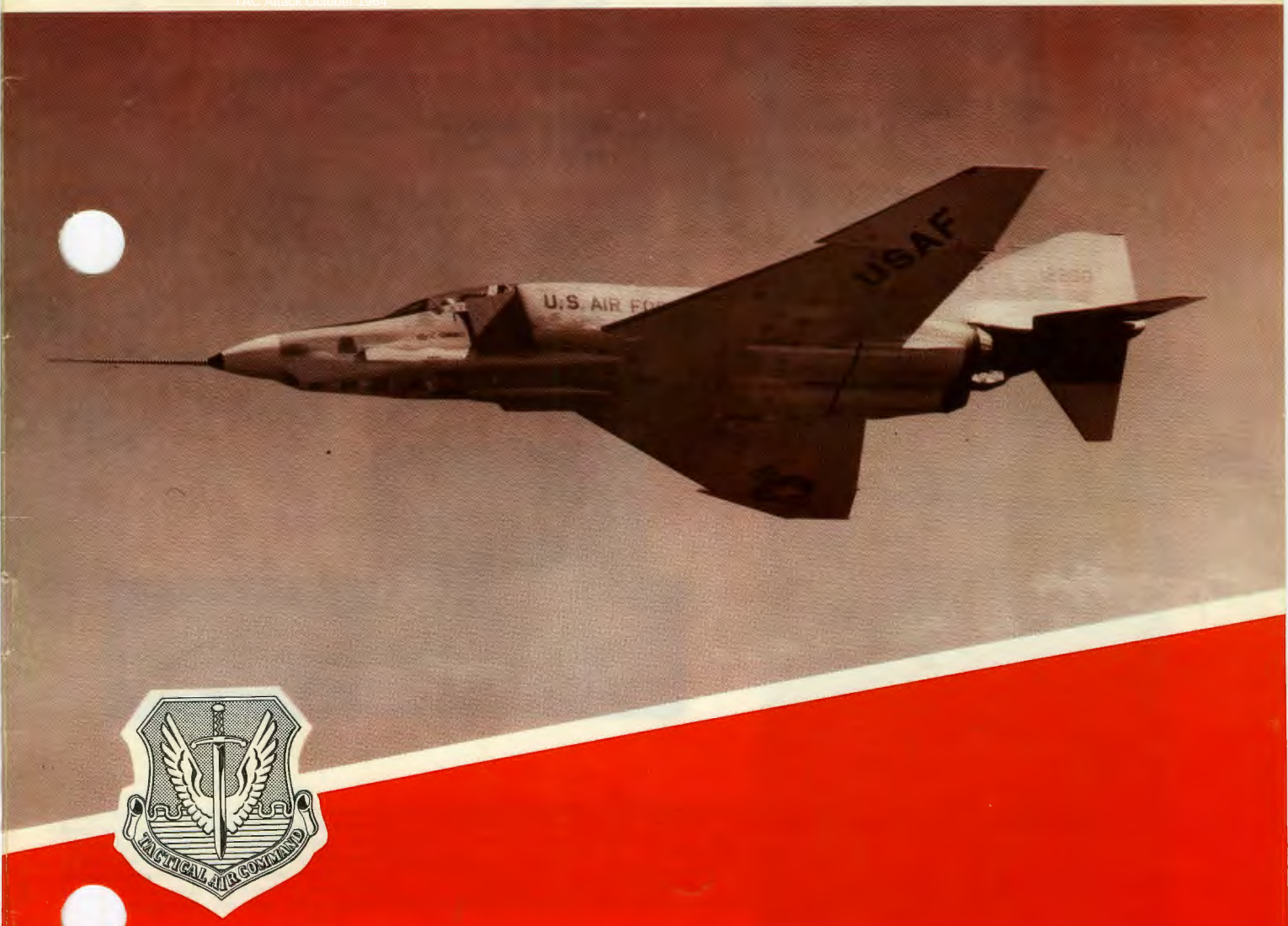
OCTOBER 1964

TAC ATTACK



TAC ATTACK

VOL. 4 NR. 10 OCTOBER 1964

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COVER PHOTO:

