TAC ATTACK

FEBRUARY 1967

Tac Attack, February 1967

turning the phantom page...4

for efficient tactical air power

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TAC ATTACK

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current interest

departments

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Angle of ATTACK

ERROR IS A VERY HUMAN THING

In the year just past, TAC lost 55 airplanes and 45 aircrew lives in 62 major aircraft accidents. A little over one half of these accidents were caused by human error. Most of the remaining accidents resulted when aircraft parts broke or components malfunctioned. The material failure accidents have objects that you can get your hands on as cause factors. You can do something about them. These objects usually get prompt attention.

Human error in aircraft accidents, however, is more difficult to pin down. Sometimes we even catch ourselves saying that a certain number of human error accidents are inevitable.

I don't think we need to take this attitude. There IS something we can do about the accident caused by personnel error.

The first step is to recognize that human error is inevitable, but that the human error accident is not! Errors will be with us as long as people man and service aircraft. But errors need not cause accidents if we recognize their potential.

The second step is to insulate these errors from potential accidents. We do this by insisting on rigid compliance with the standards that will produce an efficient, error-free operation. These standards are the check lists, minimums, and limits which we have developed through experience and experiment.

Now that the standards are established, we no longer need to experiment. But it is only natural, when you think you are very familiar with an operation, to consider some of these standards too restrictive. It is at this point that you must back off. You expose yourself to possible error when you deviate from . . . or ignore . . . the standards. When you press below minimums, omit the first few steps of a check list, linger past bingo fuel, or bypass an inspection, you leave yourself open. In these situations, although you "know" you can squeeze by, a certain number of error-caused mishaps are inevitable.

We can't afford that.

But we can afford to accept that errors are very human things.

Homer C Boles

HOMER C. BOLES, Colonel, USAF
Chief of Safety

TURNING THE PHANTOM

...to take maximum advantage of its superior qualities requires a good understanding of its handling characteristics. Experience has shown that you must keep your speed up. Low speed maneuvering can be dangerous!

Four years ago this month, the Phantom II entered the TAC inventory in the form of some F-4Bs on loan from the Navy. By the end of 1963, the 4453rd Combat Crew Training Squadron, then located at MacDill AFB, Florida, was operating its own F-4Cs. Now, with the F-4D regularly coming into TAC units, the Phantom has grown to a family of highly respected airplanes.

In the process, the F-4 has racked up an impressive set of world records and proved itself in combat as a fighter pilot's airplane. As this article was in the final stages of preparation, TAC-trained F-4 crews racked up the biggest aerial victory to date in Southeast Asia... seven MIG-21 kills in one day without serious damage to the attacking Phantoms.

The Phantom has arrived, proving itself fast, efficient, and versatile to the sometimes skeptical single-cockpit, single-engine crowd. The effectiveness of the airplane is obvious and its redundant seats and engines are far more than just luxury. Two heads for tactical planning and another engine to get you home when one's been hit!

No airplane gets there... arrives... without growing pains. And the F-4 was no different. There was a period when production of ground support equipment hadn't caught up with airplane delivery rates. That was soon corrected. Pilots had to learn new approaches to takeoff and landing techniques. When trouble developed with the boundary layer control (BLC) system, some hardware adjustments corrected the problem. And hydraulic problems in the utility system were dispatched by changing seals and lines... and increasing maintenance care and caution.

After four years, we are still learning about the Phantom. A recent review of TAC's F-4 accidents showed that the aircrew lost control of the airplane in half of them . . . 11 out of 22. When you line up these eleven accidents you find they contain some startling similarities in airspeed, fuel load, external stores, and center of gravity:

- We know that ten were maneuvering . . . pulling G . . . when they got into trouble. In the remaining one we can safely call maneuvering a possibility.
- Eight of the eleven were at 300 knots or below. One was between 180 and 200 knots.
- All were carrying external stores. Nine were carrying two 370-gallon drop tanks. Eight were carrying at least one other external store.
- Seven had between 12,000 and 14,000 pounds of fuel aboard.
- Eight occurred at low altitude. There wasn't time or space for recovery from post stall gyrations.

Although each accident was thoroughly investigated, questions remained when the cause factors were all sorted out. Most of it boiled down to: WHY would a pilot allow his airplane to go through normal stall warning into uncontrollable gyrations?

The pilots involved in these accidents were not inexperienced. Seven of them averaged 175 hours in the Phantom. Two of the four with less F-4 time had plenty of previous experience in fighters.

So we look deeper into the combination of airspeed, fuel weight, and external stores, (CG) that seems to produce a very sensitive bird. Is there a combination that's more sensitive than other configurations and airspeeds? Our at-

tention centers on maneuvering flight with external stores, when you're slow . . . below 300 knots.

Most of our gunnery-range configurations fall in the category that requires fuel management . . . *emptying* fuselage tanks 5 and 6 to keep the CG from running too far aft. But there have been indications that internal wing fuel is indirectly feeding into cell 5. This means that whether we manage fuel or not, the CG is farther aft than we want it. And those eleven accidents point toward aft CG giving us a sensitive bird.

The results of the Category II Stability and Control tests on the F-4C are revealing. In subsonic windup turns, the test aircraft encountered a nose-up pitching tendency shortly after it entered buffet . . . stick forces decreased along with a sharp increase in the angle of attack gradient. The condition was most acute in approach configuration. And at transonic speeds, stick lightening became more pronounced. It occurred at G loads well below buffet.

The test report goes on to say the pitch-up tendency noted on the clean aircraft also exists when you're carrying external stores. And external stores decreased stick force gradients an average of 50 percent. The aircraft had a definite nose-up pitching tendency in all external-load configurations.

The report also pointed out that external stores reduce the roll rate associated with pre-stall wing rock. And we know that as airspeed decreases, the energy available in the aircraft to generate buffet will decrease.

Now it begins to add up . . . stick lightening and pitch-up tendency increase when you carry external stores. And stall warning signs become less pronounced . . . easier to overlook . . . when you slow the bird down too far.

Although the test report fingered approach configuration subsonic and a clean airplane transonic as the areas where light stick forces are the most acute, let's look at the speeds where our accidents occurred. Using Figure 5-9 from the F-4C-1, we find that between 250 and 300 knots CAS you'll have around 3G (plus or minus one-half) available before stall. (We were disappointed by the absence of a V-G diagram in the Phantom handbook. More on this later.)

For a fighter pilot, accustomed to pulling 4 1/2 or 5G or more with plenty of airspeed during recovery from a weapons delivery pass, 2 1/2 or 3G isn't very much. But with stores under the wing giving you a light stick, and stall warning less than you would normally expect, it's easy to see you could get into the danger zone before you knew it . . .

So what is the danger zone? To us it's the wild ride we've come to call post stall gyration . . . and any combination of airspeed, fuel and stores load, and control action that leads irrevocably to post stall gyration. Airspeed below 300 appears to be a critical factor. That's where the G you can pull before stall starts to run out, and aft CG appears to have the most undesirable effect. And while we're pulling Gs, it's worth noting that the Dash One contains a specific warning about abrupt entry to accelerated stalls. It says you can enter a stall without noticeable buffet or wing rock warning when you snatch the stick back too fast. All you get is moderate buffet at the stall!

Now, about aft CG. The pilot's handbook allows us to load external stores until CG runs back to a max of 36 percent.

We saw from the stability and control tests that the F-4's already light stick force gradient was reduced 50 percent with external stores. Engineers tell us that as long as a positive stick force gradient is present, even though it may be light . . . or even close to zero . . . the F-4 can be adequately controlled under normal conditions. The hooker is in the "normal conditions" bit. That's defined as when "the aircraft has sufficient altitude that the pilot has time to correct any undesirable flight characteristics which might develop from inadvertently entering a region of near zero or negative maneuvering stick force gradients." In plain language that means you'd better have spin recovery altitude under you. That is, if you're going to honk the bird

through stall angle of attack into that region where the nose starts to rise and slide off to one side . . . the wing starts to rock or drop.

All this adds up to the fact that as fuel or stores move the CG aft, the stick force becomes lighter, more sensitive. To the engineer, the aircraft is still stable on paper. But to you or me in the cockpit, it's getting difficult to handle . . . 'specially below 300 knots.

Let's take an F-4 configured for a range mission and see what happens to CG. We'll hang 370s on stations 1 and 9, a SUU-21 with six Mark 76s on station 5, and one LAU-32 rocket pod with three practice rockets on a TER from station 8. At takeoff CG is at 34 percent MAC.

You transfer external tanks immediately. When they are empty and internal wing and fuselage tanks are full, the CG has moved forward to 33.6 percent. When you have fuel remaining in only tanks 1, 2, 3, and 4, the CG has moved to 30.1 percent. Beautiful!

Now let's say you're siphoning fuel. You turn off external tanks, but do not stop internal wing fuel transfer. Later you turn the 370s back on . . . you were feeding the internal wings all the time. (This non-standard fuel sequencing was suspected in one accident.) With fuselage tanks full and external wing tanks containing 2000 pounds, the CG has moved aft to about 35.2 percent . . . less than one percent from the aft limit!

Once you've finished transferring external tanks and have all fuselage tanks full, internal and external wing tanks empty, CG is still back at 35.1 percent! This is a very normal configuration which you encounter with standard fuel sequencing.

So it's important to know whether internal wing fuel really goes into tanks 5 and 6. It can make the difference between flying around at heavy weights with CG almost all the way back, or midway between the limits of 25 to 36 percent.

