But if the road is wet – as it often is this time of year – you're flirting with trouble. And if it's raining at all hard, you're really asking for it. Why? Hydroplaning.

You see, at freeway speeds, your traction is reduced, and if there is sufficient water depth on the road surface, your tires may not even contact the road at all. The really treacherous aspect of the situation is the fact that you won't even be aware of it until that time when you have to brake, or maneuver, or get hit by a healthy gust of wind, and the traction you need just isn't there. That's when you could find yourself heading in a direction other than the one you had in mind. I've seen it happen.

An incident that comes to mind took place a couple of years ago on a Michigan freeway near Detroit. There was a driving rain and I was proceeding with some caution. A compact overtook and passed me doing about the legal limit – 70 mph. I was doing less than 50 because of the rain. When the compact was about a quarter of a mile ahead of me his tail suddenly veered to the left, the brake lights came on, and swoosh! the driver was looking back at me through the windshield of his car.

I surmised that the tires of the out-of-control car had been hydroplaning when the skid started, the driver must have panicked and locked up his brakes, and ended up heading backwards down the freeway at about 50 miles an hour. Fortunately, there wasn't another vehicle nearby. After a couple of hundred feet the compact plowed through the wet gravel of the road's shoulder and came to rest a couple of car lengths onto the grassy apron alongside the highway – still upright, luckily.

What is hydroplaning? I once heard it described as water-skiing the hard way, which is a rather fatuous way of describing a situation that can be deadly.

The National Aeronautics and Space Administration tumbled to hydroplaning several years ago when engineers set out to discover why aircraft sometimes skidded on wet runways. It's easy to apply their findings to cars.

When rotating on wet roads at moderate speeds, tires – providing they have a reasonable amount of tread – "wipe" the road surface clear by allowing displaced water to escape through the grooves in the tread pattern. But as speed increases, all the water can't be displaced fast enough and a wedge of surplus water starts building up between the tires and the road surface. Depending on how much water there is on the road, the depth and pattern of the tire tread, and the composition and angle of the road surface, eventually a point is reached where the tires actually lose contact with the road and ride on a wedge of water.

On a standard-size car, good tires, inflated all around to 24 pounds, might start partial hydroplaning at 35-40 mph on a fairly wet road surface. They can even become waterborne at 50-55 mph if enough water is present.

So how do you tell if there's enough water to cause hydroplaning? There are no hard-and-fast rules. But if you can see reflections in the road surface – trees, telephone poles, other cars – you can be fairly certain that conditions are right for hydroplaning. Also, if you see raindrops "dimpling" into little circles as they hit the road, take heed.

It's obvious that many drivers just aren't plugged into the dangers of hydroplaning. I'm always amazed at how many drivers fail to reduce speed when roads are wet, especially during hefty rainstorms. True, many get away with it. But many don't. Accident statistics prove it.

There are other wet-weather hazards besides hydroplaning, of course. For example, when it first rains after a dry period, road surfaces are especially slippery. This is because the roads get covered with a residue of such substances as dust and oil, and when this mixes with rain water it can create a "greasy" situation. And it stays that way until enough water has fallen to wash the roads clear. This can take a matter of minutes or a couple of hours, depending on how hard it rains. Make a conscious effort to let this next line sink into the depths of your mind: Roads are especially slippery just after it starts to rain.

Try to avoid going through accumulated water (big puddles, if you prefer) at too high a speed. And always cautiously apply your brakes after driving through deep water. If they pull to one side or are less effective, make several light applications to help dry them out.

As you know, rain can cause visibility problems. See and be seen is the order of the day when driving in wet weather. There's no excuse for worn wiper blades or burned-out lights. Turn on your headlights if the visibility is poor; never just your parking lights.

Use the heating-defrosting-defogging equipment that's built into American cars to its full advantage, to keep windows from fogging up. This fresh-air equipment is for all-weather, all-temperature use. If you have any doubts about how to use it to its full advantage under all weather conditions, check your manual.

A parting shot: A little extra space goes a long way on wet roads. Increase your following distances.

• • •

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CHOCK TALK ...incidents and incidentals

F-111 NOSEWHEELS

The F-111 has been in the USAF inventory for quite some time now and, as most of you know, it has had its growing pains. What most of you don't know is that it's safety record has been better than most fighter aircraft including the Thud and the Phantom.