RF-4Cs are now being delivered to 4411 CCTG, Shaw AFB

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Angle of Attack

Colonel Eugene S. Williams
Chief of Safety

Sterling Moss is just about the sharpest man with an automobile who ever put both hands on the wheel. Yes, I said both hands. The fellow is quite adamant about that. He claims a driver needs two hands on the wheel in order to be in complete control during an emergency . . . he should know. In a recent magazine article, he said something about concentration which applies to flying as well as driving.

As I recall, he said it took him about eight years of intense effort to learn to concentrate so thoroughly that he didn't have to tell himself to concentrate at least once during a three hour race. While racing he doesn't allow himself a single extraneous thought. No easy task. Like he says, you see a red station wagon and it reminds you of a friend who had one . . . you went fishing with him . . . and there you are.

According to him, loss of concentration will kill a professional racing driver in short order . . . that the moment will always arrive when he has a second and a half to do something about an emergency and needs a full half-second to come out of his daydreams. I can't help wonder how many pilots have been lost under similar circumstances.

Moss contends that intense concentration greatly increases the pleasure of driving and that to attain it, a driver must constantly talk to himself. ". . . dirt tracks on the road ahead, farm vehicles must be crossing . . . blind bend ahead, hard brakes and downshift . . . a dog alongside the road, watch for a second one . . ." When this becomes second nature, he says that driving becomes relaxed, easy, and more enjoyable.

I see little difference between driving a Cooper Climax and this business of flying. In fact, I am quite certain that better concentration on the business at hand would have prevented all seven of the gear-up landings TAC pilots made during the past few weeks.

Despite those alleged long moments of boredom, professional flying is a demanding effort that warrents full-time concentration. The failure to give this full-time concentration is the true reason behind many of those moments of terror.

We took a chance

THE ACCIDENT was the most serious we've had in many months . . . two C-119s were destroyed and 17 people killed. The report was as thick as a mail order catalog and quite complete. Reading thru, I started getting impressions. For instance, the unit was in the middle of an ORI and, altho most of the supervisors indicated that this caused no undue pressure, not everyone shared their opinion.

Listen to the aircraft commander of the number four aircraft when someone asked if he had attended a serial briefing. He said, "Let's see . . . I was involved in so many briefings that weekend, and we held them at different locations. We had a briefing Friday evening, Saturday morning, then Saturday evening and I'm not sure whether it was downstairs in operations or upstairs in the immediate area of the main briefing. We had a final briefing at the aircraft also that could be interpreted as a serial lead briefing."

No, I'm not blaming the ORI itself . . . here's what a captain on the team said about the briefing . . . "By the time they got thru briefing Charlie procedures I found myself confusing procedures between Alpha and Charlie missions."

At least two people were confused by the briefing procedures and I received an impression that the unit was trying to make points on the ORI by using fancier b[r]iefings than they normally us[e] so, they probably would have been better off to use their every-day briefing techniques and let the result of the ORI tell them whether this was satisfactory.

A small point. Now listen to the major who acted as drop zone officer. Someone asked his opinion on how to prevent this kind of accident and he said: "We all set our rules and regulations when trying to launch a mission. Had this been a training mission with the weather forecast I heard they received -- I did not receive one myself -- I believe I would have launched the mission. However, now that I have looked at it, I'd say maybe I would set minimum ceilings and visibilities to be forecast for certain tactical missions. Not just VFR conditions but -- and call me an old maid if you want . . . but get them to pad for a form[er] flight. For example, 3500 an[d] instead of 2500 and five. Then if the weather doesn't hold, that forecast might be an asset in the future, I don't know."