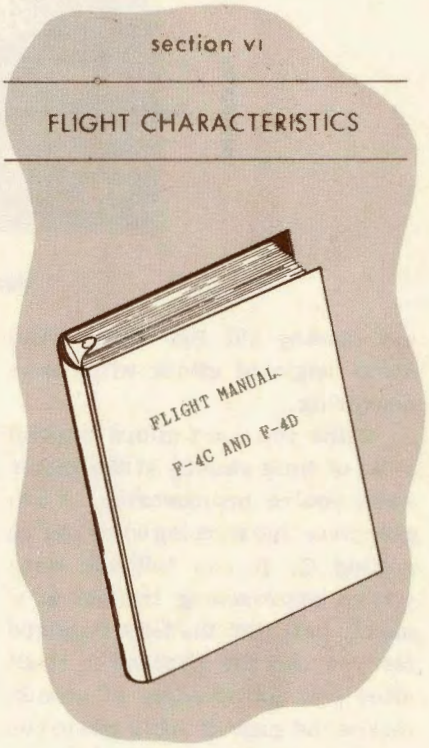
Also in question is the fuel management procedure in Section 7 of the Dash One. This procedure is supposed to keep CG forward during the early stages of a flight by emptying tanks 5 and 6. But the CG runs back aft again once you start to transfer from external tanks. We're not sure we've accomplished much with this "management."

Where do we go from here? Two directions:

- Find out just where the fuel is going and learn more about longitudinal stability . . . and what it actually does to you in the slower speed regimes. A new series of stability and control tests are in the offing. By the time you read this we hope they will be under way. And we hope the results will clear up some of the confusion.
- Make all Phantom phlyers aware of the situation. Impress them with the fact that aft CGs with external stores can give you a sensitive airplane and surprisingly little stall warning at speeds below 300 knots. Even if the fuel problem is straightened out, you can still load the airplane to a CG of 36 percent. Any time you do that, accelerated stalls will be touchy.

One move in the right direction is the recent increase in basic maneuvering speed for the F-4. None of our other current fighters pretend to operate efficiently at 300 knots or below. Now that we're all flying the F-4 around a basic speed of 350 KCAS, we won't be flying GCI targets at 260 knots any more . . . will we?

Another move that is in order is some straight talk in Section 6, Flight Characteristics, of the F-4 Dash One. While it adequately describes stalls in a clean config-



uration, its warnings about stick lightening in accelerated stalls and in approach configuration are pretty obscure. The section on stability and control doesn't mention increased sensitivity with stores under the wing. In fact, it dismisses any decrease in stability with the statement that an adequate margin remains and maneuvering capability is not affected.

We believe, however, that in fifty percent of our F-4 accidents, the pilot lost control while he was maneuvering . . . with stores on . . . at too low a speed!

While we're looking at improvements in the Dash One that could tell the fighter pilot more about maneuvering his airplane, let's look at the angle of attack indicator. At present the F-4

manual treats this instrument almost exclusively as an approach and landing aid. But it says little about angle of attack while maneuvering.

While you can't afford to spend a lot of time staring at the meter when you're maneuvering, it can give you some warning when you're pulling G. It can tell you when you're approaching trouble in a steady pull. But the time required for you and the airplane to react after you notice angle of attack, makes the gage of little use to you during abrupt attitude changes.

We think the Dash One should talk more about this.

Finally, the F-4 Dash One is the only TAC fighter manual (besides the A-1E) we came across that does not contain a V-G diagram. You might know it better as the Operating Flight Limits diagram. It compares airspeed (V) on one scale against acceleration (G) on the other scale, and tells how much G you have available before stall at any airspeed. It looks something like this . . .

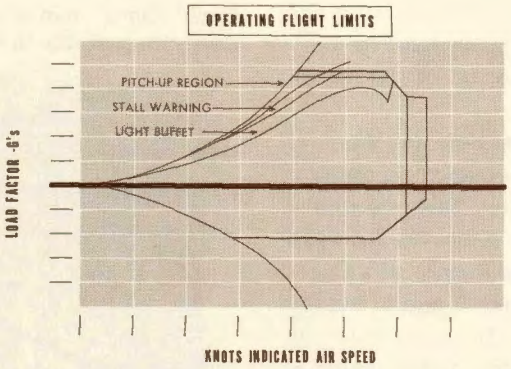


Chart 5-9 looks something like that, but it is labeled Flight Strength Diagram and is supposed to show the "maximum acceleration presently permitted . . ." It plots acceleration G-units against Mach number, at sea level. We all know that an airplane stalls on indicated (or calibrated) airspeed, not Mach!

We would like to see a V-G diagram for the F-4 that presents not only stall speeds for representative weights, but also stall warning areas, included in the next revision of the Dash One. This is currently being requested. The width of the buffet, wing rock, and pitch-up areas at varying airspeeds and G loads . . . and in different configurations . . . should be revealing. It would be a valuable graphic aid to the guy who flies the airplane. It would certainly be a great aid to the guy checking out in the bird.

Hopefully, the current round of testing will produce these improvements in the Phantom Pilot's Handbook.

Until then . . . and you know these things take time . . . handle with care. The one thing you don't want to do when you're maneuvering this airplane is get it too slow. Use some of that wonderful power to get up to maneuvering speed . . . and keep it there. Don't be caught trying to get your speed back after you've already flown into the buffet or stall.

Buffet tells you two things . . . you're nearing critical angles of attack, and you've picked up an impressive amount of drag. Neither one does you any good when you're turning the airplane. If you pull far enough into the turn, drag increase causes airspeed to drop. Now you're just increasing turn by sacrificing speed, not because you're pulling tighter. And after you've pulled into the stall . . .? "You play like a submarine and blow the klaxon and holler DIVE! DIVE! while you act like an unmaneuverable sitting duck in free fall trying to regain what you just threw away." That was Don Stuck's reaction in the McDonnell Field Service Digest a couple of years ago.

He concluded with: "Keep your speed up, Podner, and you won't get into trouble."

And that's good advice!

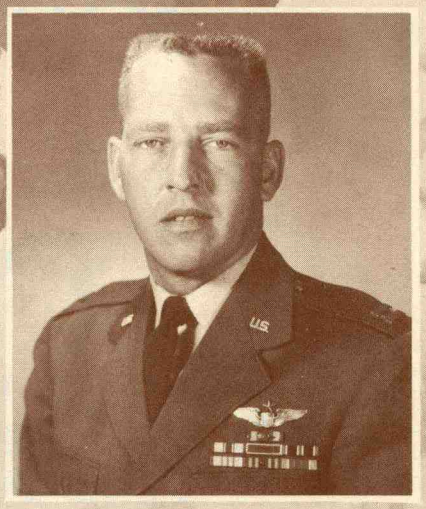
If we've stirred your interest or aroused your curiosity, may we recommend that you dig out a copy of the booklet, "Tiger Talk II," published and distributed by McDonnell last year. If you have already read Don Stuck's treatment of spin prevention in the F-4, go back and read it again. It's called "Spin, Crash, Burn ... but ... WHY?" and it may be the most valuable seven pages you'll read about your favorite airplane.

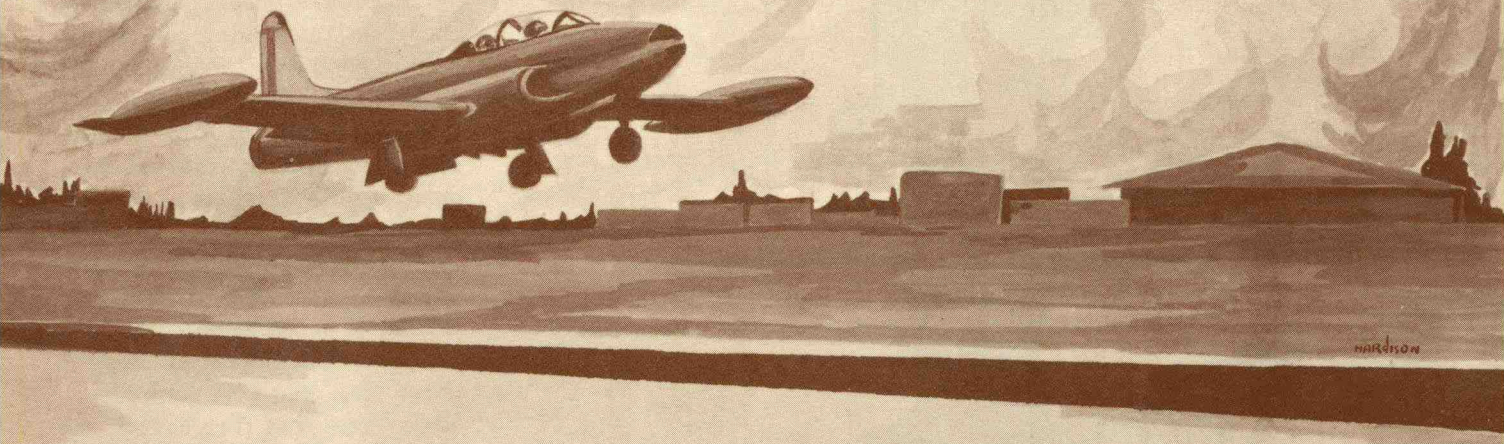
If you're the kind of professional pilot who really wants to understand his airplane and the forces that make it fly for him, go back over the lead article in "Tiger Talk I." Don tackled "A Greek named Alpha" and came away with one of the most lucid and instructive discussions of aircraft control and angle of attack you'll run into in a long time.