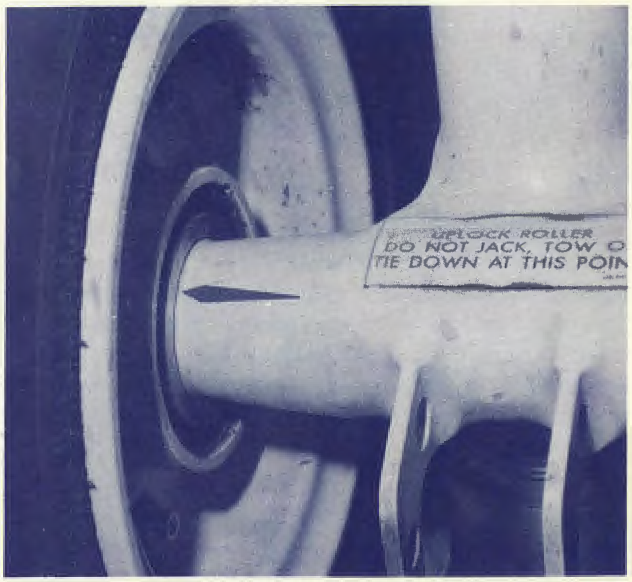
The Aardvark, as it is sometimes referred to, is a sophisticated vehicle and consequently has had some unusual problems. The major problems have been solved or isolated and the bird is really pulling its load. But, although the aircraft is modern in design and sophisticated with its equipment, it is still vulnerable to Murphy's Law. There have been incidents in the past and undoubtedly there will be those in the future that shouldn't happen and, "as advertised", can't happen. The F-111, on occasion, has shed the left wheel on the nose gear either on takeoff or on landing. Fortunately, the nose gear has dual wheels and little damage has resulted to the aircraft involved. In all cases, it was found that the wheels had been installed incorrectly by one of Murphy's helpers.

There is, of course, a correct way to mount the wheels which is covered by the appropriate tech orders. As far as the jock or crew chief is concerned, there is a simple way to see if the wheels have been correctly mounted by making a visual check of the nose gear during preflight.

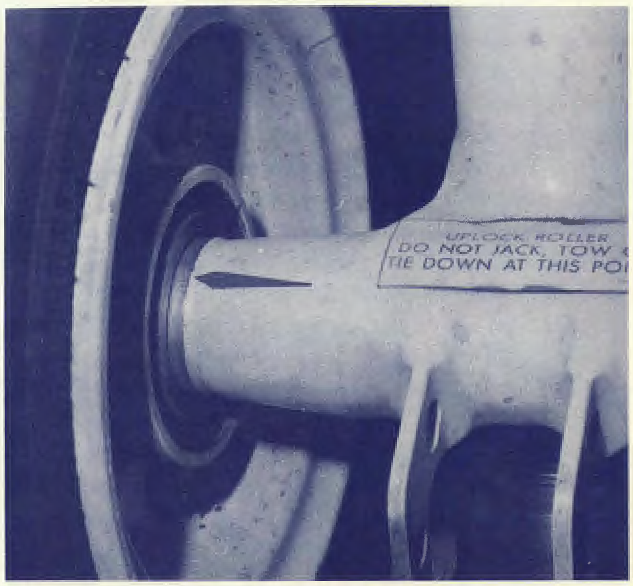
The problem has always been associated with the left nose gear which has right-hand threads on the locking nut that back off when allowed to do so by faulty installation. The right wheel merely tightens up because of right-hand threads on that side. Wouldn't it have been simple if left-hand threads had been installed on the left side?

The first photo gives a good view of what the wheel should look like when it is correctly installed. The wheel fits snugly over the race and up to the painted forging of the main part of the gear.

The second photo indicates how the wheel will look when it has been installed incorrectly. It is obvious that the wheel is not fully seated over the race and part of the race is visible. An aircraft with a nose gear that looks like this should not be flown or taxied.



correct installation



incorrect installation

by Lt Col Des Jardins

with a maintenance slant.

FOD-IT'S IN THE BAG NOW

A panaline fastener forward of the F-111s left engine intake was discovered missing during the post-flight inspection. An engine inspection revealed just what you knew it would. FOD damage! How did a fastener come loose in flight? The investigation revealed several facts about the fasteners. First of all, there are many different sizes of fasteners on the various panels. Secondly, the fasteners can easily be overtorqued by using the wrong fastener on the wrong panel. The end result is a weakening and eventual failure of the fastener. When that happens, scratch one engine. It's easy enough to tell people to put the right fastener on the right panel, but this unit went one step further. All fasteners from an individual panel are now being stored in a small cloth bag when the panel is open. This bag is tied to the panel from which the fasteners were removed. Sounds like an inexpensive, on the spot fix, that should work. The estimated cost of fixing the engine was 45,000 dollars. That'll buy a lot of small cloth bags.

I DON'T BELIEVE IT!

The F-100 was in for an engine run following IRAN. The day crew initiated preparation in accordance with TO directives and during the course of removing the tail section, a mechanic disconnected the engine throttle on the mistaken assumption that he was preparing for engine removal. The swing shift crew completed tail section removal and preparation for the engine run. There was an inexperienced mechanic on the crew, so the crew chief directed another flight line mechanic to check his work. The F-100 was placed in the runup shelter for the engine run and the aircraft tiedown bridles were connected. The experienced mechanic who connected the left bridle cable moved to the right cable and inspected it after installation. The slack was not removed from the bridle cables because the nose wheel cocked as the aircraft was backed into the hangar. Work was suspended for mealtime.

Upon return to the work area, the engine run mechanic, accompained by two technicians, proceeded to initiate the engine run phase. The chocks forward of the main gear remained loose to allow for tightening of the bridle cables during the run. The engine run mechanic did not complete a full engine prestart check; he merely performed a cockpit inspection then proceeded with the engine run. He did not accomplish false starts as required by the directives. Consequently, the disconnected throttle was not discovered.

