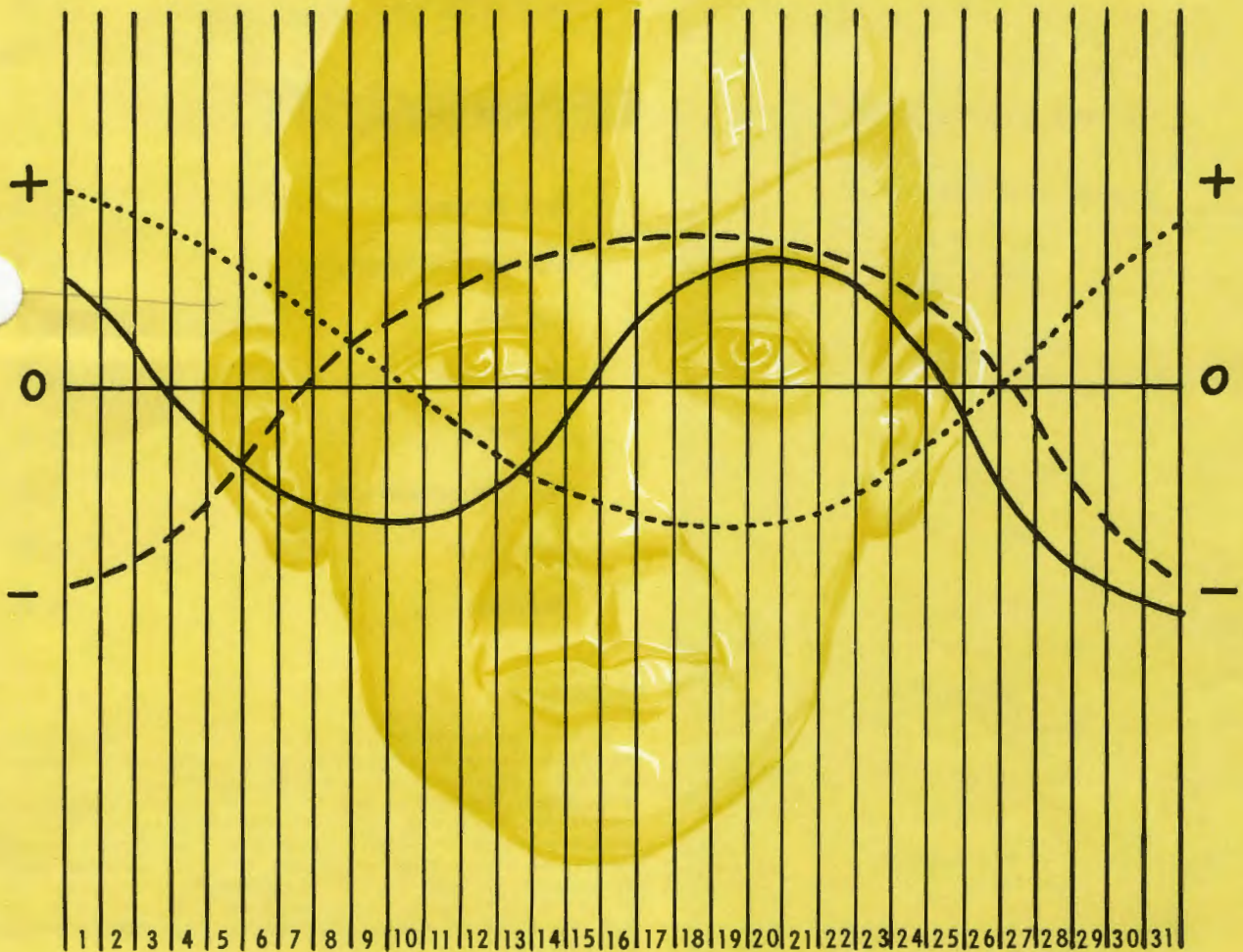


23

TAC ATTACK

MARCH 1972



BIO WHAT ? ...Pg. 16

for efficient tactical air power

TAC ATTACK

MARCH 1972

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CURRENT INTEREST

THE ASSUMPTION TRAP	Pg 4
EXCUSES, EXCUSES	Pg 10
SLUF	Pg 15
BIO WHAT?	Pg 16
COLLISION AVOIDANCE	Pg 20
THE CHANGING FACE OF TAC	Pg 24
NEW LOOK IN AIRCRAFT MAINTENANCE MANAGEMENT	Pg 28

DEPARTMENTS

Angle of Attack	Pg 3
Aircrewmen of Distinction	Pg 7
TAC Tips	Pg 8
SPO's Corner	Pg 12
Chock Talk	Pg 22
TAC Men of the Month	Pg 27
Letters	Pg 30
TAC Tally	Pg 31

TACRP 127-1

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Angle of ATTACK >



THE ROBIN HOOD APPROACH

Are you a thief... an idea thief I mean? If so, welcome to the club; if not, join us... we need you. Stealing good ideas is condoned and cheered. Take the approach-end barrier, for instance. We stole that one from the Navy. And how about SOAP analysis? We stole that idea from the Army who had stolen it from the railroad. We swiped radar from England and the concept of Loran from the Germans. And to take it back a little further, we stole our concept of democracy from Greece who had borrowed it from... ad infinitum.

There are those who feel that if an idea does not carry with it a pride of authorship then it must be "no good." We call that the NIH factor (Not Invented Here). That philosophy carries with it a great impediment to progress in any organization, and should be met with scorn and disgust, and trounced upon firmly.

Good ideas, no matter what the source, are fair game for everybody. They should be given freely and sought with vigor. The "Robin Hood" approach is a good one. There are those who are rich in ideas. Pick their brains and distribute the ideas.

There is no such thing as an old idea. One of the quickest ways to kill an idea producer is to tell him that

"we tried that years ago." So what! If it was a good idea then, it may be a good idea now.

Just think of all the "world-changing" ideas that come spewing forth at Happy Hour. Try to remember some of them (I'm not advocating the use of a hidden tape recorder at beer call; that as an idea is a disaster). Or better yet, jot them down on a bar napkin and stick it in your pocket for consideration on a more sober day. If it still looks like a good idea, take some kind of action... like submitting an 847 or an AFTO 22 or an official suggestion; or just tell somebody about it. You can even write a letter to TAC ATTACK. The point is, get the idea circulating by whatever means is available.

So thieves of the world, do some stealing... but don't forget to share the bounty.

A handwritten signature in dark ink, appearing to read "Gerald J. Beisner".

GERALD J. BEISNER, Colonel, USAF
Chief of Safety

the assumption trap



The weather was 12,000 foot overcast with three miles visibility in haze. The haze was a grainy kind of stuff that diffused the light and cut effective visibility to something less than reported.

The F-101 was making a night recovery after a nav sortie. Nothing particularly unusual about that except the 101 had UHF radio failure and a malfunctioning afterburner to complicate things.

The jock had just completed an ILS approach and had started the landing flare. Suddenly, out of the darkness, an object loomed in front of him. He poured on the power and came in with back pressure, but it was too late to avoid contact with the object . . . a C-97 on takeoff roll.

A two-foot chunk of the 97's vertical tail and rudder was knocked off. The 101 had a dinged leading edge of the left wing and about one-third of the left flap was torn away.

The 97 took the first exit off the runway and the 101 pilot managed to keep the bird airborne and came around

for another try. The second attempt was more successful and the 101 landed on the debris littered runway.

Obviously, the whole story is not there, but enough is there to bring forth questions such as:

Why was the C-97 on the runway?

What were the tower operators doing?

How about the mobile controller; what was he doing?

Was the pilot cleared to land?

The viz was three miles; didn't the F-101 pilot see the C-97 on the runway?

Did the 101 pilot fly a radio failure pattern?

How about the IFF/SIF squawk?

To answer these questions we have to drop back ten and start at the beginning of the flight.

The mission was being briefed as a three ship night refueling mission. Near the end of the briefing, the ops officer came in and told the flight that the refueling mission was scrubbed because of deteriorating weather conditions and that each flight member would fly an individual navigation round-robin mission.

Everybody pressed on for base operations where they needed individual clearances. The pilot of the involved 101 needed an IFR/VFR-OT, 100 nautical mile clearance indicating an hour and twenty minutes for an ETE with an hour and forty-five minutes worth of gas on board.

Taxi and takeoff were normal. Shortly after takeoff, when the jock tried to come out of afterburner, the burner on the right engine remained on until the throttle had been reduced to about 85 percent RPM. This caused the pilot some concern. Consequently, when he broke out on top, he requested and received clearance to leave center frequency in order to contact command post.

He discussed the situation with the command post duty officer and they mutually agreed that while the afterburner was a problem, it did not constitute an emergency. They decided that the mission would be continued until the fuel had been burned down to normal landing weight... about forty-five minutes down the road.

Forty minutes later (forty-five minutes into the flight), the pilot attempted to contact the center on UHF. Contact was unsuccessful despite the fact that the pilot tried a number of preset and manual frequencies, including Guard. With his UHF radio dead, he selected 7600 (radio failure squawk) on the IFF/SIF. Very shortly afterward the right afterburner ignited without the pilot consciously moving the throttle. This led him to believe he had an emergency condition that might develop into a single-engine night landing in instrument conditions. The forecast weather was 12,000 foot overcast with two miles visibility.

A rapid fore and aft movement of the throttle terminated the afterburner light. At this time he selected 7700 on the IFF/SIF and flew over the base at 7000 feet in VFR conditions. His intention was to intercept the ILS final approach course for an instrument approach to the active.

The airplane was equipped with an HF radio and the pilot had a card which listed emergency frequencies. However, he did not turn the radio on; he felt that it would take too much time to get anything accomplished. That may have been true, but the HF radio is a good backup and should be used. TAC Command Post and others on the HF net can provide a phone patch to just about anywhere. It's not the best kind of communication around but at least it's communication. Perhaps his decision not to attempt any HF contact was due to what he saw on the ground and what he *assumed* from that observation.

As he passed over the base at 7000 feet, he could see some emergency vehicles positioned along the side of the runway. He *assumed* they were waiting for him and was surprised at the quick reaction that the 7700 squawk had

brought him.

Actually the emergency vehicles were there for another purpose... they were waiting for another F-101 that had declared an emergency for an unsafe gear indication.

He began a descending turn to intercept the ILS final approach course. During the descent the afterburner ignited a couple of times, further convincing him that his situation was deteriorating. As he turned a base leg to intercept the ILS, he saw the landing lights of another aircraft breaking off an approach. This further supported his *assumption* that the airfield was prepared for his approach and landing.

The airfield knew nothing of his difficulties, except that he was experiencing an afterburner problem. Command Post had alerted the Tower and Mobile of this earlier. The 7600 squawk had not been picked up by any agency. Center radar does not automatically respond to the 7600 squawk unless they happen to be interrogating that specific code. When he changed his transponder to 7700, the center automatically picked up the emergency squawk but took no action until it was too late. They assumed that approach control would take care of it.

The approach control radar did not differentiate between the 7700 squawk and any other mode three squawk. Their equipment was geared to respond to the emergency squawk activated by the emergency position of the IFF wafer switch. The board concluded that the pilot did not have emergency selected on the IFF. Consequently, approach control did not know of the pilot's difficulties.