- Ed

TACTICAL AIR COMMAND

PILOT OF DISTINCTION





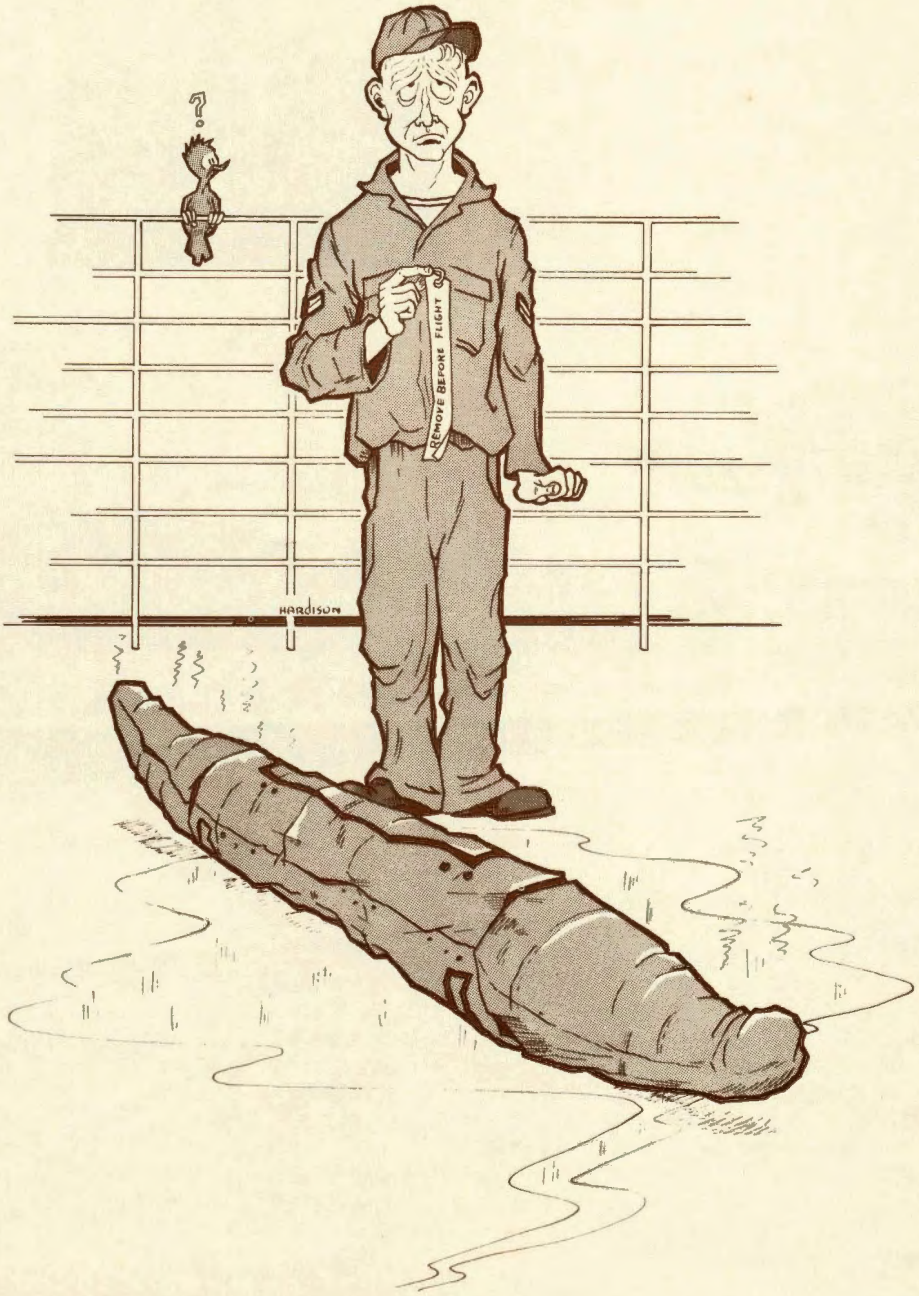
Captain Robert A. Remey, 4453rd Combat Crew Training Wing, Davis-Monthan Air Force Base, Arizona, has been selected as a Tactical Air Command Pilot of Distinction.

Climbing through 19,000 feet in a T-33 aircraft, Captain Remey detected mild engine vibrations. He soon was unable to obtain full power and his wingman observed black smoke coming from Captain Remey's tailpipe. His generator light illuminated soon after he turned toward the nearest Air Force base, and hydraulic pressure dropped to 750 pounds. He executed the procedures for electrical failure and lowered the landing gear, anticipating complete hydraulic failure. With the engine vibrations increasing, Captain Remey entered a flameout pattern for a 6820 foot civilian runway which is 5042 feet above sea level. Shortly thereafter his engine flamed out. Upon restart the vibrations were so severe that he was forced to leave power at idle. Although hydraulic pressure dropped to 500 pounds and the ailerons began to stiffen, he landed successfully 2800 feet down the runway. Using maximum braking, and opening his canopy at 80 knots, he stopped before reaching the end of the runway.

The engine vibration had resulted from a broken turbine blade, which caused bolts to shear on the starter and fuel filter, and caused the generator and hydraulic failures.

Captain Remey's knowledge of his airplane and ability to calmly cope with a very difficult situation qualify him as a Tactical Air Command Pilot of Distinction.

OOoops!!



As soon as it happened, George knew what it was.

Safety pins! No safety pins in the pylons!

It had been a routine work order... arm the centerline station of an F-4C. He and Tommy had been assigned the job. As they walked toward the bird, they saw that there were no safety pins in the left pylons. George and Tommy didn't talk about it, but they both figured someone must have dearmed the pylons. Why would anyone leave an airplane sitting on the ramp without pins?

They hooked up external power and George got in the cockpit. Tommy went under the bird with his voltmeter. The stray voltage check on the centerline station went smoothly. George selected centerline station... Tommy confirmed no voltage. Then George pressed the external stores emergency release button... the next step in their procedure.

That was when the outboard pylons and the left inboard pylon jettisoned to the ramp.

They had not been using a check list. Had they used one... and started with it right from the top, you'd be reading another story on this page.

Another day, on another base ... a load team arrived at an F-105 to check out a write-up on the MN-1A control panel. They removed the MN-1A and replaced it with one from the shop. Then they checked safety pins inserted in the centerline MER and the MN-1A.

Next, one member of the team headed for the cockpit to troubleshoot the control panel discrepancy. As he sat down, he accidentally depressed the external

stores jettison button on the left sub-panel.

That was when the left and right inboard pylon tanks and the left outboard pylon jettisoned to the ramp. The right inboard pylon didn't jettison... it had been safetied in preparation for loading an MA-2A rocket launcher.

They had not been following a check list. Had they used one, and started with it right from the top, this story wouldn't be here either. And the other eighteen similar cases of ... Ooops! Safety pins! ... in the last two years could have been avoided the same way.

Twenty times someone... or several people... forgot about safety pins and an accident happened. Some were serious and people got hurt. Some were less spectacular... little more than an initiator firing in disconnected lines. But every one was an accidental detonation of an explosive device... and that's dangerous!!

Where did it happen?

In the maintenance area, mostly. Nineteen times the airplane involved was at its home base, undergoing some form of maintenance by people of the home outfit. The twentieth case was away from home... an F-4C pilot watched his left LAU-17 jettison when he turned on external power for preflight. The design deficiency that caused this unhappy accident has been corrected.

Who did it happen to?

We're going to step right out and say supervisors... although they were seldom standing next to the airplane when all the excitement occurred. Four times the guy at the airplane was the Crew Chief, seven times it was the load crew. Five times it was Egress troops. One Armament guy and two Fire-Control technicians were the principles on the scene when the action started.

Sometimes these people were little more than innocent bystanders. But often they failed to see if someone else had forgotten something... like dearming initiators or inserting safety pins. In some cases, so many people ignored their check lists that you'd think they are going out of style!

In going through the reports, it turns out that aircraft crew chiefs take eleven counts for check list failure. This is probably because the CC is the guy who is usually supposed to insert the pin in the first place. Next biggest safety pin offender is the load crew member, who bought seven of the accidents for not following his check list. Egress troops followed with five counts, and Armament was rapped with one. Supervisors were specifically singled out twice.

Then why did we say we were charging supervisors as the leading offenders? Read on...

Was there a pattern?

You bet! It was a pattern of bunches. Where supervision didn't live up to its name.

Ten of the twenty accidents occurred on new equipment... the F-4C... where the experienced supervisor should be hovering over every maintenance action. At least until he's sure his troops understand the whole operation. Only one time did an F-100 troop slip... and that bird's been around long enough for many of us to have experience on it.

Eighty percent of the F-105 accidents happened in the same wing!

How about explosive accidents in Reserve Forces assigned to TAC? Three of those four occurred in National Guard outfits in the same state!

Any time mishaps are grouped in such small segments of the total exposure, you wonder how all the rest of us escaped the same trouble. It can't all be black magic and dumb luck.

Lack of supervision showed up in many ways. Sometimes local procedures weren't worked out to take care of every eventuality. Sometimes a young, well-meaning troop was turned loose on a job he had no business attempting without real close guidance... like over-the-shoulder. In other cases, there weren't enough safety pins to go around... so everyone ignored the problem and pressed ahead hoping nothing bad would happen.

You're right, the bad had already happened when they told the crew chief to go ahead and forget about the pin. The muffled explosion, shocked faces, and accusing fingers were all anticlimax.

Does that mean everyone else is clean?

No, not quite. We still have two crew chiefs; three loaders; and one each fire-control, supervisor (again?), armament, and seat installer... who managed to outsmart the whole system.

They didn't read THEIR check lists... which said to play like everyone who went before you goofed, and...

CHECK THE PINS!

A 2ND LOOK

The B-66 with two Instructor pilots aboard drove down final with its gear still in the well. Both pilots were engrossed in the simulated single engine approach they were making and missed the fact that they had no gear. They had silenced the gear warning horn when they pulled one throttle back to simulate single engine.

The Mobile officer fired a flare after calling on guard, but they didn't hear the call . . . didn't see the flare. When Tower finally called them on tower channel they pushed the power up to go around.

After the B-66 scraped along the runway a little way, the engines accelerated to full power and they took off again. Next time around the pattern they used both engines, lowered the gear, and made a normal landing.

An F-105 pilot returning from a gunnery mission discovered that his drag chute had failed to deploy after he pulled the handle. He found himself screaming down the runway toward two members of his flight who had landed in front of him. He had lowered his nose wheel to the pavement shortly after touchdown, losing most of his aerodynamic braking. In the course of steering around his flight-mates on the runway, he used differential braking and was unable to get max benefit from his wheel brakes.

Approaching the far end of the runway he tried to lower his tailhook, but that required quite a struggle . . . the switch guard was safetied with wire almost twice as heavy as it was supposed to be. When he finally got the hook down, it struck a flush-mounted runway light on the threshold and skipped over the BAK-9 barrier. Sixty feet further into the overrun his still-charging chariot picked up the MA-1A barrier cable. It broke!