During the start, acceleration up to idle was normal; however, the engine continued to accelerate to approximately 87 percent. As the RPM went through 70 percent, the engine run mechanic realized a problem had developed and moved the throttle to the off position. He than placed the main fuel shutoff valve switch to closed. The engine continued to gain speed and the right bridle cable came loose from the attaching ring.

The tiedown bridle locking pin has a braided steel quick release cable which can interfere with the pin movement to the fully locked position. The inexperienced mechanic failed to insure that the pin was fully locked, and the experienced mechanic double-checking it failed to discover the mistake.

The aircraft pivoted to the left, still restrained by the left bridle cable. Brakes were not applied. After approximately forty degrees of rotation, the pitot boom struck the left wall of the runup shelter and the nose of the aircraft came to rest against the shelter. Maintenance stands were knocked over and the engine runup screen was knocked loose. Numerous objects in the vicinity of the intake were ingested by the engine. Resultant FOD caused sparks and flame to be emitted from the tailpipe. A power unit was overturned by the exhaust blast and knocked into the shelter wall. The fuel tank of the power unit ruptured and caught fire. It took approximately one minute for the engine fuel supply to deplete and the engine to flame out. The engine run mechanic remained in the cockpit until the engine shutdown.

The most startling part of this entire tragedy of errors is that no personnel were injured!! Amazing!

Captain Chase

TACTICAL AIR COMMAND

AIRCREWMEN OF DISTINCTION

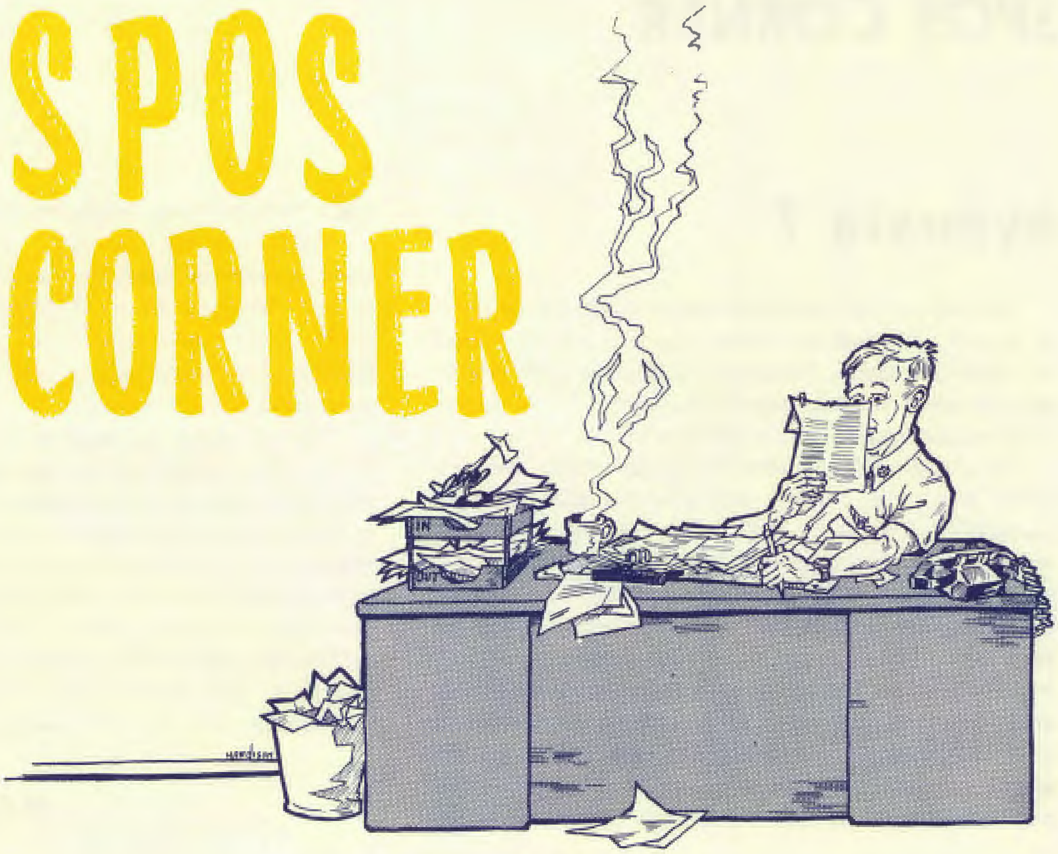
Captain Edward L. Chase, 428th Tactical Fighter Squadron, and Major William C. Burns, Jr., 474th Tactical Fighter Wing, Nellis Air Force Base, Nevada, have been selected as Tactical Air Command Aircrewmen of Distinction for the month of March 1972.