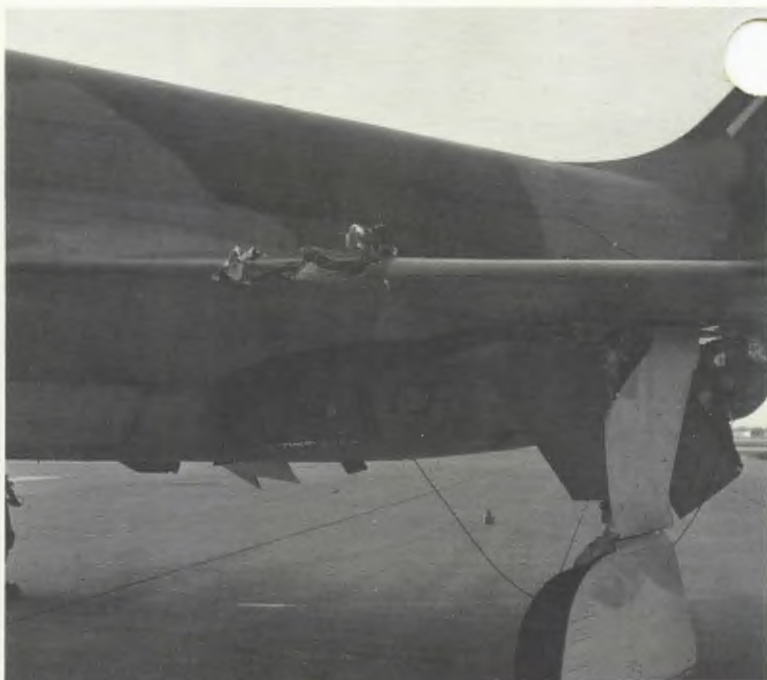
Nobody on the air patch knew that the 101 was on final, yet the pilot was convinced that they were waiting for him. He intercepted the final approach course at ten miles out. The right afterburner ignited again unexpectedly and rapid fore and aft movement of the throttle terminated the light. At a position about five miles out on final, the pilot lowered the gear and flaps and turned on the landing light. The reflection of the landing light in the haze reduced his outside visibility, so he turned the light off.

Part of the reflected light was caused by the viewfinder lens position. It was in the clear position and during night operations the lens, in this position, will reflect the landing lights and approach lights back into the cockpit.

The right afterburner ignited again and he did the trick with the throttle to terminate the AB. At two miles out he saw the runway high intensity lights. At this time he flashed his landing lights a couple of times and left them on. The brightness of the runway lights and strobe lights reflecting against the haze restricted his visibility.

Meanwhile the tower had cleared the C-97 for takeoff. As the 97 started to roll, the tower operator glanced at the final approach zone and saw two dim red lights. Due

the assumption trap...



to the position of the F-101 relative to the tower, the operator could not see the landing light. He grabbed the microphone and told the C-97 to hold his position. Simultaneously, he grabbed the light gun and began sending a series of red flashing lights.

The C-97 had already begun the takeoff roll and was accelerating through about fifty knots. He brought the power back to abort the takeoff.

The 101 pilot had glanced toward the tower several times to get a landing light signal. He was expecting a green one.

There were thirteen red obstruction lights between the end of the runway and the tower, directly in the line of sight between an airplane on final and tower. The pilot, understandably, did not see the flashing red light.

Mobile control was manned and knew about the 101 with afterburner difficulties but had no idea that his radio was out. He heard the tower transmission telling the C-97 to hold position because of an aircraft on short final with unknown intentions. The flare gun was within arms reach and loaded with a red flare. Twenty-five seconds elapsed between the time of the tower transmission and the impact... even considering the variables it should have been time enough to pull the trigger.

The rotating beacon on the C-97 was operating, mixed in with the rotating beacons of ten emergency vehicles positioned near the runway in response to the other emergency. The pilot of the F-101 first realized that another airplane was on the runway when he saw the gray outline of the 97 directly in front of him. As he hit the 97, he felt as if he were going to go through the props.

After the impact the F-101 pilot did an excellent job of keeping the airplane airborne with the amount of structural damage that had been done. At this point he had no chance but to land on the runway, even though it was strewn with litter resulting from the impact.

It's obvious that the pilot didn't get much help from any ground agency, but it's equally as obvious that several procedural errors and assumptions were made by the jock that led him down the path.

He analyzed an afterburner malfunction as an inflight emergency when it was not. Perhaps this apprehension led to the other mistakes.

In the absence of an expected approach clearance time, he should have commenced his approach at the time specified in his flight plan (1 + 20). He began the approach twenty minutes prior to that time.

He did not attempt to establish any kind of HF radio contact with anybody.

He *assumed* that he was cleared to land when he was not.

Apparently he did not squawk emergency on the basic IFF (wafer switch).

But let's stop a minute and consider. It's easy to point fingers and say, "Why didn't you?" or "Why did you...?"

In this accident it's equally as easy to call up an old quote... "There, but for the grace of God, go I."

The most important lesson that we must gain from this accident is one we may have already grasped. But let's make sure. We must all learn and relearn that *decisions based on assumption is a treacherous path to follow.*

TACTICAL AIR COMMAND AIRCREWMAN of DISTINCTION



Capt Leete

Capt Leete



Capt Collins

Capt Collins

Captain Edward M. Leete and Captain Thomas G. Collins of the 548th Special Operations Training Group, England Air Force Base, Louisiana, have been selected as Tactical Air Command Aircrewmembers of Distinction for the month of January 1972.

Captains Leete and Collins were on a long-range ferry mission from Great Britain to Indonesia in a VC-47. They departed Teheran, Iran, en route to the Bahran Islands and climbed to 15,000 feet to assure safe clearance above the mountainous terrain en route. The first 40 minutes of flight were uneventful, then the left engine began running rough. Icing was suspected and carburetor heat was applied; however, the engine continued running rough and started emitting puffs of smoke. Captains Leete and Collins knew that engine failure was imminent, but they were 45 miles from the only emergency field along their route of flight. The mountains in that area ranged from 900 to 13,000 feet high, and the Dash One promised a 7700 foot single engine capability. Because of the

high mountains and the restricted single engine capability, they decided to reduce power on the failing engine and keep it running as long as possible. They also declared an emergency and advised the flight-following agency of their intentions. After just five minutes of partial-powered flight, the left engine began smoking heavily. The crew had no choice but to shut it down. Once the engine was shut down, the aircraft could not maintain altitude and a controlled descent was initiated through the mountain passes. Captains Leete and Collins were able to level their crippled aircraft at 1500 feet above the ground. Carefully selecting a route, they picked their way through the mountain passes and into the emergency field at Isfahan, Iran. A long straight in approach was flown to a safe landing.

The display of outstanding airmanship during a critical in flight emergency readily qualify Captains Leete and Collins as Tactical Aircrewmembers of Distinction.

TAC TIPS

. . . interest items,

quicker than brakes

The IP was in the left seat of the C-130 to give the copilot some takeoff and landing practice from the right seat. A crew chief was acting as the ground controller for engine start while the loadmaster was busy tying down baggage in the cargo compartment and figuring the Form F. The checklist was begun and number three and four engines were started. The crew chief then began rolling the fire extinguisher from the right to the left side of the airplane when the copilot called for "external power and ground wire." The crew chief responded "removed." The IP noted that the external power was still connected and advised the crew chief that the proper response was "removed and clear" and that he should not respond until the checklist item had been completed. The crew chief set the fire extinguisher upright and scurried over to remove the power cart. The checklist was continued and when all engines were started the crew chief came aboard and closed the door.

The IP taxied forward, checked the emergency brakes, and the copilot then placed the brake switch in normal. At that time the airplane stopped as if the brakes had locked. The IP pressed on the pedals a couple of times and noticed a corresponding dip in hydraulic pressure.

The flight engineer thought maybe the nose wheel bearing had failed so he and the crew chief exited the airplane and checked the nose gear . . . it checked out OK, so he and the crew chief went back on board. The crew was unable to determine the malfunction so they shut down the engines and called for maintenance help.

After leaving the airplane, when they looked back toward the main gear, the cause of the sudden stop became painfully obvious. A fire extinguisher was lodged in front of the forward main gear tire.

Just before the crew chief removed the power cart, he

parked the extinguisher just forward and to the right of the Herky's nose, in such a position that no one on the flight deck could see it. The crew chief then forgot about it. As the C-130 taxied forward . . . crunch.

That slight lapse in memory cost you and me almost 7000 dollars.



mishaps with morals, for the TAC aircrewman

whap-whap-blap!!!

By Lt Col Roger Scott
TAC/DOVL

The UH-1P instrument training flight was normal for the first hour. Then for no apparent reason, the LOW RPM warning light and horn sounded . . . stopped . . . and repeated. A quick glance at the gauges revealed no malfunction, and since the 781 carried a write-up on the LOW RPM warning system, the pilot elected to return to home base. Ten minutes later, the light and horn signaled again — this time continuously. Time for action. "Pitch down, look for safe landing area, check gauges, . . . uh! oh! . . . N_r is really moving UP toward the top peg! FLEX-SHAFT FAILURE!" Remember the bold face on this one —

MAINTAIN N_r WITH COLLECTIVE
"Get the pitch back up before you lose
the rotor system"
MANUAL FUEL INCREASE
THROTTLE FLIGHT IDLE

Unfortunately, the pilot was running out of air below him before the manual fuel was effective. He wisely chopped the throttle and set the bird down with minor damage to the skids. WHEW! Cause factor? — A bearing had been left out of the flex-shaft drive assembly, causing failure of the entire assembly. With the bearing missing, the shaft was whipping in the housing and only partially engaged in the drive mechanism.

This near accident brings up three points for you rotorheads to ponder:

- Loss of N_r sensing or flex-shaft failure is one of the most critical emergencies you can encounter in the UH-1P. Only immediate corrective action can prevent a

possible runaway engine/rotor system with unfortunate results. In this case it was analyzed soon enough to prevent a major accident and the action taken was proper.

- When is a warning system not a warning system? In this case the pilot knew he had a malfunctioning Low RPM warning system, since it was actuating at 6200 RPM instead of 6000. Because of this condition it could have been signaling each time the flex-shaft slipped in the fuel control. However, since the gauges indicated no malfunctions there was no requirement to land immediately, and his action was proper. The point here, and this is old pilot hearsay, or "Catch 22" of Murphy's Law: Whenever you have a bent or malfunctioning system, give it special attention because you are ripe for a multiple malfunction of it, or a related system. And that's a fact!

- Finally — quoting from the Flight Manual, "It is usually better to concentrate on making a safe landing than to switch to manual fuel control." That means if you have plenty of altitude or there is no safe landing area below you, use the manual fuel switch; but at the normal VFR helicopter altitude over smooth terrain — put it down gently, gents — you can always beep in the manual fuel after you are safely on the ground.

whoops!!

The pilot flared, smoothly touched down, and then SLID 1600 feet on the speed brake and pylon fuel tanks. The Super Tweet (A-37) sustained rather minor damage considering the treatment it was subjected to. The warning horn apparently did not come on due to the power setting used on final. What's the old saying, "It was such a smooth landing that I didn't notice the gear wasn't down until I added power to taxi off . . .!"

Another old saying goes — "GEAR CHECK!"

Special Note: My #1 daughter escaped from a 40 mph smash by a station wagon into the side of her VW with only a severe shake-up and bruises — thanks to a snug shoulder harness. I'm convinced that she's alive for that reason. Thank God I had read and believed articles like this one . . . Colonel Beisner, TAC Chief of Safety

excuses, excuses

by David Girling

Even small emergencies can become disasters for unrestrained motorists; yet most persons don't use their seat belts. David Girling takes a close look at their "reasons."

If you're among the two out of three persons who don't fasten those seat belts every time you get into a car, why don't you? Is it because:

- it's too much bother or you forget?
- the belts might wrinkle your clothes?
- they might get your clothes dirty?
- you're afraid someone might think you're chicken?
- deep down you don't want to face the fact that you might be involved in an accident?
- you fear getting trapped in the car in case it catches fire or plunges into deep water?
- you're always hearing about the guy who walks away from a crash alive because he wasn't belted in?
- seat belts might hurt you in a crash situation?
- you're just plain sick to tears of the whole restrictive scene?

Sound familiar? These are the "reasons" I hear over and over again about why people don't buckle up. "Excuses" is closer to the truth.

Like the evidence that says you shouldn't smoke, the evidence that says you should fasten your seat belts is just too overwhelming to ignore. It boils down to one big fact: Seat belts, properly worn, save lives and reduce the severity of injuries.

But the excuse parade goes on as to why people don't, shouldn't, or just plain won't regularly wear seat belts (and I'm only talking about lap belts at this point). Of course, there are the occasional wearers, such as those who say they wear their seat belts for longer distance travel. However, evidence points out that most fatal accidents occur within 25 miles of home. What kind of odds are those?