He came to a stop some 2000 feet into the desert after bouncing across a 150-foot wide ditch.

Both of these unhappy mishaps were loaded with pilot problems, but a second look makes you wonder if we don't sometimes kid ourselves about the devices that are supposed to save the day when everything else goes wrong.

Take the flare gun in Mobile. The only reason we have it there is because we acknowledge that once in a while someone tries to land with his gear up. We have a highly qualified pilot sit in Mobile day after day, watching perfectly normal and safe landings, so on that rare occasion . . . once every several months . . . he can stop that inevitable gear up approach.

We give him a hand-held Very pistol. And the flare doesn't reach far enough to attract the pilot's attention.

Remote-controlled, runway-side flare launchers have been around on Air Force bases for years. But not on enough bases.

The extra-heavy safety wire on the tail hook

switch cover falsifies the security of an emergency system in the same manner.

Or take those barriers. They, too, are an expression of our understanding that once in a while airplanes are going to get into trouble. Sometimes people or materials fail and a fighter can't stop on the runway. But we're all happy about the barriers on the end of the runway. They'll stop the airplanes that nothing else will stop. Or will they?

Not when the cable is installed too close to an obstruction like a runway light (in direct violation of tech data criteria). And not when the tests on a particular barrier configuration are going to be run next year. Right now we don't know how much that particular MA-1A installation was supposed to take before it gave up and let the airplane through.

How many other pieces of equipment do we depend upon to save the day . . . that may or may not do it for us? It behooves each one of us to take a good look at our surroundings. When we're talking about the life-and-limb-saving devices in our flying business, a healthy curiosity is just that . . . healthy!

Several months back, an instructor leading a flight of students had thirty minutes to burn fuel down before their scheduled range time. He had briefed a simulated road recce that would terminate with a mock attack on a target he would select. Cruising at 500 feet, he spotted a hill, called it to the flight as his target, and pulled up into an almost-lazy-eight. Reversing course at the top, about 3000 feet above the ground, he descended toward his target in a 20-degree dive. As he pulled off he cautioned his students that they were still heavy . . . be careful.

Number Two found himself in the burble as he overshot the roll-in. Number Three lined up, pressed his attack, delayed his pullout, and mushed into the target!

More recently, an instructor in a dual aircraft departed from the mission he had briefed to show his student some of the tree-top flying he had done in combat. He flew through two power lines 75 feet above the terrain. Luckily, he was able to fly the airplane home.

Corrective action has been taken in both cases by now. The training outline in the first situation is more explicit about maneuvers to be performed while the airplane is heavy. Students must fly several ground attack sorties on a supervised range before flying target-of-opportunity type missions. In the second case, instructors have been re-impressed with the fact that they must stay within the outlines of the already-adequate training outline.

A second look into these two mishaps . . . and several similar, if less spectacular, incidents . . . makes you think about the instructors' motivation. What led these instructors to jeopardize their students' lives, and sometimes their own?

Almost without exception, the instructors in our training programs are mature, experienced pilots. Most of them have seen combat in the airplane they are flying. They are terribly aware that their students are going into combat shortly after they complete their training.

And that leads you directly to the motivation that allowed them to ignore or overlook the warnings of their normally good judgment. Having seen combat, they realize the restrictions of a stateside training program often make training flights seem unrealistic. The instructors cannot overlook their students' need for maximum experience in realistic situations before the chips are really down . . before someone is shooting at them.

Their eagerness to provide the most effective and productive training prompts them to lead students into situations they sometimes are not prepared to handle. Or situations that violate stateside flying rules.

Certainly we must make our training as realistic as possible. We should review it regularly to see if we can improve it. But we are defeating our purpose when instructors demonstrate questionable judgment, violate regulations, disregard authority.

. . . or when the student is killed!

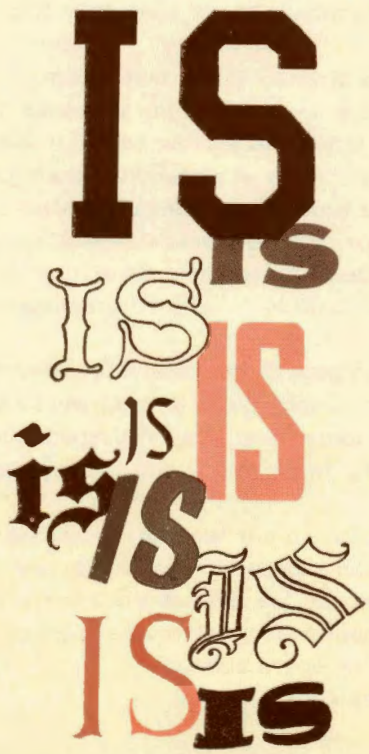
SECOND OF A SERIES...

COMMUNICATIONS

Reprinted from Kaiser Aluminum News

THE TROUBLE WITH IS, IS IS

If we were to track down and corner in its lair what we believe to be one of the chief causes of problems in everyday communications, we would describe it as the misuse of the word . . .



Behind the unqualified use of the word "is" lurk a number of assumptions, each of which can lead to trouble. (We use the word "unqualified" because there certainly appear to be places in our common speech where trying to avoid using the word "is" is . . . see? . . . not worth the effort it takes.)

So what's so bad about "is?"

For one thing, what we consider "bad" are the many ways in which it can be misused in everyday speech:

"It *is* good . . ."

"He *is* lazy . . ."

"That *is* a rock . . ."

all have one thing in common. The "is" implies that we are describing something "out there" that has a certain quality . . . goodness, laziness, or rocklike . . . which exists independently of our personal experience of it. And the next implication is that you must agree because "obviously" that is what it is. But what we really are describing is an internal experience* which may have validity only for us.

One way out of this dilemma may be to say:

"I *think* it is good . . ."

"I *believe* he is lazy . . ."

"It *looks to me* like a rock . . ."

or, if we don't actually say it out loud, we can at least think this way to ourselves, as a reminder that what we describe is not "out there" but an experience inside ourselves.

**See Don Fabun's article in last month's issue: "How Do We Know Something to Communicate?"*

TAC TIPS

TAKES TWO

The phlyers had completed their rocket, dive, and skip events on the range. The aircraft commander had cleared his multiple weapons control panel ... but he left the Station Select on inboard wing. Next time around the pattern, he set up for strafe and placed Master Arm to Arm. Then, after lining up ... getting the picture he wanted ... he pressed the bomb pickle instead of the stick trigger!!

That's right, the rocket launcher smartly jettisoned from his wing!

It took two goofs to make this one. Maybe the AC was a bit rushed. The unit involved has enlarged the range pattern a bit to allow student crews that extra few seconds while they're getting to know the hardware.

THE BRAKES

The C-123 pilot was number two in a flight of three for formation training. When the formation landed at an auxiliary field, his right main tire blew out. Approach and touchdown had appeared normal and the pilot had been briefed not to use brakes.

When it was all over, he said he had not intentionally applied brakes. But the blown tire had a large flat spot that was worn completely thru. He had been doing some fancy rudder-wobbling just before touchdown to keep it pointed down the runway. Number One's wake had been more turbulent than he expected.

Only possible conclusion is that he worked his boots up onto the rudder pedals without realizing it.

ABORTS AGAIN

When the F-104 pilot lit burner after brake release his nozzles, RPM, and EGT all looked correct and proper. But as he reached his 2000 foot acceleration check, he was about five knots short of the 122 he had computed. He felt the bird "did not appear to accelerate as it should." By the time he made the decision to abort, he was whistling along at an impressive 160 to 170 knots!

Even with the chute out, he saw he wasn't going to stop before the barrier. He was mighty close to it when he got his hook down. The bird failed to catch the BAK-9, brushed across the webbing, and stopped in the dirt about 1200 feet beyond the barrier.

Late abort decision, even later hook deployment, and a seat-of-the-pants approach to the whole thing set this one up.

WHERE'DITGO ?? WHERE'DITGO??

After a nice landing about 1000 feet in from the threshold after a night GCA approach, the F-100 pilot realized that his drag chute had failed. Nothing too unusual, he tried some aerodynamic braking because the runway was kinda wet. Rolling down the runway, he turned his radio to tower channel and started anti-skid braking. The bird must have been hydroplaning, because his braking efforts didn't seem to be doing much for him.

When he had 2500 feet left to go he thought he could turn off safely.

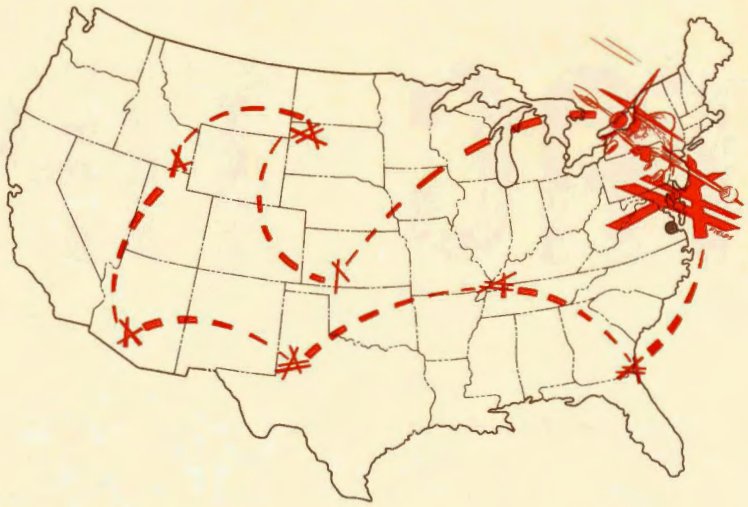
At 2000 feet he realized he couldn't!

He would need the barrier ... but he had trouble finding the tailhook button in the dark. He wasn't exactly sure where it was supposed to be. When he saw he was going off the end of the runway he started to turn off the anti-skid ... but decided to punch off his stores instead. Up to this time, the busy pilot had made a total of four transmissions on tower frequency.