Captain Chase and Major Burns were flying Number Two in a flight of two F-111 aircraft during air-to-ground weapons delivery. The mission was uneventful until Captain Chase pulled up to the downwind leg after the last low level bomb pass. While rolling out on downwind, the aircraft rolled hard to the left suddenly and without warning. Captain Chase was able to return the aircraft to level flight and maintain wings level only by using full right roll control. Immediately following the uncommanded roll, numerous warning lights illuminated confirming failures of the pitch, roll, and yaw damper systems; fuel quantity and distribution systems; primary and auxiliary attitude and heading systems; most engine instruments; the flight control position indicators; and several other systems. Captain Chase was able to maintain aircraft control with the assistance of the engine RPM gauges and standby airspeed indicator and altimeter which were his only available instruments. In an effort to reduce the force required to hold wings level, he attempted to reset the damper systems. This again caused a violent and uncontrollable left roll and Captain Chase promptly turned the damper off. An emergency was declared and the flight proceeded toward Nellis AFB. Major Burns assisted Captain Chase in holding the very heavy right stick pressure required to keep the wings level. A visual check from the chase aircraft did not reveal any external indications of the problems. The aircraft was climbed to a safe altitude and a controllability check accomplished. With 15 degrees flaps and 200 knots IAS, Captain Chase determined that with full right stick and right rudder he had sufficient control to land the aircraft. Shortly after this, strong electrical fumes were detected in the cockpit. Major Burns eliminated the fumes by turning off all electrical equipment except the UHF radio. Due to the extreme control problems, Captain Chase requested a straight in approach to runway 21 to avoid flying over heavily populated areas. Major Burns insured all landing checklist items were accomplished and pneumatically positioned the cowls and spikes to the landing configuration. Final was flown at 220 knots IAS using full right stick and rudder. A smooth touchdown was accomplished on the first 1000 feet of runway. Although nosewheel steering was not available, Captain Chase maintained the aircraft in the center of the runway, extended the arresting hook, and engaged the arresting system at the far end. Subsequent investigation revealed a failure of a hot air duct in the rain removal system. The resulting heat caused 75 circuit breakers to open, rendering the flight control system completely out of trim and most instruments and aircraft systems inoperable.

By applying the rapid and correct response to a serious emergency, the crew displayed superb airmanship in recovering their aircraft without full use of the flight controls and thus prevented the loss of a valuable equipment and possible personal injury. These actions certainly qualify Captain Chase and Major Burns as Tactical Air Command Aircrewmen of Distinction.

Major Burns

SPOS CORNER



F-4 VRSP- it's looking better !

Since the subject of special reporting on the Voltage Regulator Supervisory Panel (VRSP) was brought up a couple of months ago in this corner, we'll use the same arena to pass on the unofficial results.

Overall, it looks like we still have a problem – but action is being taken. According to our figures, during the 60-day reporting period about one out of every four TAC F-4s had a VRSP failure. (This includes failures on the ground and in the air.) Likewise, about one of every four aircraft with shock mounted VRSPs (TCTO 1F-4C-938) also had a failure. Contrary to available 66-1 failure data (recorded over longer time and involving more aircraft), our incident reports and other messages indicated the modified VRSPs actually did slightly worse than the original gear. Of course, installation experience will undoubtedly improve these percentages, but it appears very doubtful that the overall VRSP reliability will significantly improve due to TCTO 938 alone. There were some variances among the different wings, with the worst case citing 26 failures in 51 modified aircraft and the best reporting only 4 for 38. All told, though, most units reporting were fairly parallel and any deviations are probably attributable to different interpretations of the reporting requirement rather than unique failure trends.

In any event, the data which the units provided assisted in establishing that additional effort must be expeditiously applied to this problem. AFLC recognizes the problem and is expanding its efforts to provide a more reliable VRSP. New units are presently being operationally tested in the field and all initial ground and flight results look good. As soon as the "-5" VRSP is qualified, all future procurements will be directed toward the new panel. Incidentally, this panel will also have a better shock mounting.

In summary, this SPO appreciates the efforts of you aviators, FSOs, and maintenance types to help identify and solve the problem. It looks like the appropriate agencies now have a good handle on the situation and the eventual, and hopefully not too far off, results will be fewer "GEN OUT" lights from that lower right panel.

MAJ BURT MILLER

SPOS CORNER

hypoxia ?

Although all the circumstances in a recent fatal crash of an A-7 will never be known, hypoxia may have been the significant factor. The pilot was observed at FL 340 in what appeared to be an unconscious state with his oxygen mask hanging free prior to crashing at sea.

The aircraft was on a local round robin flight when the center lost radio contact just after the pilot reported reaching FL 330. After the aircraft failed to respond to several instructions and continued to fly a non-cleared course, two F-106s were scrambled. The F-106s intercepted the aircraft over the water and observed the pilot sitting upright with his oxygen mask disconnected from his helmet. The canopy was frosted over except for small clear areas on each side. The pilot did not respond to the interceptor's signals and was observed to go into several convulsions indicating possible hypoxia. The interceptors tried to turn the aircraft but the autopilot made the maneuver impossible. Shortly thereafter, the aircraft started to spin either from autopilot disengagement or flameout. The A-7 entered an undercast at 5000 feet and the interceptors lost visual contact. A Coast Guard cutter was in the area but had no visual sighting of the water impact. Helicopters attempted SAR procedures with no success.