Listen to the squadron operations officer when asked about the effect of the ORI. He said, "The Operational Readiness Inspection meant a lot to me, but it didn't mean enough that I would have gone overboard to complete my mission. I had just cancelled Alpha mission and was ready to cancel Charlie mission. I didn't think we needed a weather ship since the route was basically a large traffic pattern and, in my opinion, we were adequately covered by the lead aircraft. In other words I briefed the mission commander, if he saw anything . . . and I mentioned that the ORI was important but that its importance sto[od] well short of any unsafe prac[tice]

Frankly, I did not expect the ther conditions he encounter-

The unit has no weather station on base and must phone a nearby well known airbase for this info. For convenience, I'll call it Alpha Air Force Base. A major obtained the weather and briefed everyone . . . here is his comment on the weather. "The Alpha forecast was for 1500 overcast, seven miles. Big City gave 3500, Middle City 1400 broken with possible thunderstorms. The Little City and Village area were below a thousand feet. I next tried the FAA station as a double check. They came up with 3000 overcast and light rain with 1000 in thunderstorms if they happened to pass overhead. He more or less discounted the thunderstorms."

The board president asked, "Were you accustomed to using just the Alpha forecast or did you nally call other stations?"

Just Alpha. It seemed like we were maybe trying to make the weather better . . ."

His statement is confirmed by the weatherman at Alpha Air Force Base. He stated, "The Major seemed to be trying to pump me to get the best possible forecast, almost to the point of putting words in my mouth. For example, I remember stating a second time that I expected few to scattered thunderstorms over the entire route and he said, 'So you expect isolated thunderstorms.'"

By now you should have some idea of what happened . . . I think the aircraft commander in the number four aircraft outlined the mission rather well, so let me quote him. "The mission went normally until Checkpoint Bravo where we began to skirt low hanging clouds. We maneuvered to the to stay clear and were unable to follow the briefed route. Several times we actually entered areas of low visibility and the formation was on the verge of breaking up.

"Arriving at a point 15 to 20 miles northeast of the field, the formation leader advised drop zone control that the drop was cancelled because the initial point was IFR and we could not fly the briefed route."

That should have ended the mission, but it didn't. Listen to the drop zone control officer. "I immediately advised the ORI team chief and called the tower for their latest weather. It was 5000 broken and five to seven miles. The ORI team chief advised me to contact the formation leader to see if he wanted to select another IP and TOT . . . that if he could give us a new drop time it would be authorized."

The drop zone could only be used in one direction . . . all drops had to be made on the same heading. Let's see what another aircraft commander had to say. Here's the number six man . . . "In my opinion, the decision to call the drops off was correct. The mission commander could easily have made it earlier and had the approval of all aircraft commanders. It is also my opinion from the conversations I heard over the radio that the mission commander's decision was questioned from the ground. The weather looked good in the immediate area. I also recall that the mission commander explained that the formation had encountered both marginal and IFR conditions and was cancelling for that reason. I recall my personal relief when he did cancel and my utter disgust when a plan was proposed to try again."

Let's go back to the aircraft commander flying the number four bird. "We proceeded on a heading of about 30 degrees and soon were in and out of small cloud layers that could not be seen until we had lost visibility. Some ships began leaving the formation and advising that they were returning to the field. Then the lead ship said the formation would return to the base and reassemble and that the drop was cancelled (for the second time).

"During this turn to base I saw the lead element enter a cloud and disappear from view. At that instant the clouds lit up to a bright reddish brilliance. I pulled up and turned right."

Shortly after entering solid cloud, number two ran into the formation leader. There were two survivors, the flight engineer and the jumpmaster in the number two aircraft. The jumpmaster gave this account of the collision. "As we came into the left turn I decided to walk to the other side and look out the window. Shortly, I heard a sharp report which sounded like a backfire of the left engine. This was followed by the aircraft coming open about at the entrance door. I could see the plane separate with the forward compartment moving. At this point I realized I was in the air and pulled my reserve chute.