The airplane came to rest against a fence with nose wheel collapsed, after crossing the perimeter road. It suffered substantial damage.

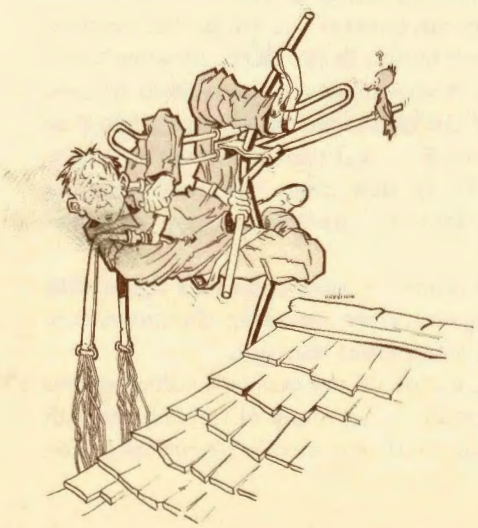
Lack of illumination on the tailhook button helped this pilot's confusion ... and lack of familiarity with his cockpit ... snowball into a truly preventable accident.

Surveys Of Places



Humor and accidents are seldom close companions. Normally, the loss is too great. However, if you could travel with TAC's safety survey team, you would occasionally come across a hazardous situation which would bring a chuckle. But unfortunately, it usually camouflages a serious accident potential.

One such occurrence resulted when a Combat Control Team member was preparing to jump into a postage-stamp-size drop zone. His equipment was the best



available . . . including that big, beautiful (?), air-conditioned C-130. His training . . . possibly the toughest in the Air Force. These men are taught to react to signals like machines. Absolutely no hesitation. Nerves like steel. Give them a green jump signal and out they go!

As the aircraft reached the slow down point, the crew lowered the rear ramp and the Ramp and Door light came on. Guess what? The Ramp and Door is as green as the Jump light! Out the jumper went . . . two miles short of his intended point of impact. Perhaps some of us should start thinking about changing the color of the Ramp and Door light.

A mistaken green light is not the only way to spread jumpers all over the countryside. More often than not, it occurs when Good Ol' Nav gives the signal . . . and then finds that he computed his air release point using the wrong impact point. Complete preplanning and mission oriented briefings are still the best methods of insuring a successful mission.

Two of the team recently were making a night GCA in a T-bird. On turn to base they suddenly received two different sets of instructions simultaneously. Again, and then a third time this clutter continued. Finally one of them broke in to tell the controller that the whole issue was becoming thoroughly confused. The ensuing silence lasted about ten seconds followed by a frequency change . . . at turn to final. Later investigation revealed a bad antenna that allowed Approach Control transmissions to be broadcast when the GCA mike was activated. (This one we don't think of as humorous)

While talking to a crew recently returned from a resupply mission in Central America, we came across a potentially serious problem. The situation arose when the crew approached the airfield servicing the capital city of a small Central American country. The tower operator told them the airfield was below minimums. Since the bird had ample fuel, and the tower operator promised that the scud would soon lift, they decided to orbit.

Three hours . . . and about 8,000 pounds of fuel . . . later, Tower was still calling the field below minimums. Moments later a civilian airliner made an approach and landed. Using all the cool he could muster, the pilot politely asked Tower why he had permitted that landing. The tower operator replied that he would accommodate them, as he had done the airliner, by declaring the field open . . . even though the strip was in fact below minimums. Thanks a lot . . . but no thanks!

All the goofs by no means occur in the air, as we found by visiting an engine shop at one of our east coast bases. We found a young airman using a high speed drill. The drill and its wire were in fine shape. It even had a three-prong plug. But the grounding prong had been filed down so that it could be used with a two-wire receptacle! When we asked "how come?", the airman replied that it really wasn't as bad as it looked, because he had just "borrowed" the drill. He was shocked to learn that others have been killed using borrowed drills that were not properly grounded.

See you next month . . .

LT COL BEN B. BENIGNO
Chief, TAC Safety Survey Team

Recognition

CREW CHIEF OF THE MONTH

Staff Sergeant James L. Littau of the 27th Tactical Fighter Wing, Cannon Air Force Base, New Mexico, has been selected to receive the TAC Crew Chief Safety Award for the month of January 1967. Sergeant Littau will receive a letter of appreciation from the Commander of Tactical Air Command and an engraved award.

MAINTENANCE MAN OF THE MONTH

Staff Sergeant William Wilson of the 4525th Fighter Weapons Wing, Nellis Air Force Base, Nevada, has been selected to receive the TAC Maintenance Man Safety Award for the month of January 1967. Sergeant Wilson will receive a letter of appreciation from the Commander of Tactical Air Command and an engraved award.

pity the visiting fireman

...or, Does Your Show Really Tell??

by SSgt Frank P. Nollette
USAF TFWC, Nellis AFB

Would you fly the back seat of a supersonic fighter you'd seen only in magazines or news reviews, after this briefing?

"Yeah, Charley, I think you'll like this bird. 'Member the way the seat works in the T-bird? Same with this one ... 'cept you'll have to remember to pull the kit handle after you get out. If we have to get out on the ground, pull the kit handle, leap out, and make tracks. Questions? ... Good, let's press on!"

Unfortunately, that is a direct quote, overheard in a squadron ops room. The players? A Command Pilot briefing a Senior Pilot for a one-time, visiting-fireman ride in the back of one of TAC's finest machines.

How about the multi-fan driver who briefs his passengers with a quick:

"Keep your belts fastened on takeoff and landing; no smoking at those times; if you hear the bell, tighten your chute, head for the back door, pull the ripcord when you're clear of the aircraft ..."

Let's backtrack to the first episode. In this instance, Command and Senior had flown together "way back when." Command assumed Senior was hep to the modern systems, now so commonplace to Command.

Obviously, Senior has enough experience to rate a star over his wings, but that won't help much if the last ejection seat he saw was in a Fly Safe movie, and he hasn't found a C-130 with an ejection seat since he started flying them four years ago.

Does Senior know when to deploy his survival kit? Does Senior know he had better not pull the kit handle during ground egress if he's standing up, since it'll give him a life raft pounding at his nether parts? And does Senior know the raft will be ATTACHED to him?

And in the big multi-fan transport types, do your passengers know where the exits are, or are you assuming they'll find them when they see all the bright markings? Do they know what to do once they're out of the aircraft ... either in the air or on the ground? The last time you rode in the aft compartment of a Hercules or Gooney-bird, did you look around and spot the exits? Chances are, unless you've been in a bash before, you didn't. So how can you expect the one-time passenger to do it?

The extra three or four minutes you spend pointing out exits, escape aids, appropriate handles

and procedures, will do a lot for his confidence. It could mean the difference between a statistic and another member of the Caterpiller Club. You don't have time for a show-and-tell session with the passenger(s)?

MAKE THE TIME!!

It doesn't have to be a long discourse on the functions of the systems, or the aerodynamics of a falling body beneath a canopy. But the essentials should be clear-cut to the ultimate user.

Got your Dash-One handy? Flip it open to the emergency procedure section. Voila!! Instant Lesson Plan!! Pick out the key points and pass them along to your visiting fireman.

Check yourself for these four simple points:

- Does my passenger know what to do or am I assuming he knows?
- Do I give a show-and-tell briefing or just a tell type?
- Do they (or he) know what to do after the escape/egress?
- Would I fly in a strange aircraft after the briefing I just gave?

The man in back is depending on you for a safe, secure flight, but if the bird double crosses him, give him a break. It could be YOU in the back seat some day!

LOOK ... Before You're Leaped Upon

Not long ago a TAC pilot, feeling secure under radar control as he approached his home base, was momentarily terrified when he looked out the front window of his airplane. There, almost directly in front of him, almost filling his windshield . . . was a civilian sport parachutist!

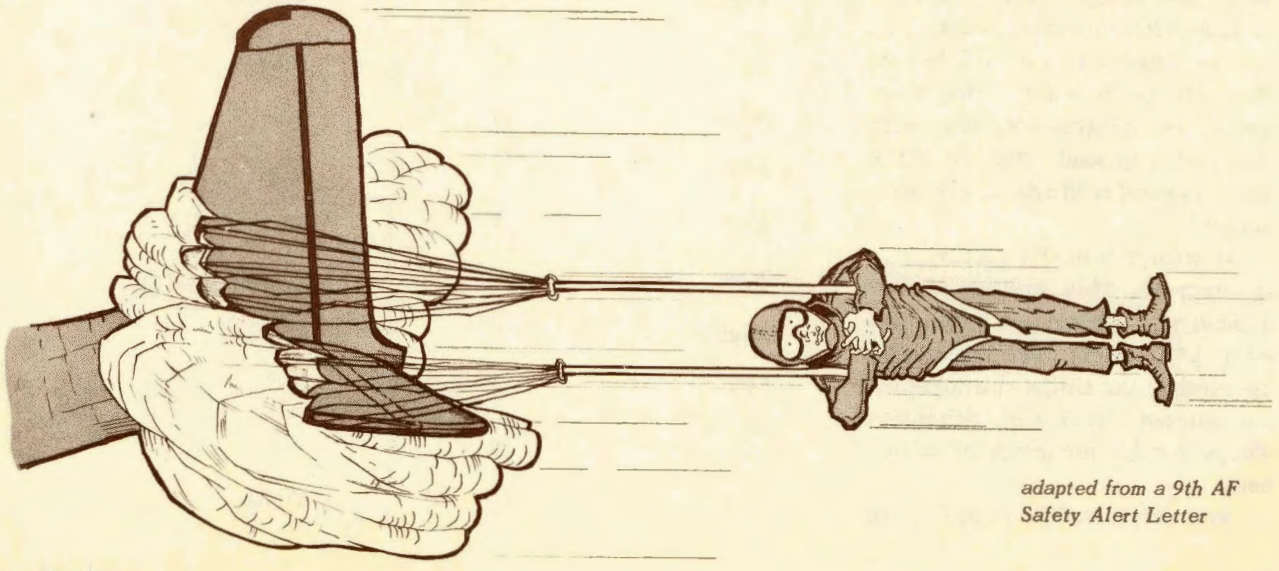
Later, after the catastrophe had only narrowly been averted, the home base folks did some checking. Sure enough, they found the approach route this pilot had been following drove right through an established jump area. To their utter dismay, they learned when they did further checking in the Airman's Information Manual (AIM, for short), that there were eleven designated jump areas on, or within five miles of, their low level routes. There was one in their Military Climb Corridor!