The real cause may never be known; however, one not unusual fact stands out. He was in a single place aircraft without a wingman. On occasions, many of use are placed in a similiar situation. What are your personal habits with respect to your mask and oxygen when flying alone and at high altitude? Be smart! Make frequent checks of oxygen quantity, pressure, flow, and hose connections; periodically check cabin pressure; and keep your mask on and snug. The human is not designed to survive long without that vital element — oxygen.

MAJ BOB LAWLER

lucky !

Recently two F-100s tried unsuccessfully to occupy the same point in time and space. The results – midair! This time the pilots are around to talk about it. The accident board did its thing and found pilot factor as the primary cause. Contributing causes were determined as supervisory factor and flight discipline. Everyone agrees the pilots are lucky to be alive. Everyone agrees that we could ill afford to lose the two aircraft and everyone agrees that the accident could have been prevented. So why were we so lucky?

Early in the planning stage the mission leader decided to change from a 60-1 proficiency mission to a low-level nav with a low-level intercept. The purpose: "To stimulate new ideas for tactics." Fair enough, except the SOF was not brought into the picture until later when he was rushed into a decision to approve the flight. The rub continues in that, although all flight members were reportedly "highly qualified," one member was actually a low timer in both the bird and mission. All went well through the early portion of the flight and it would have continued that way except the defending element leader initiated a turn rather than trying to outrun the attacker as briefed. CRUNCH!

Although eyewitness and pilot testimony conflict over the circumstances immediately prior to the accident, the groundwork had already been laid hours prior to the event.

In today's Air Force we must consider all factors in planning and executing our mission. To do otherwise is to waste valuable time, equipment, and, most important, human life. Unless we do consider all factors we can only consider ourselves – LUCKY!

CAPT AL MOSHER

THE SPOS

COL. DARLINGTON	FLIGHT SAFETY DIVISION CHIEF
LT. COL. COTTINGHAM	ADVISOR ALL ANG AIRCRAFT
LT. COL. PEDERSEN	B-66, B57, T-29, C-7, C-54, C-47, C-118, C-119 , C-121, C-123, C-124, C-130, C-131, C-135, QU-22, B-17, JN-4
LT. COL. DES JARDINS	F-111, HELICOPTERS
LT. COL. KENISON	RF-101, F-105, BARRIERS.
MAJ. LAWLER	A-7, A-37, T(AT)33, F-5, T-39
MAJ. MILLER	F-RF-4, F-104, F-15, OV-10, LIFE SUPPORT
CAPT. MOSHER	F-100, O-2, U-6, U-10, AERO CLUBS
CAPT BRAVAKOS	AIRCRAFT MAINTENANCE

What weather phenomenon is more destructive than a tornado, kills more people each year than a hurricane, and last year alone damaged twenty-five TAC airplanes ?

A MONSOON ? A TYPHOON ? A CYCLONIC INVERSION ?

No, its... MA NATURE'S SUNDAY PUNCH

by Capt James F. Hines
Scientific Services Officer,
5WW/DNS

One of the most awe-inspiring and misunderstood of all atmospheric phenomena is the lightning discharge. It is an impressive outburst of "Mother Nature's Wrath" which must be respected whether you're on the ground or in the air. The violence of this phenomenon approximates that of the tornado. However, according to statistics, lightning kills more people in the United States than any other weather phenomena, and also plays havoc with air operations.

It has been estimated from research that an aircraft will be hit by a lightning flash at least once very 2000 – 2500 hours of flying time. From this viewpoint, the following TAC statistics are offered for comparison and to emphasize through better understanding, the importance of avoiding this menace. These statistics were taken from incident reports which reflect strikes where aircraft DAMAGE resulted. Total strikes (damage plus no damage) would be obviously higher.

AIRCRAFT TYPE	FREQUENCY – DAMAGING STRIKE/X HOURS OF FLYING TIME
F-4	1/80,000 hours
F-111	1/18,000 hours
C-130	1/9600 hours
C-119	1/2500 hours
C-54	1/1600 hours

The above statistics have a very limited data base (only 1 year and 25 damaging strikes); consequently few conclusions can be drawn. Nevertheless, it does indicate a need and flags a potential hazard to each flyer.

In order to better understand this manifestation of the electrical nature of matter, let's consider the more obvious and likely occurrences of lightning in thunderstorms. Lightning occurs in a thunderstorm when an electrical potential builds up until it reaches a sufficient strength to discharge through the natural electrical resistance offered by the air to a center of opposite charge. The processes that generate the electrical potential are not fully understood; however, a number of theories have been advanced. Regardless of the generation method, certain observations and facts have been observed that are important to all pilots.