Shoulder belts? Here's where the picture gets even sadder. Since 1968 shoulder belts for the driver and right front passenger have been standard equipment in American cars. But surveys indicate that fewer than five percent of persons actually use these shoulder belts along with the lap belts. An absolute shame!

The efficiency of lap and shoulder belt combination in preventing death and serious injury in crashes is being clearly demonstrated by current traffic studies. A recent report presented to the Society of Automotive Engineers

General Motors safety engineers brought out that early evidence shows that lap-shoulder belt combinations are demonstrating "remarkably high reduction of injury" in collisions. Of the cases studied, the safety engineers found that 60 percent of the vehicles had heavy damage of the type often associated with occupant injury. But 99 percent of the lap-shoulder belt users had either no injury or relatively minor injury.

So with that bit of information fresh in our minds, let's take a nit-picking look at some of those excuses we talked about earlier.

Bother? You forget? You don't have an argument in my book. If you're intelligent and mature enough to drive, you're intelligent and mature enough to "bother" and to "remember" to do up your seat belts. This is a too-easy cop-out.

Wrinkled clothes? Sure, seat belts might wrinkle your clothes a little, depending on the material and the care you take fastening them, but have you ever seen a human body that has been "wrinkled" in a severe auto crash? I'll trade a few temporary clothing wrinkles for those terminal body wrinkles any day.

Dirty? Regularly used seat belts don't gather dirt. Besides, belts are easily sponged off with soap and water or automotive upholstery cleaner.

Chicken? So your friends (or some of them) might be a little derisive about those who wear seat belts. So what! If

you're swayed by this type of moral blackmail, you're chicken in the truest sense.

You have to face the fact that you might be involved in an accident someday, even if it's not your fault. So why not stack the odds in your favor.

Trapped? The old might-get-trapped-in-a-fire or submerged-in-deep-water routine is getting tiresome. These hazards are very, very rare and occur in far less than one half of one percent of accidents. Yet you might get the impression they happen all the time if you listen to some people. Racing drivers fasten themselves in because they know if they get in trouble their chances of getting out are much better if they remain conscious. The same applies to the old fire and water excuse.

As for that guy who "walked away" from that bad crash because he wasn't wearing seat belts, have you ever met him face to face? Neither have I, and I keep looking for this character because I keep hearing about him. This guy is so rare he's practically a myth — an easy excuse. The fact of the matter is your chances of surviving an auto crash are up to five times greater if you stay within the protective sheet metal and structure of a car.

Seat belt injuries? It's true, some people have been bruised by seat belts in crashes. But think how much more serious injuries would have been if they had not been restrained. Seat belts help hold you in place in a sudden deceleration as parts of the car absorb some of the energy of a crash. They help prevent that "second collision," the one where an unrestrained body keeps moving in the same direction after the car suddenly decelerates and then comes into contact with something not-too-yielding — like a dashboard or windshield. It's this second collision that does most of the damage to accident victims. Also, that second collision may come outside the car, like on the pavement or against a tree. Seat belts help keep you from being ejected from a car where chances of death and serious injury are far more likely.

You're fed up with the whole restrictive scene? I can't help you much on this score. This is something each person has to work out for himself. Living in a world with other people — lots of people — means restrictions of some sort. In most instances, restrictions are for our own benefit. Seat belts are a good example of this.

Last but not least, for those who do wear seat belts, remember: lap belts should be worn low and snug, across the bony pelvic region, not up around the fleshy abdominal area. Shoulder belts should be just loose enough to permit the width of your hand between your chest and the belt. Never wear a shoulder belt without a lap belt; you're inviting throat injury if you do.

Seat belts are something we can live with. ➤

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spo S CORNER



A WORD TO THE WISE ?

Shortly after takeoff, while setting course on the first low-level nav leg, the Thud driver heard a "muffled pop" from the engine section of the aircraft. The "pop" was followed by more "pops," increasing in frequency and culminating in low amplitude compressor stalls. The engine then began to decelerate and emergency fuel was selected without noticeable effect. Shortly thereafter the fire warning light came on and the pilot ejected successfully.

The engine failed due to a fatigue failure of the N-2 compressor tie-rod nut cover. This failure allowed the compressor to drag, resulting in the loss of compressor efficiency, engine stall, and turbine burnout. The tie-rod nut cover assembly on all J-75 engines are presently being

corrected by a new tabwasher.

While making his decision to eject, the pilot elected to leave his helmet visor up because he was wearing prescription sunglasses. He lost the sunglasses but, of greater importance, he unnecessarily jeopardized his eyesight and risked serious head injury. The wind blast tearing at the helmet because of the raised visor could easily have ripped off the helmet.

Eyeglass frames issued to crewmembers by Air Force optometrists are compatible with Air Force helmets. It's the crewmember's responsibility to insure that the helmet is properly fitted so there is no interference between glasses and helmet visor, thus allowing you to keep your visor down. On low levels, the added protection of

visor will minimize possible eye injury should you run into a Canadian honker violating quadrantal altitude separation rules. Just a word to the wise, that's all!

A-7D AND THEN IT'S GONE

In a recent major accident, the pilot ejected at low altitude when his A-7D went out of control (A-7D pilots call it a departure). The pilot ejected safely and the accident is now history. However, this particular accident was similar to an earlier A-7 accident in which the pilot was less fortunate. The accidents had two things in common: flaps-up landing configuration followed by a departure from controlled flight. Statistically, perhaps this is a poor sample, but the knowledge gained from these two accidents gives us an insight into how we can fly the machine more safely.

In each case the pilot allowed the aircraft to reach a flight condition from which he would not recover.

Consider the following: What AOA is required in the final turn landing configuration with flaps up and 23,000 pounds G.W.?

- a. 13.4 b. 16.0 c. 17.5 d. 20.5

Answers **c** and **d** probably look familiar. 17.5 is on-speed AOA for final approach and hopefully 20.5 will never be seen on final — that's stall warning.

Answer **a** may be familiar since 13.4 AOA is max endurance at any altitude.

If you selected **b** and actually fly 16.0 AOA under the stated conditions, then you have a better chance of not losing control (departing) in the final turn. Flying final turn with 17.5 AOA might be all right for a normal landing, but the TO suggests 16.0 AOA with flaps up (check the Dash One, page 3-41). In both of these major accidents the pilots were making flaps-up approaches and had 17.5 AOA or more at time of departure. Remember, only when on final approach do you use 17.5 AOA and then a minimum of maneuvering is recommended.

Maj Bob Lawler

F-4/RF-4—SPECIAL INCIDENT REPORTING

Your local squadron aviators are probably countering a recently increased amount of apparent assessment from your flying safety officer and

maintenance people when you have been involved with an aeroplane, F-4 type, that has either generator problems or a blown tire. To help justify this annoyance, I'd like to point out some of the reasons for this increased reporting.

For the last few years, TAC (also PACAF and USAFE) has recorded a large number of lost sorties and aborted missions due to failure of the voltage regulator supervisory panel. (You would recognize this as a light over there on the right that says LH or RH GEN OUT.) The main cause for failures of the VRSP appears to be vibration. To correct it, a TCTO is in progress which shock mounts these black boxes. To see if this mod is effective, we are requesting incident reports on all failures of these modified or shock mounted VRSPs. If the data you provide shows it hasn't helped, we can press on immediately toward a better fix. Better yet, if the mod proves itself, we stop the reporting.

The other problem, blown tires, has also been with us for a long time. Unfortunately, we don't always get enough detailed info from the driver to match with maintenance and materiel data in order to positively determine the cause. Too often the cause factor is reported as unknown or stated (sometimes implied) as pilot error; like somebody had their size 12s improperly positioned on the brake pedals. Your friendly SPO doesn't believe in this pilot's fault bit, but needs more facts to help pinpoint the real cause. This is going to require that the guy in the cockpit provide us with a little more detailed poop. The more information we can get to the maintenance and AFLC people, the better chance we have of correcting the problem.

So, in both cases, the safety types ask you to bear with us. We all hate paper work, but additional and more detailed reporting for a short time is often the only solution to this type investigation. We need and appreciate your help!

Maj Burt Miller

F-100—OLD PROBLEM, NEW PEOPLE

An F-100 was on a navigation proficiency mission with a refueling stop en route. After a turnaround, which included a drag chute installation, the pilot was cleared IFR to the next destination. Taxi and takeoff were normal; however, while passing through FL 200 during a radar vector climb, the aircrew felt a 'thump.' Nothing abnormal could be detected in aircraft performance and the flight continued to destination. Upon landing no drag chute deployment was obtained when the handle was

SPOs Corner.....

pulled. The pilot deployed the tailhook and accomplished an uneventful barrier engagement.

Cause factor: Maintenance error in that the liner assembly, drag chute, was installed improperly. Inspection revealed the liner assembly, drag chute was not latched on the right side which caused it to hang lower than normal. Consequently, excessive pressure (a number 12 brogan) was used to close the drag chute door, bending the handle assembly which prevented an over center mechanism from seating in the over center position. Final results were the loss of the drag chute due to the opening of the drag chute compartment in flight.

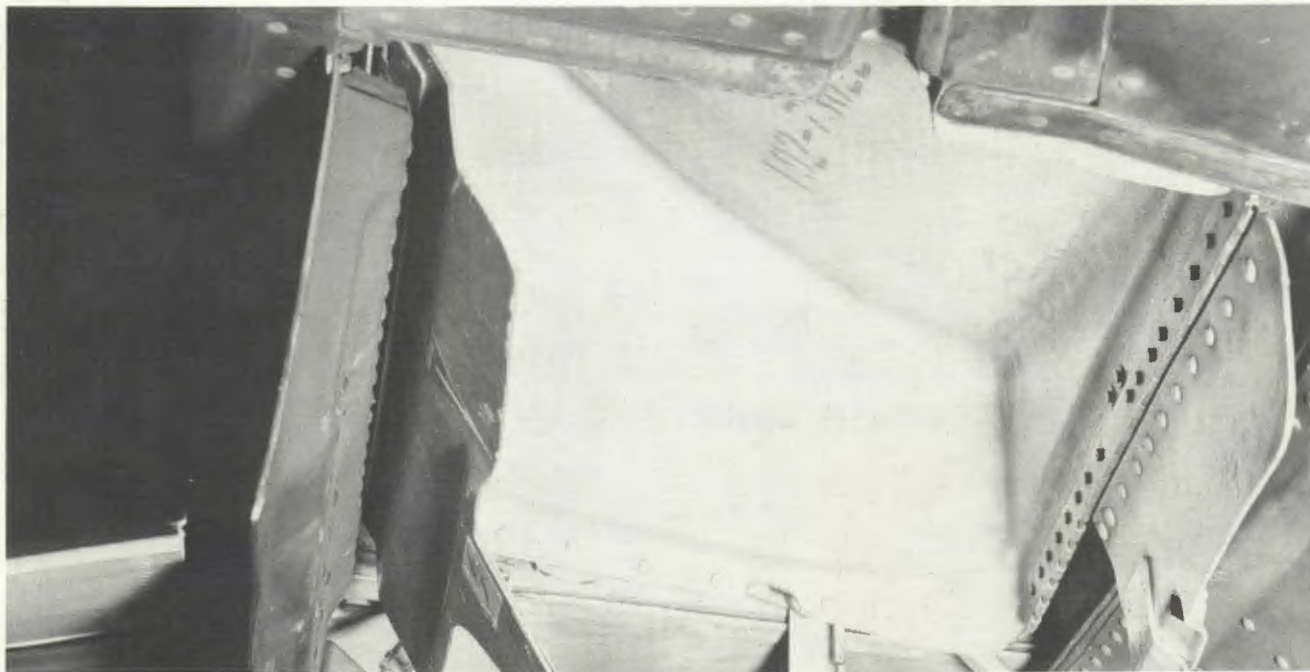
For those who flew and worked on F-100 aircraft, this is an old and familiar problem. For those who have recently become acquainted with the Hun it may be a new problem. The installation of the drag chute cannot be taken lightly. The cavity that accommodates the drag chute is not overly large. Special attention should be given by those who install the drag chute (attention transient maintenance), and by the pilot who may need it.

It was noted that in a similar case, the chute thudded to the ground a few feet away from children playing in their backyard... that's too close. Please give a little extra care before leaping into the air.