If you haven't checked recently, don't wait for an experience like this before you break out the AIM. Sure, it's a civilian manual, but it contains goodies the Enroute Supplements and FLIP Planning sometimes omit . . . like where to expect sport 'chutists!

Take a look at the radius of their jump zones, the approaches, altitudes they use, and when you can expect to see them out there. It's all in the book.

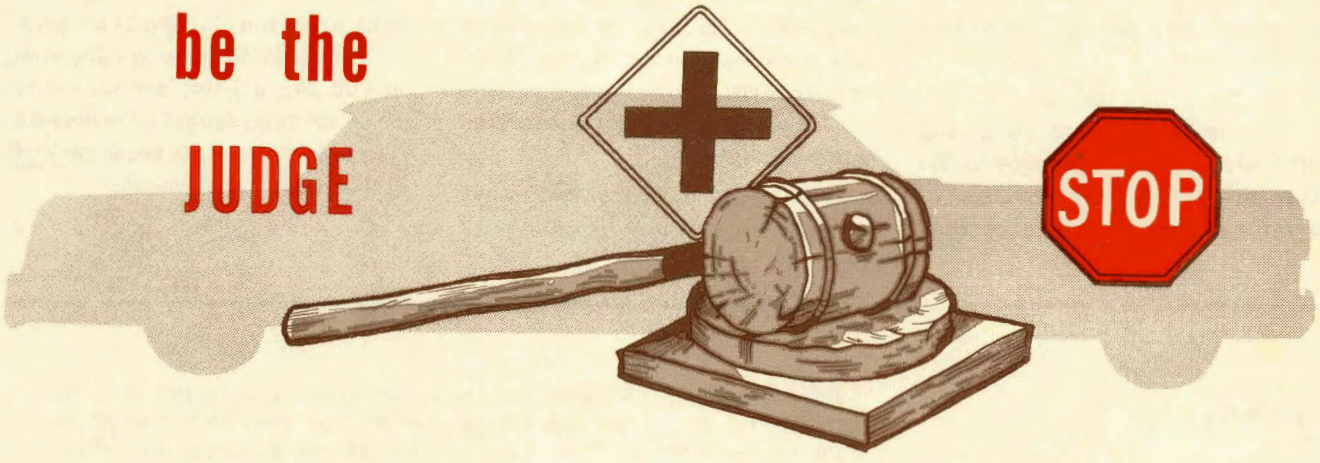
Then, it might be a good idea to get in touch with these jumpers . . . they're aviation enthusiasts, too, and happy to coordinate on common problems.

Now . . . you're ready to call all the aircrews in the outfit together . . .



adapted from a 9th AF Safety Alert Letter

YOU be the JUDGE



by LtCol Carl E. Pearson
Chief, Safety Publications
Hq TAC

"They didn't have to die," the State Highway Patrolman snapped his notebook closed, sorted out his accident reports on his clipboard and continued, "Throwing your life away just doesn't make sense . . . and this one's pretty typical."

"Here's a couple of young airmen, barely out of their teens, out on the town. They've had a few beers too many . . . driving back to base after the joints close . . . and in a hurry to get back before they all go to sleep. The beer, speed, and fatigue catches up with 'em. Look around. The end of the story is scattered around the landscape."

It wasn't a pretty picture . . . it never is. This was the kind of a bash that makes you think back over your own close ones. You remember the times you dozed off . . . almost fell asleep. You think: There but for the grace of somebody . . .

You drive slowly, soberly, and with seat belts fastened . . . for a couple of days.

My scene-surveying and soliloquizing was interrupted by the Highway Patrolman, "And in spite of all their other mistakes, seat belts would've kept them alive. They'd be hurtin', but they'd still be among the living. The interior of that car is in good shape. If

TAC FATALITIES (POV) 1966

GRADE DISTRIBUTION

GRADE	NO.	GRADE	NO.
A3C	12	2 Lt	1
A2C	19	1 Lt	1
A1C	7	Capt	0
SSgt	9	Maj	1
TSgt	0	Lt Col	1
MSgt	0	Col	2
SMS	0		
CMS	0		
TOTAL:	47	TOTAL:	6

they had only stayed in it ... How can people be so stupid?"

Seeing the blue suit he added, "If you're smart enough to send people to the moon why can't you get them to drive sensibly ... and wear seat belts?" With that parting dig he left.

I'm glad he did. I didn't have any answers . . . right then.

His comments about Air Force types being something less than smart still rankled me on the way to work the next day. Not just anybody can serve in the Air Force. He should know that! He couldn't handle some of the jobs these "kids" are holding down.

All you have to do is give Blue Suiters all the facts. Their native intelligence and common sense takes it from there. They're smart enough to figure it out for themselves.

So, I decided an appeal to your common sense was the route to travel.

Read on . . . you be the judge!

THE BIG PICTURE

Take a look at TAC's recent history of privately owned vehicle fatalities.

It's pretty grim.

In 1964 we lost 33; in 1965 it jumped to 47 lives; in 1966 we suffered the loss of 53 TACmen. We lost them in 51 accidents . . . two accidents resulted in multiple deaths. Forty-one were drivers and 12 were passengers.

Seven motorcycle accidents accounted for seven deaths. Two-wheelers make up 2.5 percent of TAC's registered vehicles and contributed 13 percent of the POV fatalities.

These figures do not include deaths or injuries incurred by civilians in either the primary or secondary vehicle. Tragically, this all-TAC problem is spiralling rapidly upward!

For your info and comparison: TAC aircrew losses in flight accidents in 1966 totaled 45.

WHO'S INVOLVED

TAC fatalities in POV accidents ranged from senior officers to our most junior airmen. A look at the table below shows the grades involved in TAC fatalities in 1966. The 11 percent of the total suffered by officers approximates the ratio of officer to airmen in TAC. Forty-seven of the fatalities were staff sergeants and below . . . airmen second class were hit the hardest. Well over half the fatalities, 31, were in the first two grades.

The senior NCOs did an outstanding job . . . and deserve a pat on the back. Now, if they could only impart some of their driving wisdom, maturity, and experience to the junior airmen.

Fatalities by age groups followed the pattern suggested by the grade level distribution. The heaviest concentration appeared in the 18 thru 22 year groups. They accounted for 64 percent of TAC's fatalities. The 21 and 22 year groups were hardest hit . . . they represent one-third of the fatalities. This suggests that the freedom to buy alcoholic beverages that goes with the magic number 21 carries with it a price to pay. Instant maturity is not a certainty on the calendar day that legally makes you a man.

It was a surprise to find the 26-year-olds suffering four losses. Comparing it to the 1000-hour pilot, 26 must be the age of car complacency. The over-40 group, with life just beginning, was involved in about 10 percent of the losses. With them it appears that slowing reaction times and failing vision are starting to take their toll. The 30 to 40 age group is the best, but there is no permanent guarantee for the "middle ages." Their exposure to hazard is real and continuing. But the figures suggest that the defensive driving ability of the 30 to 40 year group is highly developed.

TAC FATALITIES (POV) 1966

CALENDAR DISTRIBUTION

MONTH	SUN	MON	TUE	WED	THUR	FRI	SAT	TOTAL
Jan	2						1	3
Feb			1	1			1	3
Mar		1					1	2
Apr	1						1	2
May	3	1						4
Jun		2			1	1	3	7
Jul	3					2	1	6
Aug		2	1		2		1	6
Sep	3				2	1		6
Oct	3			1		1	1	6
Nov	1	2	1	1	1	1		7
Dec		1						1
	16	9	3	3	6	6	10	53

WHEN DID THEY OCCUR?

Let's look at the distribution of TAC fatalities thru the months of the year and the days of the week. Fatalities start to climb in May and continue at a high rate thru November. June and November, with seven deaths, are the highest months in TAC history.

Understandably, the weekends have been hard to live with (should we say . . . in?) Monday accidents are mostly weekend travelers returning after midnight. Friday night thru Monday morning accounted for three-fourths of TAC's fatalities throughout the year. Makes you wonder if you should really TGIF.

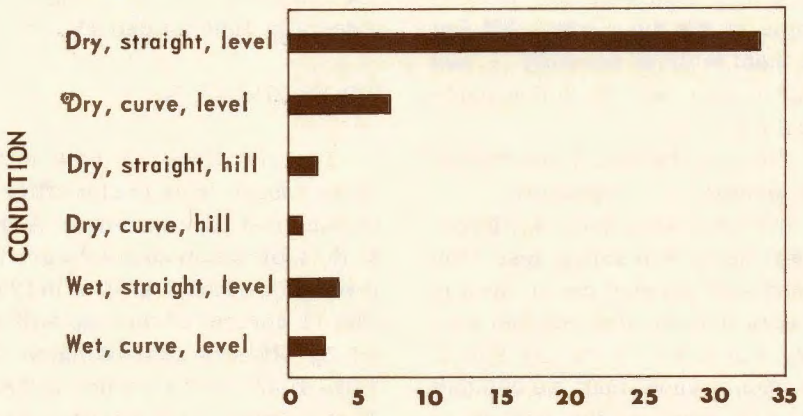
Examining the time of occurrence, it's apparent the hours of darkness took their toll. The period from 2030 to 0430 hours registered two-thirds of TAC's fatalities. Coincidentally, the hours of darkness reduce driver visibility by about two-thirds. The two hours after midnight tallied 30 percent of the total. They are the most hazardous hours in TAC's POV day.