Lightning sometimes occurs in the initial stage of a thunderstorm (cumulus stage), but it generally reaches its greatest frequency at the time the cloud reaches both its maturity and its greatest height. The start of rain beneath the cloud base at the beginning of the mature stage can be a tip-off for the onset of the greatest lightning danger. The most extensive and frequent discharges occur at altitudes compatible with temperature ranges between -10°C and +10°C. Although lightning may occur throughout a thunderstorm cell, the strongest discharges to the earth usually originate in the lower portion of the cloud mass. Once lightning begins, it may continue well into the dissipating stage of the thunderstorm. The frequency of the discharges will normally diminish, but the strength may not.

Now, how does this affect you? If you are a percentage player, the following occurrence statistics will be of significance in your decision making.

About 50 percent of the aircraft strikes occur in the four-month period, April through July.

Approximately 70 percent of the strikes occur between 2 and 12 thousand feet.

Approximately 64 percent of the strikes occur within +5°C of the freezing level (0°C).

Obviously, the best means to avoid lightning strikes is to avoid thunderstorms. There are pertinent facts that may help when considering avoidance techniques. First, most strikes occur below 20,000 feet and usually between 5000 and 10,000 feet. Secondly, about 80 percent of the strikes occur in the referenced -10°C to +10°C temperature range. A good precaution is to avoid flying near the freezing level, especially with buildups along the intended path.

These precautions will become increasingly important with the advent of advanced technology aircraft. AVIATION WEEK AND SPACE TECHNOLOGY, January 31, 1972, points out that lightning may be a greater hazard to the new aircraft due in part to the use of non-metallic materials and miniaturized avionics. Dr. Pierce of the Stanford Research Institute found that present trends in aircraft design and operation tend to augment the lightning hazard, and only higher operating altitudes and faster climb rates tend to diminish the hazard.

The above facts along with the following table(below) on thunderstorm avoidance may assist you in staying out of trouble. These procedures were based on data that United Airlines found to be effective over a period of years.

Remember, good judgment, crew and weather service coordination, and maximum use of all available radar (ground based and airborne) information will minimize the hazards associated with thunderstorms and lightning. As a final word, don't be a sucker for Ma Nature's Sunday Punch and become a 1972 statistic.

THUNDERSTORM AVOIDANCE

		Flight Altitude	Height	Shape	Intensity	Gradient of Intensity	Rate of Change
No Radar or Radar Inoperative	By visual inspection of clouds, only the height, size, and exterior appearance give clues as to the hazards within. These characteristics do not provide unique indicators of severity and are not available if masking clouds interfere. Avoid by at least 10 miles any storms having any or all of the following characteristics: taller than 30,000, large in diameter, anvil top, and growing rapidly. To gain more information on storms in the flight path, call military forecasters on PFSV or ask ARTC for assistance. However, remember that ARTC does not have weather radar and is limited in the weather information it can provide.	0' to 20,000'		Avoid any storm by 10 miles which is tall, large, growing rapidly, or has an anvil.	The intensity of the storm can only be estimated by exterior characteristics.	No way to determine visually.	
		20,000' to 25,000'		Same	Same	Same	Same
		25,000' to 30,000'		Same	Same	Same	Same
		above 30,000'	Maintain a minimum clearance of 5,000' from the visible top of a cloud. If the storm is growing rapidly, increase this distance.	Same	Same	Same	Same
Radar With Iso-Echo Contouring Circuitry	Iso-echo circuitry on airborne radar cuts off the signal to the scope when its return is above a set value. This produces a hole in a strong echo when the central portion of a storm causes the signal to be greater than the set value. A strong gradient is seen as a narrow band between the no-echo region outside the storm and the hole in the center of the storm. Monitor long ranges on the radar to avoid getting into situations where no alternative remains but the penetration of hazardous areas. Avoid flying under a cumulonimbus over hang, whenever practical. If such a flight cannot be avoided, tilt the radar antenna full-up occasionally, to guard against a fresh shaft of hail falling suddenly from the overhang.	0' to 20,000'		Avoid by 10 miles echoes which have hooks, fingers, scalloped edges, or other protrusions.	Avoid by 5 miles any echo which has strong intensity denoted by an iso-echo hole cut in the cloud echo and sharp edges.	Avoid areas of echoes by 5 miles which have strong gradients of intensity. Areas of weak gradients can be flown through if necessary.	Avoid by 10 miles echoes which are changing shape, height, or intensity rapidly.
		20,000' to 25,000'		Avoid all echoes by 10 miles.	Avoid all echoes by 10 miles.	Avoid all echoes by 10 miles.	Avoid all echoes by 10 miles.
		25,000' to 30,000'		Avoid all echoes by 15 miles.	Avoid all echoes by 15 miles.	Avoid all echoes by 15 miles.	Avoid all echoes by 15 miles.
		above 30,000'	Maintain a minimum vertical separation of 5,000' when flying above an echo. If the storm is growing rapidly, increase this distance.	Avoid all echoes by 20 miles.	Avoid all echoes by 20 miles.	Avoid all echoes by 20 miles.	Avoid all echoes by 20 miles.

LETTERS TO THE EDITOR

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Your January issue was the best that I remember. We seem to get them a bit late out here at the end of the line, but as a former TAC troop, I still look forward to them. This time it was worth waiting for.