Maj Bob Lawler



Handle assembly was bent. Technique used was a "BROGAN ADJUSTMENT."



Right side of drag chute liner was hanging lower than normal because of improper installation.

SLUF

by Maj Jim Bustle

355th TFS

In the beginning, there was created an airplane, and being created in the form of a bird it had but one heart. And the creators, Orville and Wilbur, did look upon their hard work and say one to another, "It is good."

And the heart was called an engine and it did labor mightily and lift and propel the creation through the air. Long it labored, and faithfully, until the heart would burst within the body . . . at which time the craft would settle back to earth as would a falling stone.

And the detractors, being of the tribes SAC and MAC, did ruefully shake their heads and say in mock

wisdom, "It is ~~not~~ good. For lo, if one heart is good — two are better, three are comfortable, four are relaxing, six are becoming fashionable, and ten are desirable."

But the Tribe of Real Jocks did disagree saying, "Man has only one heart, his horse has only one. Let us not build craven images with two or more." But theirs was a small voice crying in the wilderness that went unheeded, and the Tribe of Real Jocks did fall upon hard times.

But, they sayeth all the while, "his adversity shall pass. It is good." Still the Tribe of Real Jocks continued to wither, because, failing to prosper, they did also fail to propagate. They thus became few in number and were absorbed by the larger Tribe of TAC. And they sayeth, one to another, "It is not good, for we are warriors and subsist on battle as ordinary men need food and drink."

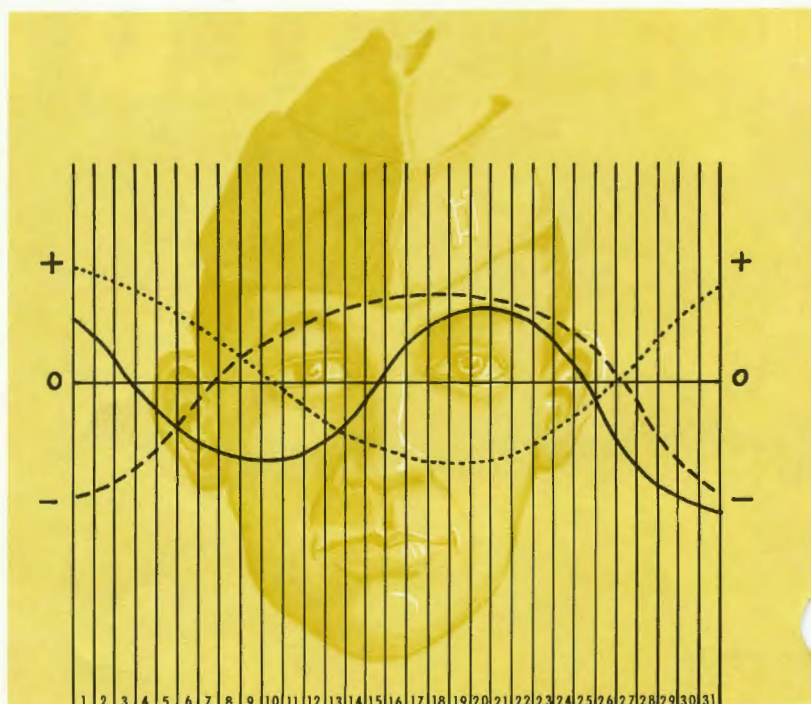
And they did build another one-heart bird, very large and very fast, and called it "Thud." Then, sallying forth into battle in the Land of Nam, they did prove their courage and that of their new creation, and people did say, "The one-hearts do well. It is good."

And the inner Tribe of Real Jocks was inspired to build still another one-heart bird, and it was called "Sluf," (Short Little Ugly Feller).

It was a magnificent bird, and one day after the great battle in

Nam had diminished to a skirmish, the Family of Thud, Tribe of Real Jocks, did send emissaries to the East to visit the Family of Sluf, also of the Tribe of Real Jocks. And the Chief of the Family of Sluf did say, "It is good." And in the East by the Lake of Atlantis they did affirm their friendship and purpose, and the Chief of Sluf did say to his Thud brothers, "Go again to your family and bear me this token, this fruit of the vine, and say to your brothers, 'In the beginning it was intended there would be one man in one airplane with one engine. It is left to the Tribe of Real Jocks to validate that intent so that all men shall say of the one-hearts, They are good.'" ➤

BIO WHAT ?



Before we get too deeply into this article, let's lay it on the line for what it is... namely an experiment into the human factors side of accident investigation and causation.

When we plaster an airplane alongside a hill, we painstakingly put it back together piece by piece to determine what happened. If the accident was caused by a materiel failure of some sort, we usually find the culprit, the offending piece of gadgetry that failed. And we take it further... we find out WHY it failed. When the answer to the "why" question makes itself known, a fix is exposed. The fix is then incorporated into the machine and once again everything is right.

But how about those accidents that are caused by people? Do we go

through the same painstaking efforts? Unfortunately not! We find out what the pilot or crewman or maintenance technician did that resulted in an accident but we don't find out WHY he did it. Either we don't know enough about the human animal, such as how and why he reacts in a given manner to a given situation, or we don't know how to apply the knowledge that we possess.

Those who have been involved with accident investigation for any length of time tend to wander around in bewilderment when the same personnel errors are repeated time and time again. We stomp the bushes looking for preventive measures but most of the time we come up with the same old recommendations that surfaced forty years ago.

Familiar sounding phrases such as, "I just don't understand it; Joe is the best pilot in the outfit. How could he make such a mistake?", are common among those who fly... and among those who witness their own mistakes and the mistakes of others. Certainly there must be some answers somewhere. We people are unpredictable, but we're not that unpredictable.

A few months ago the Flight Safety Foundation put out a blurb in their September/October newsletter concerning this human factor side of accident investigation and causation. In it they referred to something called the Biorhythm Theory of Accident Causation. And they gave an eye-opening example of the use of the Biorhythm Theory. They stated that

company in Japan which operates a of some 700 busses, taxis, and a ary railroad has been applying the theory to their operation. The results? As quoted in the FSF newsletter, "In the first year of application the accident rate decreased by one-third as against a steeply increasing trend in the country as a whole." Maybe there's something to this biorhythm stuff.

WHAT IS IT ?

It has long been recognized that in a man as well as the rest of nature, many of the functions of life are regulated by rhythms. We witness many of these rhythms in nature, such as a plant opening its leaves to the sunlight or a salmon swimming upstream to its spawning ground. In our own bodies, rhythms, referred to as the clocks of the body, regulate such things as sleep, heartbeat, and ration. But there appear to be clocks of the body that control such things as physical abilities, mental acuteness, and emotional levels... Biorhythms.

The first important work in biorhythm analysis was done at the turn of the century by a Swiss professor of psychology, Dr. Hermann Swoboda. In seeking to find why man's disposition changed from "good days" to "bad days" he discovered a rhythmic pattern in man's behavior. He concluded that rhythmic fluctuations occurred in 23 and 28 day cycles and were linked directly with moment of each individual's birth.

During the same time period a German physician, Wilhelm Fliess, was conducting parallel studies. He confirmed the existence of the 23 and 28 day rhythms by observing his patients, and by tracing illness cycles back to the date of birth.

Approximately twenty years later, or of engineering at Innsbruck,

Austria, prepared an analysis of high school and college student performance. In it, he reportedly concluded that an individual has an intellectual cycle of 33 days. During approximately half of the cycle, students demonstrated an ability to grasp new ideas quickly and during the other half of the cycle they were relatively slow to learn.

According to the theory, the three biorhythmic cycles begin at the moment of birth and continue with precise regularity throughout the life of the individual.

The physical biorhythm (shown on Figure 1 as a solid line) goes through a complete cycle in 23 days. The half of the cycle which is shown above the reference (zero) line represents the plus half. During this period of time, the body is going through its discharge period and the individual feels better, has more energy, and has more confidence in his physical abilities. Just the opposite is true during the regenerative (minus) phase, shown below the line.

The sensitivity biorhythm (shown on Figure 1 as a broken line) transveres a complete cycle in 28

days. On the high side the individual is apt to be more cheerful and more optimistic. During the minus fourteen day half of the cycle the individual is moody and easily irritated.

The intellectual biorhythm (shown on Figure 1 as a dotted line) is a 33 day cycle. During the plus half the individual is able to think more clearly; consequently, problem solving becomes easier as compared to the minus half of the cycle when the intellectual capabilities are lowered.

It would appear that the bottom most point of the lower half of the cycle would be the most critical time period. That, however, is not the case. Where each biorhythm crosses the reference (zero) line the particular cycle is passing through a transition phase. This time of transition during which the body's clocks are going through an abrupt change from a high to low (or vice versa) is by far the most critical time. Hence, they are called critical days and are exactly what the name implies. During these days we are more apt to misjudge our physical limitations, be extremely moody and irritable, and have a reduced ability to think clearly.

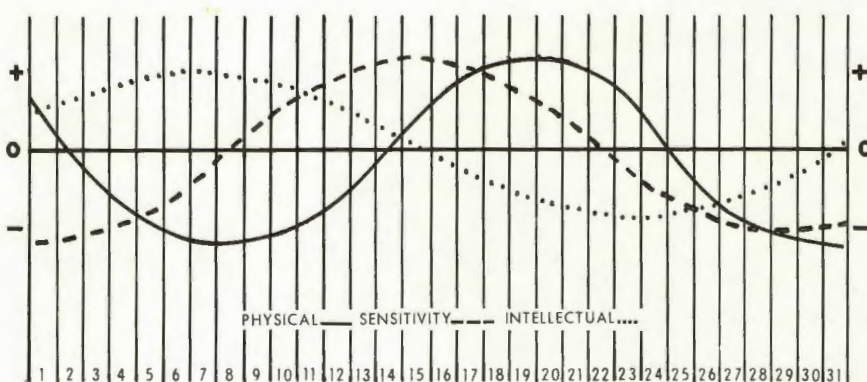


FIGURE 1- THE THREE BIORHYTHM CYCLES ARE PLOTTED AGAINST DAYS OF THE MONTH.

BIO WHAT ?

WHAT RELATION DOES BIORHYTHM HAVE TO ACCIDENTS ?

Several analyses have been compiled applying the Biorhythmic Theory to accident situations. Perhaps the most revealing analysis is referred to in the book, *Biorhythm . . . Is This Your Day?*, by George Thommen, which is, incidentally, the reference source for a great majority of this article. Mr. Thommen refers to a report compiled by Hans Schwing in Zurich, Switzerland, in which Mr. Schwing analyzed a total of 700 accidents using only the physical and sensitivity cycles. He found that 401 of these accidents (almost 60 percent) occurred on critical days.

To determine if the theory has any application to aircraft accidents, the necessary material to calculate the biorhythm cycles was locally purchased by the author. The material included a biorhythm computer termed a "Dialgraf" and the necessary computation tables based upon dates of birth and month and year of selected occurrence.

Using these tools, all aircraft accidents, attributable to either pilot factor or underdetermined, that have occurred within TAC since 1969 were analyzed (except for four for which no birthdate of the pilots could be determined). The total sample was composed of 59 accidents wherein only the pilots involved were analyzed. Of those 59 accidents, 13 occurred on a critical biorhythmic day for at least one of the pilots involved. In 12 of the 13 accidents the pilot involved was either an IP, AC, or in a single place airplane. Not as significant, but still worth a mention, is the fact that in 40 (67 percent) of the 59 accidents at least

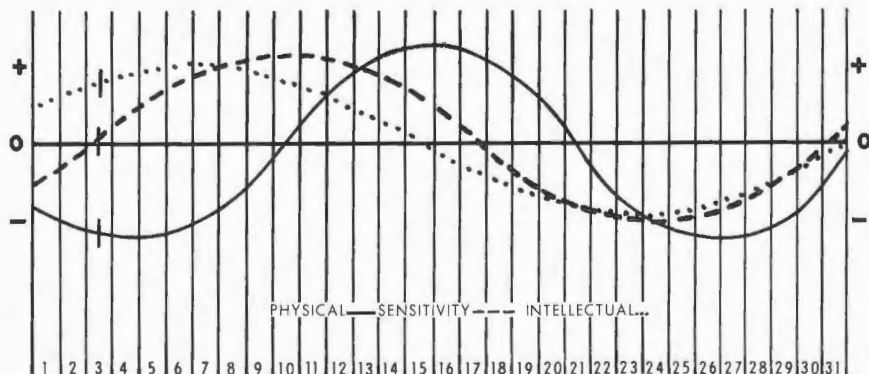


FIGURE 2- THE ACCIDENT OCCURRED ON THE THIRD DAY OF THE MONTH. NOTE THAT THE PILOT'S SENSITIVITY CYCLE WAS CRITICAL AND HIS PHYSICAL CYCLE WAS LOW.