"I don't know if I pulled the D-ring or not but I did feed the chute out with my hands. After the chute opened I looked around. A section of the aircraft was moving to my right and there was a ball of flame. I saw an orange and white chute that was the flight engineer."

These accounts tell pretty much what happened. On the surface, the mission commander failed to follow his better judgment and inadvertently entered IFR conditions.

This induced the number two

Continued next page . . .

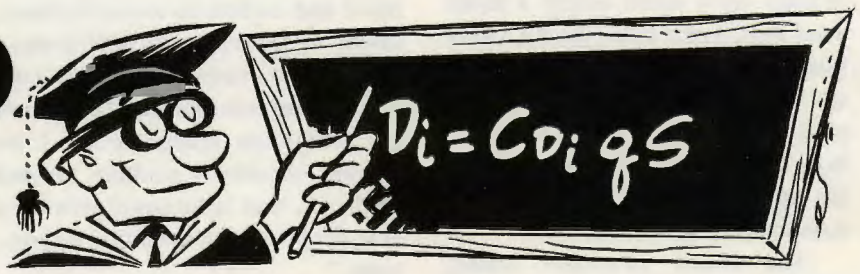
aircrew to lose visual contact and instead of breaking out of the formation, they took a chance that ended in the collision. Behind this simple solution are numerous indirect causes which induced the mission commander to press on against his better judgment and violate 60-16 by flying IFR on a VFR clearance.

Of note, the first attempted drop was made shortly after sunset. As the evening progressed it became increasingly difficult to see clouds in time to avoid them.

The weather briefing for the route indicated the formation would most likely encounter IFR weather before reaching the drop zone. Wing supervisors accepted this and decided to make a try, leaving the final decision to the airborne mission commander... then, when the airborne mission commander made his decision, someone, by inference, immediately questioned it! This was done by the people on the drop zone, and altho the report didn't make it clear whether these people had been briefed on enroute weather, this should have little bearing on the subject. When a commander puts a good, sound thinking man in charge of a flight where he needs him for on-the-spot decision making, everyone connected with the operation should realize this and respect that man's decisions.

Yes, the unit was operating under pressure . . . for the most part this pressure was self imposed . . . and operating under pressure is a dangerous pastime.