I especially liked "The Routine" and "The Professionals" which provided a nice change from the usual "accident-oriented" format. I think it would be a bad mistake, however, to carry this to extremes and turn TAC ATTACK into a back-patter. Accidents still happen (Excuse me – they are caused). Among the guaranteed causes is complacency; but I don't believe you will fall in that trap.

Two rather lengthy specific remarks in closing:

In "The Professionals" the item on the F-4 inflight fire (pp 18-19) really struck home. I was assigned to that unit at the time and it was a major topic of discussion for quite some time. I still wonder why the role of the back-seater is played down.

While it is true that all he did was eject, he did so after crew coordination and analysis (quickly accomplished) of the situation. Later speculation based on the condition of the cockpit was that had he delayed ejection more than a few seconds longer, he could not have survived. Was his action any less professional than the aircraft commanders? Also worth noting is the fact that the TO procedure was not followed. Since fire was the reason for ejection, the ejection should have been sequenced; and had it been, probably no one would have blamed them. As it turned out, the AC's decision to violate the TO and stay with the aircraft saved the day. Question: Had the loss of the rear canopy caused a draft, drawing the fire through the front cockpit (which has been known to happen) thus killing the AC and causing the loss of the aircraft, would it have been "Pilot factor?"

"The Office of Blue Four" was also very interesting. However, no mention is made of "Blue 8," who was Blue Four's GIB. Blue 8 is always there, willing and usually able to act as a temporary stick-and-rudder actuator while Blue Four tunes his radar scope, gets out his approach plate, switches from primary to standby, etc. My experience is mostly in D & E models, but I have flown RF-4s, and noticed that Blue 8's office has some funny arrangements, too – the INS panel on the left console, which cannot be adjusted without your hand blocking the counters, for example. (Ds and Es are not without fault, either.)

Well done, and keep 'em coming.

WILLIAM H. WINGO, GIB, USAF
36 TFS-O, APO San Francisco 96570

TAC ATTACK explores all means to get the message across; giving credit where credit is due is one means to do just that.

The intent was not to downgrade the actions of the GIB in the article to which you refer. If we are guilty, GIBs, we're standing by to eat some crow.

Concerning your question; whether the AC ejected or remained with the airplane would not have changed the fact that an electrical fire had caused the emergency. Under these circumstances, it's difficult to conceive of a logic that would tag the cause as "pilot factor."

Ed.

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TAC TALLY

AIRCRAFT ACCIDENTS

MAJOR ACCIDENT RATE COMPARISON

	TAC 1972	TAC 1971	ANG 1972	ANG 1971	AFRes 1972	AFRes 1971
JAN	0	1.6	0	16.7	0	0
FEB	1.6	1.6	0	11.6	0	0
MAR	2.1	3.1	6.5	7.0	0	0
APR		2.7		4.9		0
MAY		2.5		5.7		0
JUN		2.6		6.9		0
JUL		2.9		7.1		0
AUG		2.7		7.8		2.7
SEP		3.2		7.4		2.4
OCT		3.2		6.9		2.1
NOV		3.3		6.9		2.0
DEC		3.2		6.4		1.8

UNITS

*Estimated

UNITS	Thru Mar 1972 ACDTS	Thru Mar 1972 RATE	Thru Mar 1971 ACDTS	Thru Mar 1971 RATE
9AF	1	1.6	1	1.6
1 TFW	0	0	0	0
4 TFW	0	0	0	0
31 TFW	0	0	0	0
33 TFW	0	0	0	0
68 TASG	0	0	0	0
316 TAW	0	0	0	0
317 TAW	0	0	0	0
354 TFW	1	16.2	0	0
363 TRW	0	0	0	0
4403 TFW	0	0	1	23.9