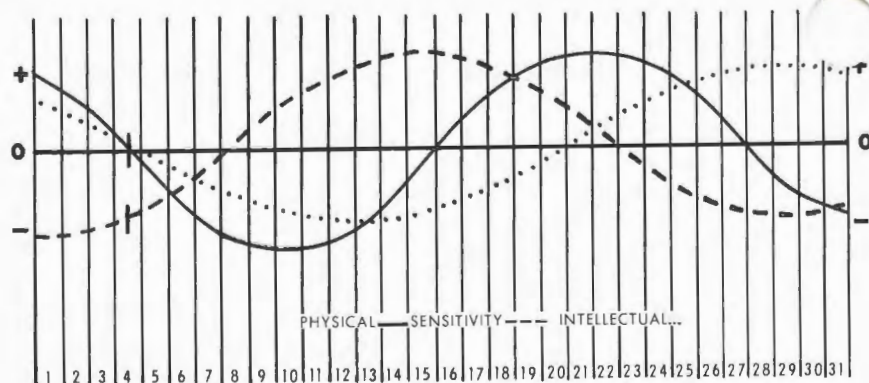


FIGURE 3- THE ACCIDENT OCCURRED ON THE FOURTH DAY OF THE MONTH. NOTE THAT THE PILOT'S PHYSICAL AND INTELLECTUAL BIORHYTHMS WERE CRITICAL.

one of the pilots involved had two or more biorhythmic cycles in the minus portion.

Three accidents have been charted to show the biorhythm situation on the day of the accident. The first one (Figure 2) is a classic "get-home-it-is" accident. The pilot attempted to fly

in weather conditions for which his airplane was not equipped (ice) and subsequently crashed. He was attempting to get home for an anniversary celebration.

The accident occurred on the third day of the month. Note that on this day his physical biorhythm

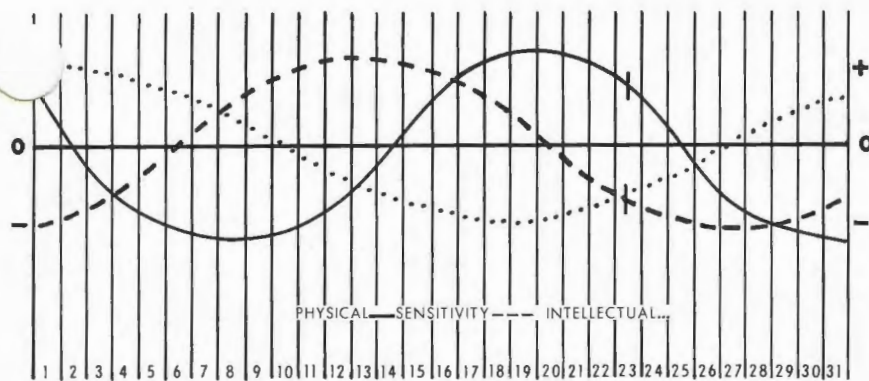


FIGURE 4-THE ACCIDENT OCCURRED ON THE TWENTY-THIRD DAY OF THE MONTH. WHILE NO BIORHYTHMIC CYCLES WERE CRITICAL, NOTE THAT THE PILOT'S SENSITIVITY AND INTELLECTUAL CYCLES WERE LOW, WHILE THE PHYSICAL CYCLE WAS HIGH.

(solid line) was low, indicating a physical condition less than optimum, and that his sensitivity curve (broken line) was critical. Could it be, that due to a critical emotional state, he let his emotions control his judgment and then when he got into trouble did not have sufficient physical reserves to cope with the emergency? By the way, his copilot apparently wasn't much help; he had a double critical day (physical and sensitivity) on the day of the accident.

The second example (Figure 3) involves a pilot who was engaged in ACM (Aerial Combat Maneuvers) tactics. In attempting to stay with his element leader, he failed to lower maneuvering flaps, lost control of the airplane and ejected. This accident occurred on the fourth day of the month. Note that on this particular day both the physical and intellectual biorhythm curves were critical. Could it be that his mental alertness was sufficiently impaired so that he forgot to lower the flaps and that when he lost control of the airplane his reactions were too slow to enable him to recover?

The third example (Figure 4)

involves a pilot who crashed while on a close support mission. He falls into that "one of the best pilots in the outfit" category. The accident occurred on the twenty-third of the month. Note that on that particular day his physical curve was high while his intellectual and sensitivity curves were low. Could it be that he was operating in high gear physically but due to his degenerated emotional and intellectual condition he misjudged his physical abilities?

In each of the accidents let's recognize the other side of the coin. Specifically, that biorhythms had nothing whatsoever to do with any of them... they could have been caused by any combination of a hundred other factors.

Regardless of the side you choose the fact remains that in each of the accidents the pilot was tagged with the cause. Why? Accidents are inevitable, you say? Hogwash!! All accidents are preventable and all people are accident preventers. But when accidents are caused by people our investigations fall short of fully and completely determining WHY the accident happened.

HOW CAN A KNOWLEDGE OF BIORHYTHMS HELP PREVENT ACCIDENTS ?

If we were to chart our biorhythm cycles for each month should we stop flying when the curves start dipping into the minus area? Of course not! That would be a hell of a way to fight a war. But it would give us an insight into our own limitations.

We all have limitations of some sort and the good pilot recognizes his limitations and operates within them, at no detriment to the mission. Biorhythm would merely expand our knowledge of our limitations, and give us a set of identified parameters to work between...again at no detriment to the mission.

OKAY...WHAT NOW ?

The human factors side of accident investigations and causation is a fertile field. To say that nothing has been done in this area is preposterous... our accident rate alone shows that much has been accomplished. Our knowledge of how and why we do things is increasing every day... but we have a long way to go.

If we are to reduce accidents of all kinds to zero, then we must further explore the human factors area. Biorhythm may or may not be part of the answer. We may not yet possess the knowledge to provide the complete answer. There's a chance that we may not even possess a sufficient knowledge to ask the right questions. One fact remains. We must continue the search. ➔

SOURCES

1. Thommen, George *Biorhythm Is This Your Day?* Crown Publishers, Inc., New York, N.Y., 1964.
2. Flight Safety Foundation, September/October Newsletter, 1971.

COLLISION AVOIDANCE

**SOURCE: McDonnell Douglas
news releases**

COLLISION- there's a word. When two airplanes collide, it can make headlines and heartaches around the world. And it's an old subject. Avoiding bumping into other airplanes has been an item of concern to aviators ever since the second airplane was built . . . and midairs have been around almost as long as airplanes. Longer, if you count balloons. See and avoid has been a primary rule for 60 years or so and pilots have been instructed to keep their heads out of the cockpit since day one. They are assigned altitudes, are "positively controlled," and are watched on radar. They fly instrument approaches, use airways, precision approaches, non-precision approaches, and position reports. The list goes on and on. We publish articles telling them how to scan the skies . . . how to focus their eyes better so as to pick up another airplane. We produce studies telling the pilot that, with such and such closure rates, they only have so many seconds to react. We can even prove mathematically that above certain closure rates they physically cannot react fast enough to avoid the collision.

More sophisticated collision avoidance devices are inevitable. It's only a matter of time until aircraft systems will be able to tell the pilot what to do in order to avoid a collision. (You know the saying . . . "If we can put a man on the moon . . .") Such systems are in the mill. They are in the design phase, test phase, or even production phase, depending on which system you talk about or which company you talk to. This article doesn't attempt to cover all the systems and proposals, or to specifically endorse any.

But as an example, one such system developed by McDonnell Douglas has been flying and operational since 1966. Perhaps it isn't the ultimate answer, but it does lend an insight into what can be done. Their initial collision avoidance system was called EROS I (Eliminate Range Zero System) and has flown over 16,000 flights. The EROS II system has been built to Air Transport Association (ATA) specifications and has been tested by the FAA. Without getting into too many specs, here are a few. The system will handle 2000 airplanes every three seconds; it will provide range, range rate, and altitude better than every 0.1 microsecond.

The cockpit indications of this particular system are basically simple. It consists of what you and I would call a modified VVI. The commands would consist of flashing red arrows for climb or dive instructions or a red bar for level off. The no turn lights will remind the pilot to level his wings (less than 10 degrees bank). In addition, the yellow lights (the arced bars) will advise the pilot to limit his vertical velocity because of the presence of an aircraft either above or below him. This system is coupled with an aural warning system so that the pilot doesn't have to be looking at the indicator continuously.

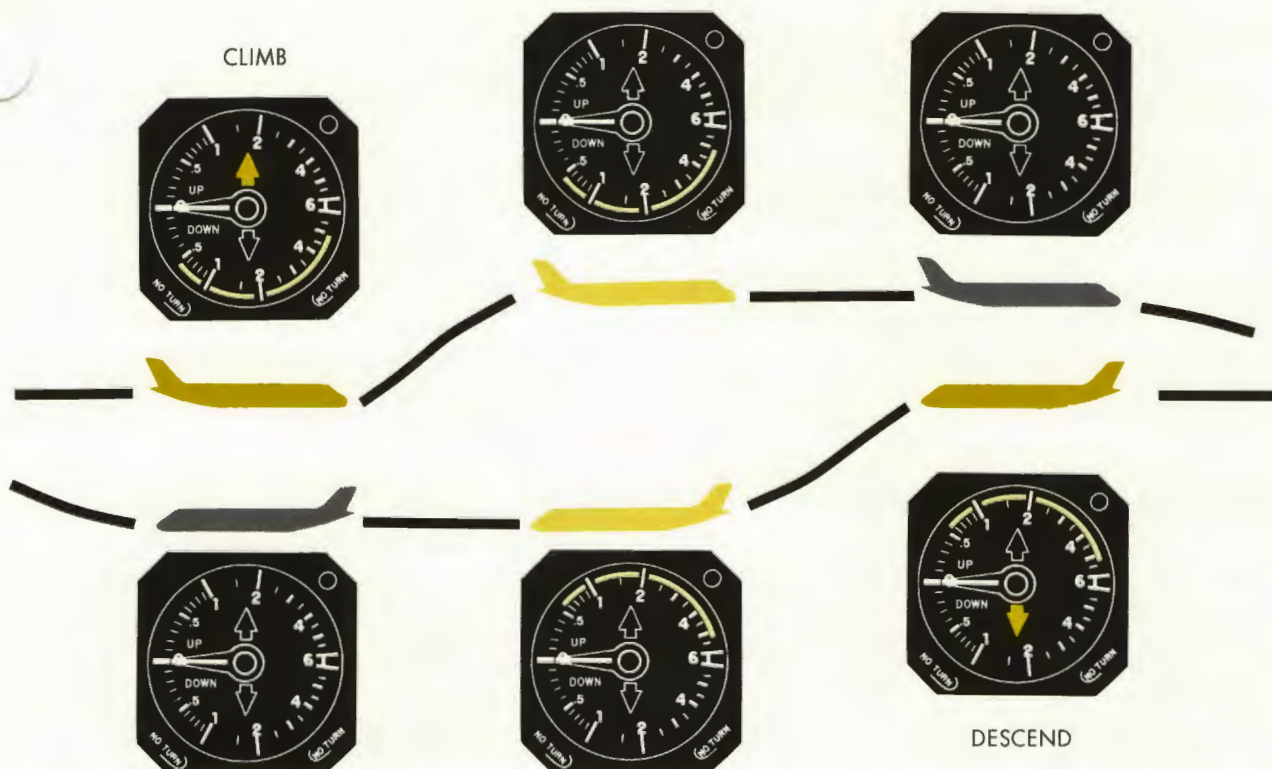


Arrows shown as dark yellow would actually appear red as would the no turn lights.