AERO BITS

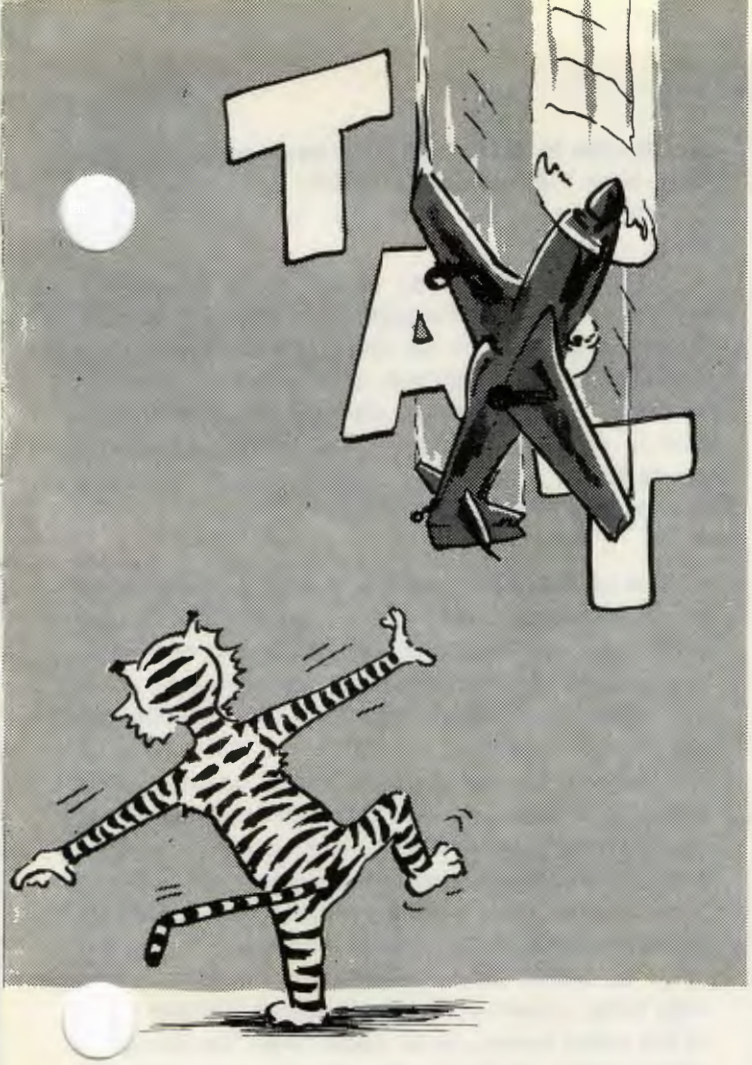


ON THE FINAL approach for a bombing run, an F-4 pilot went into burner to pick up a little more airspeed. At about 580 knots the bird went into a JC maneuver that was a real dandy – external tanks came off, the G meter was pegged at both ends and the entire airplane had to be inspected to be sure it hadn't come unglued. JC maneuvers have been with us for a long time, but in most earlier birds, they didn't ruin much more than the pilot's morale. The way we operate most of our late model birds today, the JC can become a really serious problem.

A few years ago we flew low levels at 300 to 360 knots and it was unusual to maintain much over 400 knots indicated for any period of time. Now, most low level nav missions are planned for at least 420 knots and 500 plus is pretty common. This increase in routine operating airspeed is what has made the JC a real hazard.

Although it's not recommended flying technique, most aircraft are built to take seven and a third Gs time and time again with no damage. Anything above that and the bird is going to bend a little. More than about 12 Gs and most aircraft will start spreading themselves around the countryside. Since most fighter pilots start to grey out a little at 7 Gs, no one deliberately pulls 12, but lots of little things can go wrong with the feel system and other goodies in the flight control system and the result can be grim. The maximum number of Gs an aircraft can produce depends upon the stalling speed (Vs) and the indicated airspeed (V). Once you go supersonic, the stability, controllability, etc., change so this discussion is limited to the subsonic speed range. The formula for figuring maximum possible Gs is simple - you divide V by Vs and square the result. G max $=\left(\frac{V}{Vs}\right)^2$. A point to consider is that you will be working with clean stall speed. For example, you're indicating 500 and stall speed is 160. The maximum available G is about 13. Lowering the stall speed by decreasing gross weight will cause the available Gs to go up pretty fast. If you stall at 140, still indicating 500, you can get almost 17.5 Gs. Away from math for a minute, just remember that above 450 knots you can overstress most fighters and over about 550 you can tear them apart.

In most aircraft, the feel system and pitch dampening equipment protect you from overstressing. But the aircraft are aerodynamically capable of destroying themselves. If anything is wrong with these systems, keep out of the high speed envelope. Your Dash One gives the best advice in this area. You're not going to have time to read it in flight, so learn what your bird can do and remember it and you'll be around for the next pay raise.



ONCE UPON A TIME, before some slipstick artist discovered that airplanes would still fly with tons of junk hanging from their wings, landing was the big sweat. We sure clobbered 'em in those days . . . most trying to beat the 24-second record. Nowadays, the real thrill comes between liftoff and the first few hundred feet - depending on the type seat. Problems at this time can result in some busy, sweaty seconds. To compensate, everyone has gone the preplan route . . . acceleration checks, refusal speeds, go, no-go points and so on.