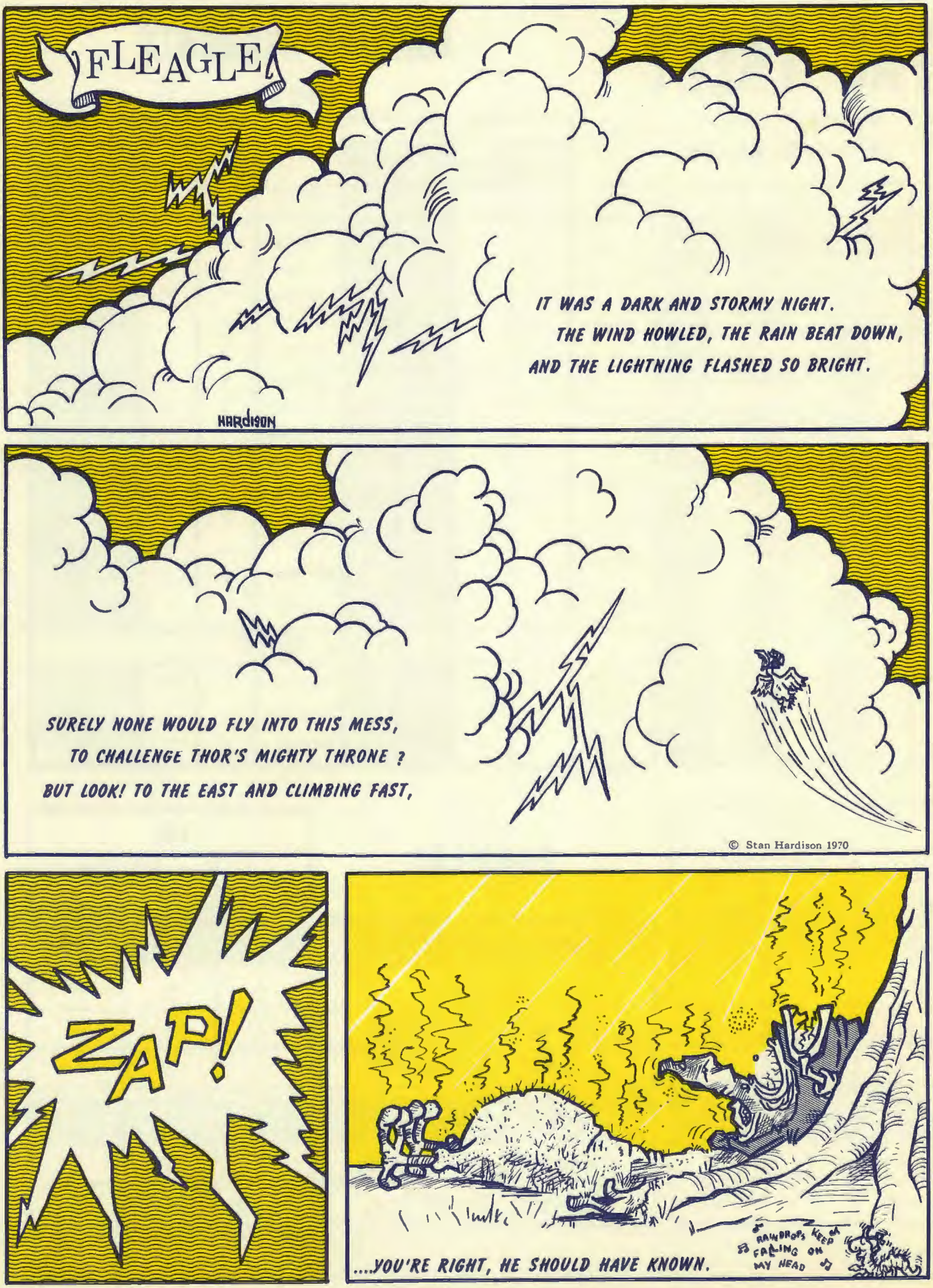
UNITS	Thru Mar 1972 ACDTS	Thru Mar 1972 RATE	Thru Mar 1971 ACDTS	Thru Mar 1971 RATE
12AF	1	1.0	2	2.1
23 TFW	0	0	0	0
27 TFW	0	0	0	0
35 TFW	0	0	0	0
49 TFW	0	0	0	0
58 TFW	0	0	1	7.6
67 TRW	0	0	0	0
71 TASG	0	0	0	0
313 TAW	0	0	0	0
314 TAW	1	10.8	0	0
355 TFW	0	0	0	0
347 TFW	0	0	0	0
425TFTS	0	0	0	0
474 TFW	0	0	0	0
516 TAW	0	0	0	0

TAC SPECIAL UNITS

UNITS	Thru Mar 1972 ACDTS	Thru Mar 1972 RATE	Thru Mar 1971 ACDTS	Thru Mar 1971 RATE
1 SOW	0	0	2	12.7
2 ADG	0	0	0	0
57 FWW	0	0	0	0
4410 SOTG	2	26.8	0	0
4485 TTS	0	0	0	0
4500 ABW	0	0	0	0

SUMMARY

	TAC MAR 72	TAC THRU MAR 1972	TAC THRU MAR 1971	ANG MAR 72	ANG THRU MAR 1972	ANG THRU MAR 1971
TOTAL ACCIDENTS	4	7	10	4	5	4
MAJOR	2	4	6	4	4	4
AIRCREW FATALITIES	4	11	5	1	1	2
AIRCRAFT DESTROYED	2	4	4	3	3	4
TOTAL EJECTIONS	1	3	4	2	2	3
SUCCESSFUL EJECTIONS	1	1	4	2	2	2
PERCENT SUCCESSFUL	100%	33%	100%	100 %	100%	67%


FLEAGLE
IT WAS A DARK AND STORMY NIGHT.
THE WIND HOWLED, THE RAIN BEAT DOWN,
AND THE LIGHTNING FLASHED SO BRIGHT.
HARDISON
SURELY NONE WOULD FLY INTO THIS MESS,
TO CHALLENGE THOR'S MIGHTY THRONE ?
BUT LOOK! TO THE EAST AND CLIMBING FAST,
© Stan Hardison 1970
ZAP!
....YOU'RE RIGHT, HE SHOULD HAVE KNOWN.
♫ RAINDROPS KEEP FALLING ON MY HEAD ♫