Basically, the system works this way. If two aircraft approach on a collision course, one will receive a climb command and the other a dive command (see example). The system will also keep you from turning into another aircraft. It will tell you not to climb, or to limit your climb, so as to avoid climbing into another aircraft.

Some side benefits of this system are terrain avoidance. Put a set on top of a hill, and you could be commanded to climb so as to miss it. (In this case it would be programmed so you wouldn't be told to descend — that would defeat the entire purpose!) It could be programmed to give you a climb indication at the MDA on a precision approach. Add a master ground station, and you could have a scope type arrangement with readouts for flight following. (Not radar, but a completely different system.) Add a DME readout, and you could have instant station keeping from other aircraft.

Collision avoidance is not operational in military aircraft yet, but it is only a matter of time. The advantages of such systems will make them highly desirable. As the cost of aircraft continues to increase, that factor alone makes such a device indispensable. You pilots out in the field will be the ones using these systems when they become available. What would YOU like it to do for you? ➔



This diagram indicates the instrument indications of two aircraft approaching on a collision course. Arrows shown as dark yellow would actually appear red as would no turn lights.

CHOCK TALK

...incidents and incidentals

MURPHY AND GREMLIN JOIN FORCES

The T-Bird crew was going through the before takeoff checklist when the front seat pilot called "tip tank auto-drop switch on." The front and rear seaters turned the switches on and the right tip tank promptly left the airplane and bashed the concrete. Luckily there was no fire when the tank split open. The crew shut down the airplane and called for a fire truck.

A malfunctioning micro-switch (Gremlin) caused the tip tank to separate . . . it should have caused both tips to depart in like fashion; however, the left tank had been installed improperly (Murphy). The aft ball fitting on the left tank was not seated correctly in the aft socket on the wing.

Let's look at a couple of "what ifs."

What if the electrical malfunction had not been there and what if the pilots had gotten the machine airborne and then had to punch off the tips because of an emergency of some kind. The right tip would have departed as programmed but the left tip would have stayed with the airplane. Perhaps the pilots could have controlled the machine . . . perhaps not.

Why put it to the test? We can't always control the Gremlins but we (you) can control the Murphys.

HOW ARE YOUR HARNESES?

With a month or more of cold weather left before spring fever sets in, let's talk about the cold. Sometimes the month of March can be the most devastating of any month when it comes to the ravages of winter.

Few of us like to get out in the weather when the wind is howling and the snow is knee-deep to the man of "Ho-Ho-Ho" fame. Unfortunately some of us must. Most of the time we prepare for it properly by dressing warmly, but there's more to it than that . . . especially to the crew chief.

A couple of years ago a crew chief was going through the Dash Six inspection on a C-130. The airplane had been de-iced to remove the snow and ice that had accumulated but a couple of spots were missed on top of the wing. The crew chief noticed the snow on top of the wing during his preflight and went back inside the airplane for the most indispensable of all tools, the broom. As he was sweeping the snow off the wing, he slipped and fell to the ground . . . a distance of about fifteen feet. He landed squarely on his face. It's unbelievable that it didn't kill him . . . but it didn't. However, he now wears a permanent, crooked smile to remind him of the affair.

Do you take the time to put on a harness, attach the ropes, and have two men standing on the ground hold onto the ropes while you're working on top of the wing during high winds or when working on a slippery surface? It's cumbersome, time consuming, and unhandy . . . but it could save your life. It's a very small price to pay.

A BLEEDER

About twenty minutes after takeoff the F-101 rolled suddenly to the left and wound up inverted. The pilot recovered to an upright attitude and headed for home. He started a descent and turned off the yaw damper switch. A couple of minutes later the bird gave a repeat performance. The jock recovered the machine again and pulled the autopilot circuit breaker. He noted that rudder movement was restricted and the pedals would not return to neutral when released. He declared an emergency, flew a straight in approach, and put her on the ground.

The problem? The rudder feel system had not been properly bled after maintenance had been accomplished.

NOTE TO COMBAT CONTROLLERS

There's an old joke among airlifters that the best place to park the combat control team jeep is on the impact point. Sometimes old jokes backfire.

with a maintenance slant.

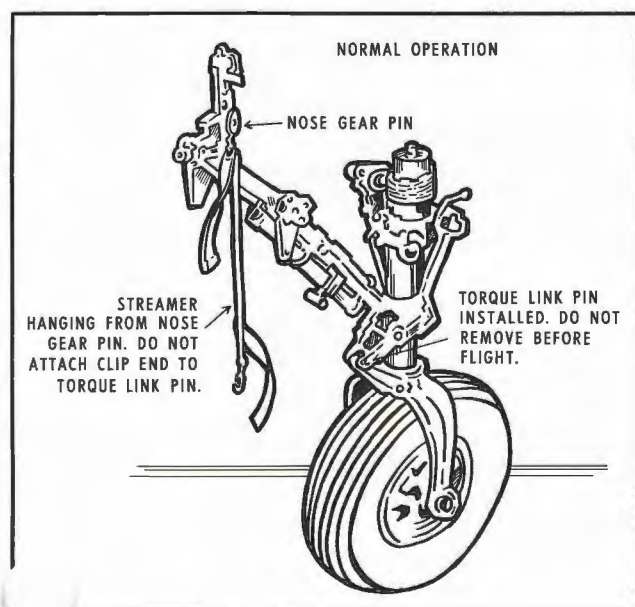
Case in point: The combat control team had parked their jeep with trailer very close to the impact point for a night drop. The C-130 droned overhead and kicked out the heavy equipment platform. When the load was about 500 feet up the controllers spotted it and noticed that it was going to come uncomfortably close to the impact point (zounds!). One of the controllers jumped in the jeep and tried to move it out of the way but, alas, the tires on the trailer stuck in the mud and the jeep wouldn't budge. The driver of the jeep bailed out at the last second . . . just before the load crunched down on it.

Strike report. IP — Great going flyers.

Wonder if the combat control team had to walk home?

ER TWEET PINS

The Super Tweet (A-37) is getting around to a few fields that its older brother, the T-37, never visited. As a result a few problems in the transient maintenance area have reared their ugly heads, as they did a few years ago in ATC.

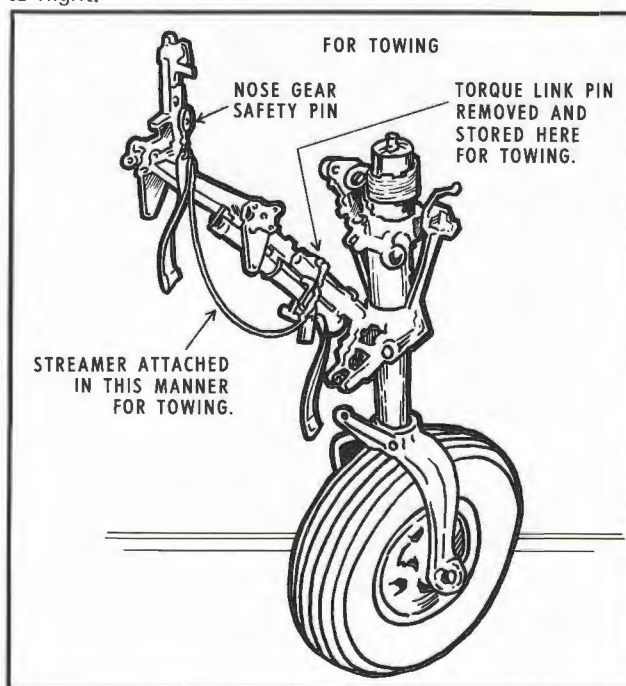


One of these problems is the strange looking nose gear safety pin and streamer. On one end of the streamer is a standard nose gear safety pin while on the other end is a clip which looks like it's supposed to be connected to something. Don't let it fool you! For normal operation the clip end of the streamer should be dangling free.

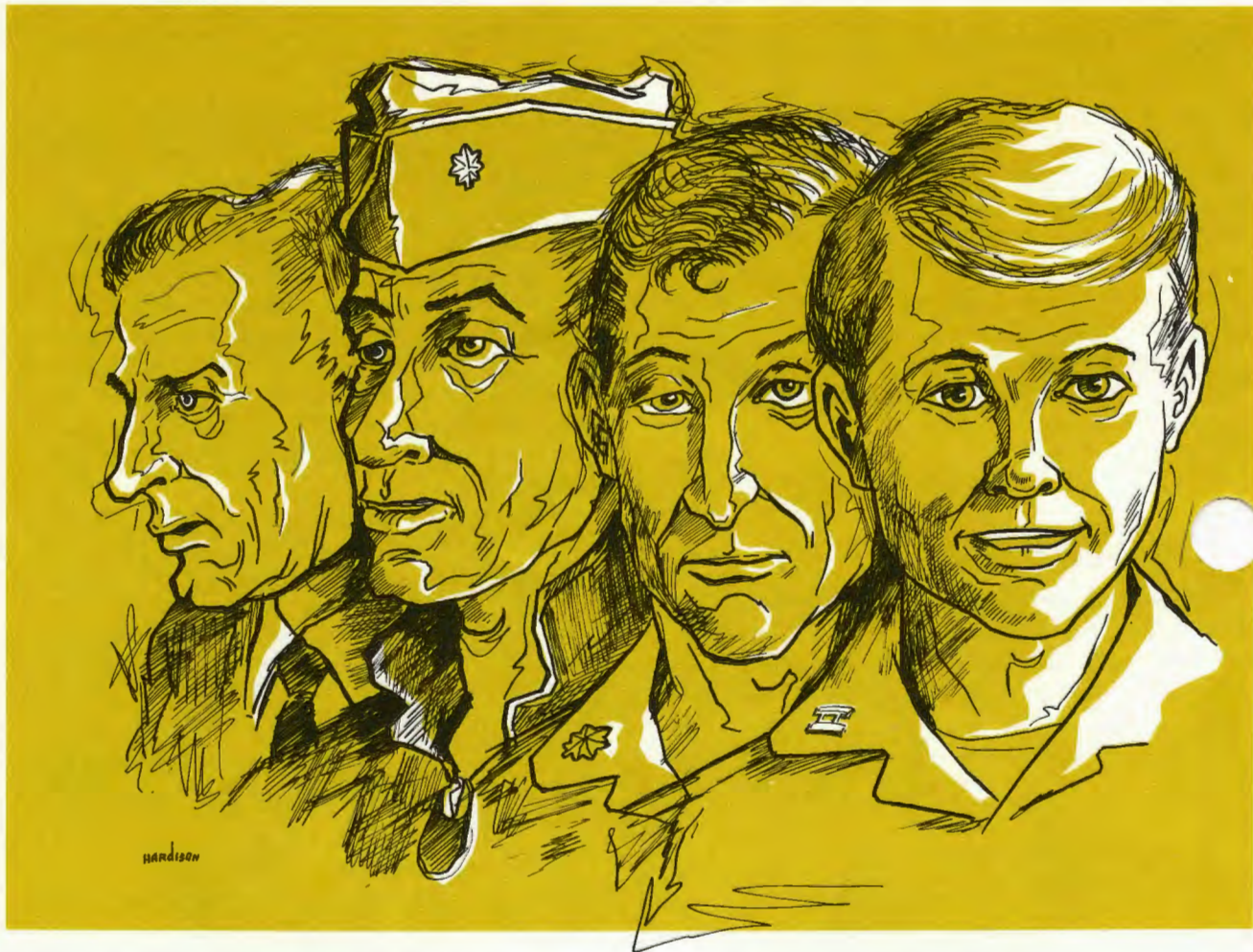
The temptation is to connect the clip end of the streamer to the torque link pin (see diagram). If you yield to the temptation, chances are that someone will come along and remove not only the nose gear safety pin but also the torque link pin. If that happens the nose wheel will rotate freely . . . not too good during takeoffs and landings.