TAC FATALITIES (POV) 1966

DISTANCE FROM BASE

DISTANCE	NO. OF ACCIDENTS
On Base	2
0 - 2	1
2 - 4	4
4 - 6	4
6 - 8	5
8 - 10	4
10 - 15	3
15 - 20	0
20 - 25	1
25 - 50	11
50 - 75	4
75 - 100	1
100 - 150	0
150 - 200	2
200 - 250	0
250 - 300	1
300 - 400	1
On Leave	9

TAC FATALITIES (POV) 1966
ROAD CONDITIONS



WHERE DID THEY OCCUR?

The majority of TAC's fatalities occurred close to base. Two-thirds of the fatalities happened within 50 miles. Forty-three percent were within 15 miles.

Nine of those killed were on leave. Two were on weekend pass . . . operating at long range. One traveled 285 miles and the other 354 miles on a two-day weekend. Neither left enough time to get back and both were fatigued before they started their return trip.

When you look at this distance table, think about 66 percent of the fatalities occurring within a 50 mile range. These are our most dangerous miles. Also, think about your habit of not using your seat belt for that short haul . . . it's just a couple of minutes away. So is a bash!

In thinking about where our accidents happen, we also looked at road conditions. If you've been thinking that poor roads, curves, rain, snow, or ice are the problem . . . you're wrong! Two-thirds of the fatalities occurred when the road was dry, straight, and level. Only 14 percent of the accidents involved rain and reduced visibility with a slick road surface . . . and less than half of these were on curves. The primary hazards to navigation were reduced visibility at night and impaired driver capability.

That long, straight highway is by far the most dangerous. It offers several temptations . . . to get there in a hurry and to fall into long-lasting sleep.

WHAT ARE WE DRIVING?

A look at the rolling stock involved in TAC's fatal accidents

is revealing. They were not driving jalopies.

Seven of the accidents were motorcycle crashes. Six of the seven cycles were less than a year old. The seventh cycle had been roaring around for 13 years and was the only mechanically unsafe two-wheeler identified. In five cycle accidents we found that two drivers wore helmets and three did not. The investigators didn't evaluate survival chances of the three without helmets. The only opinion offered suggested that two of them might have reduced head injuries and swung the balance toward life by using helmets.

Eighty percent of the cars in TAC fatal accidents were seven years old, or less. Over one-third of the cars were less than one year old! Only two of the vehicles were labeled as mechanically unsafe . . . and it wasn't the one car that was eighteen years old!

Borrowed cars create special problems in fatal accidents. Over one-third of the cars belonged to "other people." This makes you wonder how much experience or lack of familiarity with the equipment was involved in the bash. Every car has its little differences in handling, response, and roadability. Just moving up or down in horsepower requires the driver to adjust lead time and planning as he drives. What may be a small deficiency in brakes or steering to the regular owner can cost the life of the borrower.

The compact-size car figured in forty-five percent of the fatal automobile accidents. In some instances the compact was pushed beyond its safe operating limits. The small car has many advantages to offer the driver in a controlled environment. But the high speed collision or loss of control at turnpike speed does not offer much hope to occupants of a compact. Recognize the limitations of the compact and don't start slugging it out with the big boys!

HOW DID IT HAPPEN?

What caused TAC's 53 fatalities in 1966? The cause factors aren't simple, direct, and easy to identify. The complicated combination of man, machine, and operating environment makes true or single cause identification a difficult, sometimes baffling, problem. However, careful investigation has identified common factors in the majority of TAC's fatal accidents.

When you list these factors they start lumping in the areas indicated below. There are more factors than accidents because most accidents result from a combination of factors.

Here's the sad story. There's not much left to say.

Single car accidents were responsible for over half of the fatalities. The great majority followed an identical pattern: Late hours, high speed, the depressing effect of alcohol, and loss of control. Most of the cars left the road with the driver sound asleep . . . never to re-awaken. Or the driver lost control momentarily when there wasn't maneuvering room to avoid an obstruction.

Two and three-car collisions accounted for 16 fatalities and included the same cause factors. The car encountered on-coming traffic before it left the road with the driver asleep . . . or out of control. In one instance the car struck two cows on the highway. The cows weren't visible until he topped a rise . . . at 90 miles per!! The legal and safe speed was 45. At that speed he could have stopped or gone around in the space remaining . . . if his alcohol-dulled faculties were still capable of reacting.

CAUSE FACTORS	NO.
Speed	39
Alcohol	34
Fatigue	26
Inattention	5
Emotional Problem	5
Other Vehicle	5
Mechanical Failure	4
Inexperience	2
Weather	1
Carbon Monoxide	1
Self Medication	1

SEAT BELTS, HOW GOOD?

The seat belt story is the saddest part of all. Completed investigations are available on 43 of the fatal accidents at this writing . . . enough to establish the pattern. Out of 41 vehicles involved in the 43 deaths, seven cars were not equipped with seat belts. That leaves us 34 seat-belt equipped cars. In the 34 cars that had belts, only four sets were being used.

The accident reports on the 43 fatalities contained the following conclusions on seat belt effectiveness: 23 lives would have been saved; 14 accidents were non-surviveable; 6 could not be determined.

Twenty-three TACmen killed in automobile accidents in 1966 did not have to die!

That's the story. It's an appeal to the thinking man. All the facts you need are listed.

YOU BE THE JUDGE!

HEY RUBE!

L/Col Carl E. Pearson
Chief, Safety Publications
Hq TAC

"Orville, I've been thinking about the design of our airplane of the future."

"Aw c'mon, Wilbur, we've just gotten off the ground with this one. The neighbors are talking to us again. It's been a week or two since someone suggested we see a head shrinker. Let's leave well enough alone and fly it like it is for a while."

"But Orv, if we could figure out a way to move the undercarriage up and down in flight. I'll bet you a new straw hat we can reach a sizzling 30 mph."

"That's a cinch, Will, just hang a pulley on the tail. Run a rope over it and tie the undercarriage to one end. At the other end we can tie a big weight. When we want to move the undercarriage, kick the weight off the back end of our heavier-than-air aircraft."

"You're right, Orv! That'll work. Let's try it!"

"Will, you're out of your linen-picking mind! I was kidding. They'll really ship us off to the funny farm if you tell folks about this one!"

"I don't know about that, Orv. If we cut a hole here, pass a chain thru there, run it over a pulley up there, fasten it here and hang a weight on it there, then kick it off the back . . ."

How many of you are betting on Wilbur? We were on Orville's side . . . he had to be kidding. How could you expect a Rube Goldberg contraption like that to move landing gear?

Time, and an ingenious C-123 crew proved us wrong. And again, Wilbur proved himself to be a man of genius with a gift of prophecy.

A Provider crew in SEA came up with rare inventiveness born of necessity, a reward for perseverance, and the joy of a comfortable fuel reserve. Fighter types will shake their heads in disbelief. How can any bird have a fuel reserve that allows this kind of in-flight modification to get a wheel down . . . four and one-half hours later?

It all started with the C-123 pilot calling, "Gear down," as he rolled out on base. In the space of a few seconds he saw a red light and a barber pole where a nose wheel should appear. The main gear came down OK. With 4600 pounds of petrol, he set up max endurance power and put the crew to work on the no-good nose gear.

They ran thru a full assortment of normal and emergency procedures from the Dash One. They pulled and tugged on the nose gear uplock release handle without success. About the third time thru the flight manual the handle separated from the uplock release cable. Tired of all the pulling and hauling, the cable disappeared behind the bulkhead . . . safe for a time.

The pilot radioed for professional maintenance advice. Maintenance Control came up and suggested they chop a couple of holes in the gear well bulkhead. They reached the cowardly cable after some fancy fire-axe work and tied a nylon cargo strap to it. Mustering all available hands, they gave it the old heave-ho. The nose gear didn't budge. They lost the tug-of-war with the uplock. Now they realized that brute strength with cunning was the answer.

They tied additional cargo straps together and routed them from the uplock release cable, thru floor tie-down rings, to a tie-down point on the aft cargo ramp. After snugging it up with a chain ratchet, they stood back to watch the results of their handiwork. Hopes high, they lowered the hydraulically-powered cargo ramp . . . and stretched the cargo straps three feet!

That kind of stubborness suggested a hydraulic lock was foiling their efforts to release the uplock. A search of the flight mechanic's tool bag turned up a couple of wrenches that fit the nose strut actuator hydraulic couplings. They

disconnected the up and down lines to the actuator and tried again. The cargo-strap-to-cargo-ramp combination failed again. The uplock held!

Now hours later, but still undaunted, our persevering Providers moved on to Plan Y . . . saving Plan Z as a last resort. The cargo straps with the live-action stretch were replaced by 10,000-pound-capacity cargo chains they had borrowed from their spray tank tie-down. The gang of chains followed the same route from nose gear uplock to rear cargo ramp thru the cargo tie-down rings on the floor.

Almost afraid to face another failure, the loadmaster moved the cargo ramp selector lever to the LOWER position. It worked! The stubborn uplock surrendered and the nose gear fell free. The gear position indicator changed from barber pole to wheel down and locked. With a sigh of relief they installed the ground lock pin for insurance.

Four and one-half work-filled hours after his first landing attempt, the pilot made a strictly routine landing. The sweat was over. Waiting maintenance troops found problems in the inner workings of the nose gear hydraulic actuator. That explained why normal operation wasn't normal. Why had the emergency system failed? . . . the emergency release cable was one and one-half inches too long!

No one was really certain when the emergency gear extension system was last checked. Everyone had assumed it would work when they needed it. To avoid the future problems that assumptions lead to, quality control decided to require checking the emergency release, gear free fall, and emergency retraction on all FCFs.

Certainly can't argue with that decision. Proving emergency gear extension systems at periodic intervals makes good sense. Somehow, we thought we were checking emergency system reliability all along. You can't depend on a four and one-half hour fuel reserve for inflight repairs every time.

Somewhere off in the shadows is a barely audible conversation:

"Orv, I sure wish Plan Y hadn't worked for them!"