Along this line, I have an incident to amuse you -- about a TAC pilot who had the AB blow out just as he rotated his F-100 on a 13,100 foot runway. He promptly brought the throttle inboard and tried a relight. No joy on the relight, so he brought the throttle inboard again, planning to press on off in military. He checked EPR and found it 'way low. The eyelids were still open. Back came the throttle and off went the garbage . . . four 500 pound bombs and a wagon load of 2.75 rockets.

There was no barrier on the airpatch and it took some 200 feet of overrun to get fully stopped. The report made no comment on the drag chute. Believe me, he isn't the first to forget this item if he didn't use it.

My first quarrel is with his attempted relight. It is one of those things that a fella does almost by instinct. Usually an AB blow-out means an AB malfunction, and frankly, an attempted light takes too much time when time is in short supply. Suppose he'd gotten his light only to have another blow-out 30 seconds later?

He was using his head when he checked EPR and he apparently did some good braking . . . but like most of us, he needs to polish another part of his takeoff preplan. Polish to the point where he can do what needs to be done during an abort. Like the go - no go, this part of the plan is also in the handbook and now that they've refined the book it doesn't take a Tom Swift to hack the plan . . . it just takes an occasional dry run.

Incidentally, along this line, the whole reason for preplanning stuff like this is to keep from making mistakes in an area where it is very difficult to play things by ear.

Too often some young lad -- or an old head - ends up in paradise or with a needlessly battered machine because they threw their preplan out the window after an emergency developed. They're the guys that defer an ejection until even the rocket can't save 'em . . . who run out of time on an abort because they get too busy improvising or making "just one more attempt" to correct the malfunction.

AN F-4 PILOT felt one flap come down before the other as he turned base leg. He shoved the emergency flap handle down and completed the approach.

After clearing the active, he raised the emergency flap handle and nose wheel steering promptly failed. He tried normal brakes but they were out along with everything else. He pulled the emergency brake handle and managed to get the bird headed straight but when he applied both brakes to stop it they were gone! He promptly shut down both engines and dropped the hook.

The bird continued to roll up the taxi ramp until a very alert captain noticed the dragging hook and read the signal five square. He hailed a ground crewman who skillfully dropped chocks under the wheels.

Gather 'round F-4 sports and F-4 sports to be . . . the utility system will fail if you try to retract flaps after using emergency extension. This causes

Continued next page . . .

fluid to be literally purged from the system. Follow the handbook and don't do it.

The emergency brake malfunction was due to a broken seal in the emergency brake relief valve . . .

Incidentally, dropping the hook makes a good signal for an I-can't-stop-the-beast situation. The dragging hook is readily noticed by ground crewmen.

WHEN THE BIRD builders started chunking extra seats into fighters they inadvertently threw a curve into a few dyed-in-the-wool fighter pilots. Nothing so serious as overloading other fighter pilots in the old fashioned single place machinery with low altitude frequency changes and such. In fact, nothing that couldn't be cured with a little crew briefing and coordination. My for-instance concerns a T-bird crew (I know, that ain't no fighter but it still fits my point) who came to grief because the front seat pilot interpreted a mild buffet on takeoff to be from a nose wheel shimmy and his friend in the aft seat thought it was from an excessive nose-high takeoff attitude. The aft seat friend reacted by quietly pushing forward on the stick. The front seat hero resisted. His friend in back then hauled off the throttle to abort the takeoff - again without saying anything.

With a friend like that, I'd be inclined to very quietly remove the control stick and firmly beat him about the head and shoulders. However, the fact remains that proper briefing, proper discipline and proper respect for the other man's competence would have prevented this fiasco. Have you been guilty of engaging in one of these tug-of-wars?

AN F-105 PILOT from another command was checking out the extended afterburner range while cruising at 44,000 feet and 260 knots. As he retarded the throttle to the extended AB range stop, the RPM came back to 86 and a half per cent . . . which is OK then the AB blew out followed by the engine itself which ain't OK.