What's the clip end of the streamer used for? When the torque link pin is removed FOR TOWING the streamer is attached to it to remind someone that the pin has been removed.

Remember the torque link pin should be installed prior to flight.



The Changing Face of TAC



The noise of the dice clattering on the bar was lost in the roar of the Happy Hour crowd.

"Dirt farmer!" accused the major as his opponent scooped up two dice and left three sixes lying on the bar.

"Strategy," replied the lieutenant colonel as he shook the dice cup vigorously and poured the two remaining dice on the bar counter. One of the dice came up a deuce and the other one went skittering down the bar, hit a half-full beer mug, and finally skidded to a stop with a six showing.

"Ha! Four sixes all day," said the L/C, "you owe me a brew."

"Luck, just luck," said the major reaching for his wallet.

The bartender refilled the two mugs and set them in front of the two men. They sipped the beer silently for a moment, then the lieutenant colonel said,

"You're getting pretty close to L/C aren't you, Frank?"

"That's hard to say; I'm eligible this year but I don't know how 'close' to it I'm gettin'."

"I know what you mean."

The major picked up his mug of beer and swiveled around on his bar stool to look at the clamoring m

Happy Hourers.

"Look at 'em, Bill," said the major.

"Look at who . . . what do you mean?"

"All the captains and lieutenants . . . they're all over the place. Have you been down to the squadron lately? They're even using captains as flight commanders. Seems like only yesterday the squadrons were so knee-deep in lieutenant colonels you couldn't turn around without bumping into one . . . now it's all changed."

The L/C chuckled, "You're just getting old, Frank."

Frank looked around again, shook his head slowly and said, "Yeah, I guess that's it."

A scene similar to this one is repeated almost daily in TAC . . . and for good reason. Anyone who has been earning his bread as a TAC pilot for over five years has been in a position to observe the change, and it seems to have been an abrupt turnabout.

Throughout the history of military aviation, the term "old head" has gone through a series of definition changes. During the number two war the term, or whatever was used as its equivalent, had nothing to do with age. To the B-17 pilots and crewmembers carrying the war to the German heartland, the number of combat missions tucked under the parachute harness was the measure of how old a head the individual was.

Jumping ahead twenty years we find the term "old" more likely describing a pilot with around ten years in the cockpit and at least three thousand hours under his belt.

Another jump of six years brings us back to the present and to another definition of "old head."

In TAC today, in many units, if you have more than five years in the cockpit, there's no doubt about it . . . mister, you're an old head of the first water.

The problem in TAC pilot manning is two pronged. First, airlift is overmanned, and second, there is a wide experience gap in both the airlift and the fighter force.

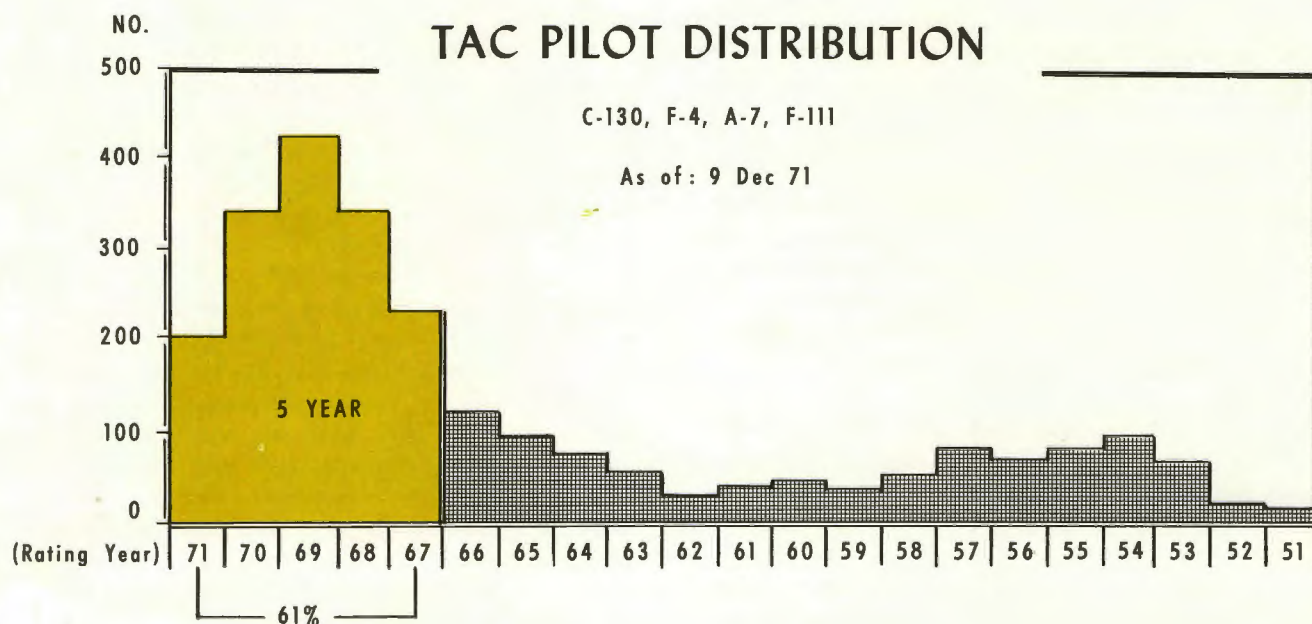
To cite the reason for the overmanning in airlift we have to drop back to 1969 when airlift was manned at about 80 percent. During that year the TAC pipeline to SEA was swinging into full production and the UPTs began coming into TAC airlift and into the SEA pipeline. Over the years that followed we got our returnees back from remote or SEA tours and the UPTs pouring into TAC added to the heap, reducing the overall experience level. Looking at the big picture, TAC overall is manned in pilots to the tune of 105 percent and it's forecast to reach about 110 percent by June of this year.

The chart indicates the pilot distribution within TAC's major weapons systems. Notice that 61 percent of our pilots have less than five years rated service. In airlift the less than fivers account for a whopping 86 percent majority, and in some airlift units this figure reaches 96 percent. Also notice the sag at the middle management level . . . those pilots in the 58 through 62 (rating year) groups. Where have they all gone?

The obvious answer to the question is that they "never-were." Those years from 1958 through 1962 were low pilot production years and as a result we're feeling the crunch.

In addition, there are three basic reasons for the pilot distribution problems faced in TAC today.

First, a large number of UPTs have been pouring into



The Changing Face of TAC

TAC for the past two years, reducing the overall experience level. Currently, all line weapons systems within TAC are accepting UPTs . . . this includes A-7s and F111s.

Secondly, a large number of pilots who have completed a SEA or remote tour but who have less than five years in the cockpit have rotated back into TAC. This further reduces the overall experience level.

Thirdly, some of our middle management has been bled off to fill Palace Cobra requirements. Palace Cobra is a formalized MPC (Military Personnel Center) requirement developed to withdraw pilots from the CONUS who are SEA or remote eligible.

Add the three items together and we have a lowering of the experience level due to a loss of pilot experience to Palace Cobra assignments, coupled with an input from UPT and SEA of comparably lower experience level pilots.

In the fighter force we were able to retain some senior pilots which in effect has kept the experience level up (when compared to airlift). However, that experience at the top is going to disappear as the more senior pilots are moved out of cockpit jobs to make room for their juniors.

In the airlift force that senior pilot pool was not available. As of now there are only 191 pilots in cockpit positions, within airlift, that have over five years rated service.

Several things have been, or are being, done within TAC to adjust for the overmanning situation and to equitably distribute the pilot resource. Some of these are:

REDUCE IP PREREQUISITES . . . C-130 IP prerequisites have already been lowered (May 71); tactical fighter IP prerequisites have been reduced to as low as 700 hours total pilot time, 500 hours of which must be in the front or left seat of the tactical fighter, and 500 hours of which must be in UE aircraft. The F-4 CIS student training capacity has been increased to accommodate additional IP inputs.

REDISTRIBUTE UPT INBOUNDS . . . Inbound UPTs into the C-130 are being diverted to F-4s and A-7s, and all other available TAC weapons systems.

SHUFFLE PILOTS . . . Movement of pilots between weapons systems (F-4 to RF-4, any TAC fighter to any other TAC fighter, A-7 to O-2, OV-10, or between

dissimilar weapon systems) will provide the necessary balance of rank and experience.

These are just a few of the actions that are being taken and it is expected that by the end of FY 73 these actions will solve both the overmanning and distribution problems; however, the trend of these actions is still moving toward a force structure that is less experienced than it was two, three, or five years ago.

Accepting the fact that our experience level is dropping, what can be done?

One suggestion that came from an airlifter in a unit that was manned at 170 percent in copilots stated that perhaps a modification on the C-130 was necessary. His proposal was to build bleachers on the flight deck so the young pilots could at least watch what was going on.

Though not quite the answer, it does signal the frustration that some units are experiencing as a result of the overmanning and accompanying drop in experience level.

Statistically, those pilots with low UE time have accounted for a proportionally larger number of accidents. Also, statistically they have always been dedicated mission hackers, but obviously as a pilot's (young or otherwise) experience level increases, he is more capable of handling the things the machine and the mission throw at him.

However, we do not have to rock back on our heels and wait for the ceiling to fall. If we do, then we are guaranteeing that it will, indeed, crash down about our ears. Such platitudes as, "I told you so" won't hack it either.

No — it's a time for work. It's a time for the old heads to dredge up those things learned through experience . . . those things that we thought EVERYBODY knew. It's a time to stop assuming and begin teaching.

The face of TAC is changing . . . it's getting younger. But there are special qualities possessed by the young that you "old heads" can turn to your advantage. They may have new ideas, a new approach to an old problem. Listen to them. After all, we did pretty good in WW II when almost everybody was "under five" — or considerably less. We paid some pretty high prices for experience too — so — you young troops have a part to play also . . . albeit a difficult part, but nevertheless a vital one. Listening! Why should you have to suffer through some of the harrowing experiences that gave birth to a procedure, or a regulation? The restrictions that you may feel are unnecessary are there for a reason. Chances are that the reason is a smoking hole someplace that has long since cooled. So perhaps yours is the greatest responsibility.

The work is cut out for all of us, the young, the old and all those in between. Shall we get to it?



TACTICAL AIR COMMAND

Maintenance Man Safety Award

Sergeant Rodney D. Griffin, 834th Field Maintenance Squadron, Hurlburt Field, Florida, has been selected to receive the TAC Maintenance Man Safety Award for January 1972. Sergeant Griffin will receive a letter of appreciation from the Commander of Tactical Air Command and a Certificate.



Sgt Griffin



TACTICAL AIR COMMAND

Crew Chief Safety Award

Sergeant Jon L. Thurman, 49th Tactical Fighter Wing, Holloman Air Force Base, New Mexico, has been selected to receive the TAC Crew Chief Safety Award for January 1972. Sergeant Thurman will receive a letter of appreciation from the Commander of Tactical Air Command and a Certificate.



Sgt Thurman



TACTICAL AIR COMMAND

Ground Safety Man of the Month

Technical Sergeant John C. Barthlow, Jr., 49 Tactical Fighter Wing, Holloman Air Force Base, New Mexico, has been selected to receive the TAC Ground Safety Man of the Month Award for January 1972. Sergeant Barthlow will receive a letter of appreciation from the Commander of Tactical Air Command and a Certificate.