"Aw c'mon, Will, they knew their job, used their heads, didn't give up. They deserved to win. Why make them go to Plan Z?"

"Orv, this has bugged me all these years. This was my first real chance to prove to you I was right. Now, if they had tied that spray tank on the end of the chain and kicked it off the cargo ramp . . . I would've gotten credit for the idea instead of Rube Goldberg!"

CHOCK TALK

there's a difference

When the F-105F landed at home base after a cross-country flight, the pilot in the front seat couldn't get the drag chute handle to come out. He had landed about 750 feet down the runway, and about the time they were 2800 feet down the runway, their right main wheel froze and started burning rubber. It finally blew at 3200 feet.

After quickly turning off anti-skid, the pilot managed to keep the big bird pointed down the runway thru some skillful use of left brake and nose wheel steering. They came to a stop 3000 feet from the end with half of the right brake ground off.

The condition of the brake made it impossible for investigators to learn what had caused that problem, but they soon found out what was the matter with the drag chute. The one they found in the compartment was designed for an F-105B. There's a difference!

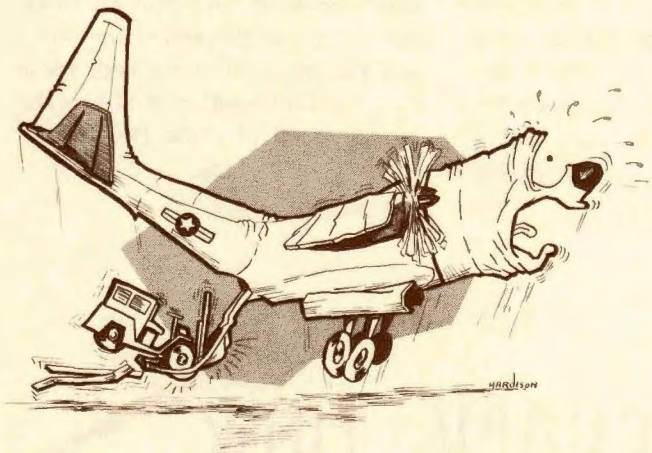
Proper inspection by supervisors and complete operational checks can eliminate this kind of failure. But better yet, let's brief all our Transient Alert types that the drag chutes for B and F model '105s are not interchangeable.

materiel failure

The Provider pilot checked power balance about 15 minutes after takeoff. He puzzled over the spread between number one and two . . . five inches MAP and nine pounds of torque pressure. After five minutes of normal lean cruise, number one started shaking on the mounts. This forced a quick abort decision and he requested straight-in clearance to an alternate. He feathered number one on final when torque dropped to zero and oil smoke appeared.

Engine specialists found the exhaust valve rocker arm and intake pushrod broken in number three cylinder. They submitted a UR requesting metal analysis to determine why the broken parts in an engine with only 230 hours since overhaul.

With that much time on the engine local engine conditioning procedures may be the real problem.



short, not sweet

The report was curt and to the point:

Fork lift being loaded on C-130. Aft wheels of fork lift left lead-in tracks and fell on aircraft. Skin damage to aircraft ramp, right of center dual rail. Man-hours to repair, 36. Crews being re-briefed to monitor all loading operations more closely.

Doesn't leave much more to be said, does it?

unwanted overhaul

When the F-100 pilot returned from a training mission, he pulled off the runway into the dearm area. His guns safe, he pushed the throttle up and started to turn into the taxiway. Once he was rolling, he pulled the throttle back to idle . . . and received the shock of his life!

His trusty J-57 flamed out!

A little checking after the airplane was towed back to the ramp revealed that the idle detent was out of adjustment. When the throttle was overhauled, the detent had been left binding and misaligned on the throttle quadrant.

By some happy coincidence, the pilot had not pulled his throttle to idle during the one-plus-twenty that he was airborne.

gently, with feeling

Shortly after takeoff the F-100 pilot noticed a binding in fore and aft movement of his control stick. Handling it gently, he managed to get it around the pattern and on the ground without further incident.

When Quality Control investigators dug into it they found the left elevator cable was misrouted and binding on a bracket. The aft section had been pulled the day before this flight. During either removal or re-installation, slack in the cable allowed it to catch on the bracket.

The supervisor who inspected and signed off the aft section installation was "counseled" on his responsibilities.

oversized orifice

As the Gooney Bird started her takeoff roll on a night transition ride, the IP heard a strange chattering coming from the hydraulic regulator valve. He made a quick selector valve change to his alternate source. In the process he felt and smelt the hydraulic fluid oozing from the regulator valve fittings. He chopped power and aborted the takeoff. The IP accepted a tow back to the ramp . . . no brakes.

Maintenance troops found the pipe assembly to the regulator valve cracked around the flared end. They knew the vibration cracked the pipe flare, but had to dig deeper in finding the reason for the chattering. They were sharp and discovered an oversized orifice in the regulator valve. When they installed a new regulator with the proper orifice the pounding in the plumbing stopped.

Through the years most of the hydraulic system components had been replaced on the old Goon. They submitted a quality control deficiency report on the hydraulic pressure regulator that started the chatter.

Does your Gooney Bird have a new song? Could be whistling thru an oversized orifice!

wrong handle

The F-100 parked for the night at a many-motor base, with an electronics write-up that required attention. Transient Alert asked a radar specialist from the field maintenance squadron to check it over. The A1C who responded to the call found the canopy closed. He had walked all the way around the airplane . . . trying to find a way to get in . . . when he spotted some instructions stenciled on the fuselage. He followed them carefully.

With the canopy open, he went about his business, cleared the discrepancy, and returned to the shop.

It wasn't until one of the transient alert troops went back out to the airplane that they learned what had happened to the canopy. The radarman had jettisoned it! Somehow, it had come to rest in the normal open position.

The outfit involved took a look at their procedures with transient aircraft. They decided that in the future they'd escort all specialists while they worked on strange birds.

Although it may seem inconceivable to many of us that anyone could make this mistake . . . we'd probably do even worse if you turned us loose inside a radar set without a little guidance.

shake 'em

On downwind in the gunnery pattern the F-105 pilot opened the doors on his SUU-21A bomb dispenser and a Mark 76 practice bomb fell out!

Just like that!

When the Armament types looked into it after landing, they found that station 3 on the SUU-21A had not been fully locked. The Mark 76 had vibrated loose and released before the doors opened.

The unit has briefed its loading troops to physically shake all Mark 76 and Mark 106 bombs to insure they're properly locked . . .

torque torque

About 50 minutes after takeoff on a night navigation training mission, the C-123 crew noticed torque pressure dropping on Number Two. The flight engineer soon found the engine was losing oil so they shut it down and landed at the closest field.

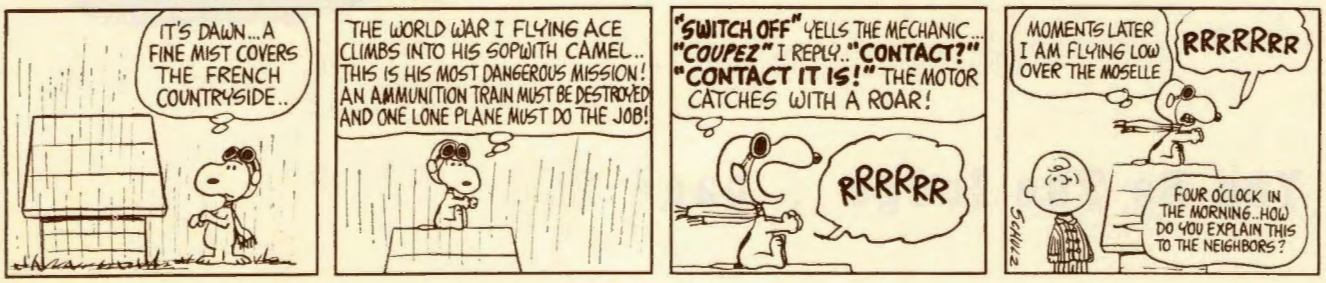
In the investigation, maintenance folks discovered the torque oil pressure pump plug was missing. During maintenance prior to that flight, the plug had been removed to permit a direct pressure reading from the torque oil system. When the plug was re-installed, it apparently was not correctly torqued.

like late!

As the F-4D crew started to accelerate to run-in speed they noticed airframe vibration . At 480 knots it was heavy and didn't stop until the bird had slowed to 420 knots. The vibrations started again when they climbed away from the target. This time they didn't go away until the bird was down to 300 knots. All this time, both control sticks felt abnormally loose.

When specialists checked it out on the ground, they bled air from all the hydraulic systems!

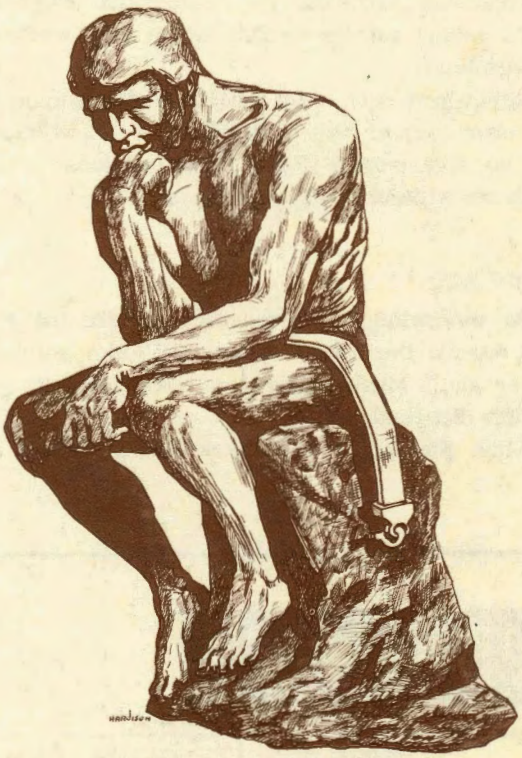
PEANUTS



Courtesy of Daily Press, Newport News, Va.

INVESTIGATIONS CONCLUDE :

23 TAC MEN DID NOT HAVE TO DIE !!



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