The engine fired up, no sweat, in the normal system at 34,000. A flameout team checked the bird from the aft hole to the front pole without finding anything wrong. Right now they're betting that the minimum extended range AB operation at high altitude is what put the fires out and will make appropriate tests. If the tests confirm, you can expect a caution note in the flight manual.

I WAS READING about a big bird from another command which broke out of the weather headed toward a funny looking cloud bank that turned out to be the coast of Greenland. This happened to be some 630 miles north of course! I will not bore you with the gory details, other than to report that this jaunt started with excess deviation in part of the aircraft compass system . . . was aggravated by a few wrong assumptions plus a little bad luck and contained a hat full of errors that lulled the hero of this sad tale into thinking everything was ship shape. It took him nearly seven hours to get this far off course and during that time he never once really pinpointed his position with loran, celestial (they had only been IFR for [illegible] of the seven hours), or by radio fixes. The navig[illegible] never really admitted to the aircraft commander that anything could be amiss altho he had reported the compass trouble. I could go on and on. The important thing was the corrective action which should have been taken BEFORE this hair raising episode was ever allowed to develop. It included a close look at squadron navigator qualification standards and was designed to insure that all navigators were doing pinpoint quality navigation as the rule, rather than the exception and that all were using all available aids to check and cross check their work.

Altho the unit had a standardization program, it apparently had gotten rusty. Very rusty. I imagine some heads rolled after the rust was scraped away.

A YOUNG TIGER from another command eased power back to 85 percent to let his wingman catch up. However, when he shoved the throttle forward again the rpm failed to follow. He promptly selected the emergency fuel system and soon had 95 percent on the old mill.

So far, so good. Next he re-selected the normal fuel control system and . . you're right . . . pres[illegible] on with the mission. Some time later, the next tim[illegible]

reduced power, the engine greeted him with a series of compressor stalls followed by decreasing rpm. He tried the emergency system but the fire was out. From 35,000 to 6,000 he tried air starts in both normal and emergency systems, finally concluding his efforts by raising the goodbye handles. The ejection was a success with everything working according to plan.

During the investigation he admitted that he launched on this mission even though his TACAN set was inoperative and weather was IFR. He didn't have a birddog or omni, either.

As could be expected, he was soundly criticized for this, for going back to the normal system and for pressing on with the fuel control malfunction. Rightly so . . no peacetime mission is this important. Fact is, as stupidly eager as I was in my less senile years, I wouldn't have headed out toward the Yalu with an engine that wouldn't grind out a full honest 100 percent. Shucks, a fella needs every break he can get, so why start the game with two strikes and no balls?

We could use smaller print.

HERE'S ONE FOR YOU guard house lawyers. The Navy crossfeed reported that they have lost three Phantoms due to stall and spin accidents. The reporter then observed that F-4 spins have been played down in Navy circles and that most pilots operate under the illusion that you can't spin the bird . . . but if you do, just pull the drag chute handle and recover. The reporter then stressed the need for treating spins as an IMMEDIATE ACTION EMERGENCY and having the procedure down pat.

Being a curious cat I hauled out the F-4 dash one and started to read. The book starts its spin discussion by saying that the machine is highly spin resistant, then goes into a right good pitch on how to recover from both upright and inverted spins. The procedure seems fairly conventional and the book describes three basic techniques to try.

Everything looked forthright, altho it takes about 15,000 feet to recover . . . then I noticed an innocent little item titled, "Engine Effects." This casually mentioned that spin tests have shown the engines will probably flameout during spins and spin entries and that normal flight control operation for recovery will deteriorate after three turns and may not be possible after five turns. Hoo boy!

It pays to read every word, don't it?

HAVE YOU BEEN CAUGHT without a pencil on a cross-country boondoggle? I mean have you reported in to a center confidently expecting a cheery, "Omit progress reports," only to find the guy wanting them? If traffic is heavy or your IFF is sick, the controller will want your progress. To save wear, tear and confusion, give the estimate for your next fix along with your flight level when you first report to each controller. If he doesn't tell you to omit progress reports at this time, assume he wants 'em and have your paper work up to date when you report over the next fix . . . if you'll say, Air Force Blank Bleak Blank, Scrubville - or whatever the fix is - he'll either excuse you then, or say, "go ahead." Don't argue if he says, "go ahead," but rattle off your report in your best, most cheerful and professional manner. The man is busy and under no obligation to relieve you of this little chore.