TSgt Barthlow



new look in aircraft maintenance management

by **Capt William B. James**
TAC/LGMMP

You troops engaged in the business of maintaining airplanes are going to notice some changes in the very near future. Effective 1 July 1972, there will be a "new look," organizationally speaking, in TAC aircraft maintenance activities. For those stationed at Davis-Monthan, Cannon and Mountain Home Air Force Bases, the changes become effective on 1 March 1972. Personnel assigned to the 4500 Air Base Wing, the 57 Fighter Weapons Wing, the 58 Tactical Fighter Training Wing and the 2 Aircraft Delivery Group will not be affected, at least initially. As to what will happen and why, an explanation follows:

For several years, the majority of TAC units have been operating under the decentralized or squadron concept of maintenance. If you are a "wrench bender," "spark chaser," or other aircraft-related specialist/technician, it is probable you are assigned to a flying squadron consisting of aircraft, aircrews, and maintenance/logistics personnel under the direction of a single tactical squadron commander. The concept is unique to TAC, designed to satisfy the command's worldwide mobility commitment. When deployment requirements arise, a squadron or squadron segment can move rapidly as members of a group where aircrews and support personnel are fully acquainted with each other and can function effectively with the same interpersonal relationships they enjoyed while operating at home. The decentralized system has served TAC's mission well. However, from the broader Air Force point of view, the TAC system and various maintenance management systems of the other major commands have created some training problems. A man transferred from one command to another cannot become fully productive until he learns the management system of his new command of assignment. Significant differences between the commands create a difficult and costly management situation. While less marked than the TAC decentralized posture, all commands have evolved individualized procedures, forms, and organizations. Under these circumstances, standardization can become cost effective. Therefore, the decision has been made to reorganize USAF to a standardized and centralized system of maintenance management. In TAC, the first step in this direction will be conversion to a familiar directive entitled "Maintenance Management," better known as Air Force Manual 66-1.

The older maintenance troops probably need no further explanation. Others are certainly wondering what the changes will mean to them personally. Well, first it should be made clear that we're talking about changing the management system. Positions will be retitled, certain functions will be expanded and consolidated, some duty locations will change, and the chain of command will be different. The technical and administrative requirements of your job, such as following TO procedures,

troubleshooting equipment malfunctions, ordering parts, filling out forms, and most of the other day-to-day activities related to maintaining aircraft and associated support equipment, will remain essentially unchanged. If you are presently assigned to the Field Maintenance Squadron or the Munitions Maintenance Squadron, you will notice very little difference at all. Most impact will be felt by those currently assigned to the Tactical and Special Operations Squadrons.

If you work in maintenance in a fighter, reconnaissance, airlift or special operations squadron, your section is ultimately responsible to the Logistics Officer who, in turn, reports to the Squadron Commander. The Logistics Officer, in effect, is your Chief of Maintenance, responsible for the total maintenance effort within the squadron. At wing level, a Director of Logistics acts in an advisory capacity to the Wing Commander while providing assistance to the individual squadron Logistics Officers. The Director of Logistics and the individual Tactical, Field Maintenance and Munitions Maintenance Squadron Commanders all report directly to the Wing Commander. Under AFM 66-1, this structure will change substantially.

As conversion becomes reality in your wing or separate group, the Director of Logistics and his staff will disappear and a Deputy Commander for Logistics will become the senior Logistics Officer within the wing. This means TAC will revert to the "dual deputy" system with a Deputy Commander for Logistics (DCL) and a Deputy Commander for Operations (DCO), both reporting directly to the Wing Commander. As the title implies, the Deputy Commander for Logistics will have command authority where the Director of Logistics did not. Reporting to the DCL will be the Wing/Group Chief of Maintenance, responsible for the total aircraft maintenance effort within the wing. Those "Chief of Maintenance" responsibilities which formerly rested with the individual squadron Logistics Officers will now be centralized under a single wing manager. In fact, under AFM 66-1 the assigned maintenance/logistics capability of the tactical squadrons is totally withdrawn.

The Chief of Maintenance will be provided with a staff consisting of Quality Control, Maintenance Control, Training Control, Materiel Control, Maintenance Analysis and Administrative Sections, each handling their respective responsibilities for the entire wing. Many of these responsibilities are presently assigned to the Wing Director of Logistics staff; others are found in the various squadrons. At the working level a new Organizational Maintenance Squadron (OMS) and Avionics Maintenance Squadron (AMS) will be formed. Along with the Field Maintenance Squadron (FMS) and the Munitions Maintenance Squadron (MMS), the OMS and AMS

commanders will report directly to the Chief of Maintenance. In other words, unlike the TACM 66-31 decentralized organization, a Chief of Maintenance sits squarely in the chain of command, with his staff and his maintenance squadrons reporting and responsible to him.

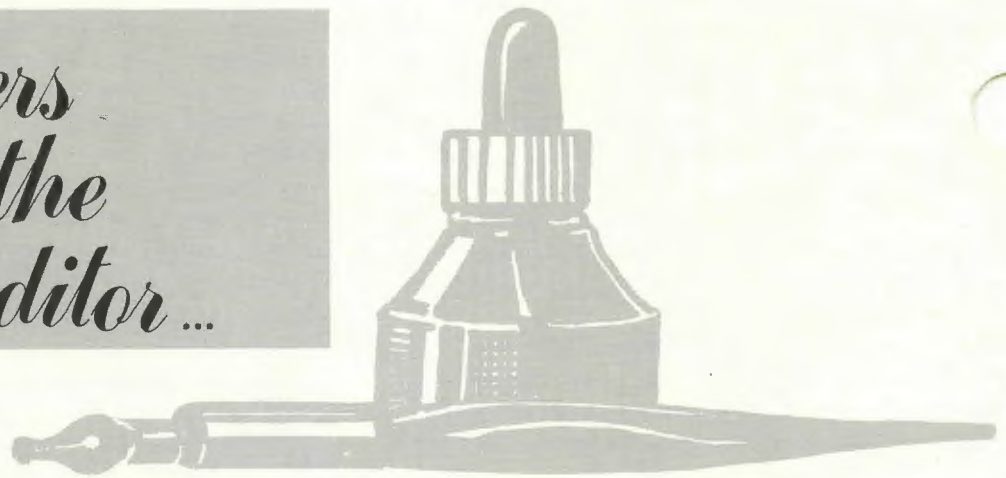
Now, what will these changes mean to the average working troop? If you are a specialist or flight line mechanic/technician/supervisor assigned to a Tactical or Special Operations Squadron, you can expect to be reassigned within your wing or group. Depending on your specialty you will become an important part of the Avionics Maintenance, Organizational Maintenance or expanded Field Maintenance Squadron. Possibly you could be assigned to the new Chief of Maintenance staff, in Maintenance Control for example, functioning at a wing level. For the majority, a new duty location and a new chain of command will be the most noticeable changes. The job you perform within your Air Force specialty will remain essentially the same as the one you are performing now.

A few of you may feel that you've been overlooked because of our preoccupation with wing-size units, but everyone in Logistics is affected by the move to centralized maintenance. The diversity of mission and equipment of TAC will require exceptions to the wing-sized rule. Smaller organizations, not part of a tactical wing, may require a Consolidated Aircraft Maintenance Squadron (CAMS) or a modification of the Chief of Maintenance complex previously described. Other unique missions or organizations of a few TAC units will be addressed on a case-by-case basis.

Coming later will be relatively minor organizational and functional realignment to adapt to the "standard" Air Force reorganization which is presently under development. This is a worldwide effort, with all major commands participating in the rewrite of AFM 66-1. The new manual will be considerably expanded in detail but with each functional area treated in a separate volume. The goal is to reduce the requirement for command supplements to a minimum to effect maximum standardization. The new manual should be in the field by late summer, with full implementation scheduled by 1 October 1972. Our intent has been to provide a brief insight of what will happen to TAC aircraft maintenance activities and the dedicated people who make them function.

There is no reason to expect any radical changes in your present duty situation. As with any major conversion, there are details which remain to be worked out. If your transition to centralized maintenance is smooth, uneventful, and you know what to expect before it even begins, then our objective in publishing this article will have been eminently accomplished. ➤

Letters to the Editor ...



Note to Readers

With this issue a new TAC Tally begins (Pg 31). It is an expansion of the previous format with the overall purpose of providing more information. The Aircraft Accidents section (top right) has been expanded to include both the rate and the number of accidents for each TAC unit. The Summary (bottom third of page) has been expanded to show both TAC and TAC-gained ANG experience. (Reservists, don't fret, your accident experience is so low there's no need to include you in the Summary. Hopefully, we may never have any need to expand this section to include AFRes.)

ATTENTION: Former 56TH Commandos

The 4th Annual Reunion of 56th Air Commando Wing (Special Operations Wing) officers will be held in Fort Walton Beach, Fla., on 21, 22 and 23 April 72. All Nimrods, Zorros, Sandys, Hobos, Fireflies, Candlesticks, Nails, Knives, Ravens, Waterpumps, Litterbugs, Tropic Moons, Jolly Greens, Yellowbirds, Redbirds, and anyone else who was part of, attached to, or worked with the 56th Wing at NKP are invited to attend. If you did not receive the recent reunion letter, send your name and address to 56th ACW Reunion, PO Box 7, Mary Ester, Florida 32569.

How's your FRIML?

In regard to the engineering "find" on page 8 of the November 71 TAC ATTACK, I have had plans of a portion of it for some time now. The only difference is that mine is called a "FRIML" mount, as can be seen in attachment.

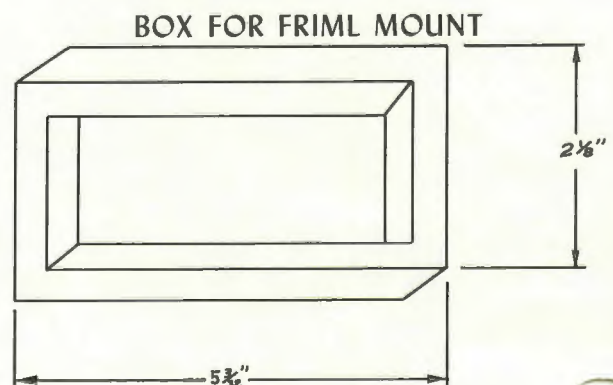
Also enclosed in the other drawing is the layout for a "BOX" for the "FRIML" mount.

Hope this helps in the investigation.

Scientifically yours,

Malcolm E. Russell, MSgt
128th ARG (ANG)
Gen Mitchell ANG Base, Wis.

Thanks Sarge; we'll show a drawing of your FRIML Mount Box... just in case someone needs to build a working model... Ed.



TAC TALLY

MAJOR ACCIDENT RATE COMPARISON

	TAC		ANG		AFRes	
	1972	1971	1972	1971	1972	1971
JAN	0	1.6	0	16.7	0	0
FEB		1.6		11.6		0
MAR		3.1		7.0		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
		3.2		6.9		2.1
NOV		3.3		6.9		2.0
DEC		3.2		6.4		1.8

AIRCRAFT ACCIDENTS

UNITS

*Estimated

	THRU JAN					THRU JAN			
	1972		1971			1972		1971	
	ACDTS	RATE	ACDTS	RATE		ACDTS	RATE	ACDTS	RATE
9AF	0	0	0	0	12AF	0	0	0	0
1 TFW	0	0	0	0	23 TFW	0	0	0	0
4 TFW	0	0	0	0	27 TFW	0	0	0	0
					35 TFW	0	0	0	0
31 TFW	0	0	0	0	49 TFW	0	0	0	0
					58 TFW	0	0	0	0
33 TFW	0	0	0	0	67 TRW	0	0	0	0
68 TASG	0	0	0	0	71 TASG	0	0	0	0
316 TAW	0	0	0	0	313 TAW	0	0	0	0
					314 TAW	0	0	0	0
317 TAW	0	0	0	0	355 TFW	0	0	0	0
					347 TFW	0	0	0	0
354 TFW	0	0	0	0	425TFTS	0	0	0	0
363 TRW	0	0	0	0	474 TAW	0	0	0	0
4403 TFW	0	0	0	0	516 TAW	0	0	0	0
TAC SPECIAL UNITS									
1 SOW	0	0	0	0	4410 SOTG	0	0	0	0
2 ADG	0	0	0	0	4485 TTS	0	0	0	0
57 FWW	0	0	0	0	4500 ABW	0	0	0	0

TAC		
JAN 72	THRU JANUARY	
	1972	1971
0	0	1
0	0	1
0	0	0
0	0	0
0	0	0
0	0	0

SUMMARY

TOTAL ACCIDENTS
MAJOR
AIRCREW FATALITIES
AIRCRAFT DESTROYED
TOTAL EJECTIONS
SUCCESSFUL EJECTIONS
PERCENT SUCCESSFUL

ANG		
JAN 72	THRU JANUARY	
	1972	1971
0	0	3
0	0	3
0	0	2
0	0	3
0	0	2
0	0	1
		50%

FLEAGLE