By the way, when the center does tell you to omit progress be very careful to continue monitoring his chatter . . . too many troops have been relaxing their listening, causing concern and confusion. I for one, still monitor my changeover points from one center to the next, and if I cross the little line without getting a new frequency, I call the man. Also, if I have a poor receiver, I'll ask for a changeover frequency and reporting time when reception is still reasonable.

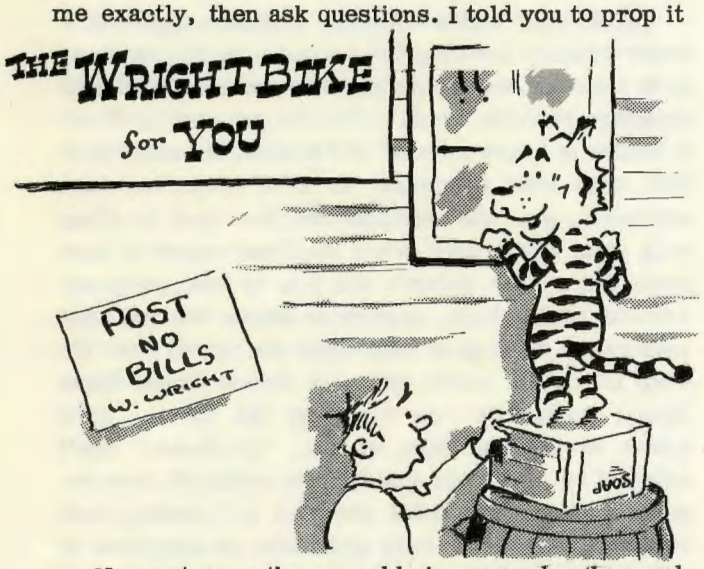
Center service is getting better all the time and I have no intention of abusing it.

"TAT OLD MAN, I had one departing Norton the other day that'll interest you. You know how the mountains are to the East of the field . . . well, we were taking off on zero five and departure control told us to make a right turn to climb on course. I'd asked for an SID, but this looked easier, so we turned to the south then turned back toward the northeast. It didn't take long for the radio to start jumping. The

Continued next page . . .

controller was upset because we didn't make a right turn all the way around to the northeast. How about that?"

Apparently the near 360 degree turn was designed to gain enough altitude to clear the mountains. As it was, the weather was VFR and my friend had no sweat in that respect. I sympathized, since the controller's instructions were rather vague. I'm sure any troop who regularly operates out of Norton would understand them perfectly, but to a stranger . . . Altho I sympathize, I keep thinking about what Wilbur told the hired men at the bike works. Near as I can remember he said, "Herman, if you don't understand me exactly, then ask questions. I told you to prop it



up. Now put away the ax and bring some bamboo and a little bailing wire."

Vague instructions are not unique . . . all controllers place a great deal of emphasis on their terminology and try to make each word they utter have precise meaning. Unfortunately, radios blare, someone is caught reading a check list when the controller starts his pitch, or is hard of hearing (show me a pilot who has been flying 15 or 20 years who still has perfect hearing!) Yes, and some pilots don't completely understand all the fine shades of meaning which controllers attach to each word. The result is imperfect communication. As pilots we are the action agency and it is our responsibility to make certain we know what the controller wants.

Which reminds me. I've operated in and out of one particular base with a superb departure control. I've had them vector me thru a group of thunderstorms that were so tightly packed the climb vectors went from 330 degrees to 45 degrees and back to 360 degrees and were issued so precisely I had the feeling the controller was looking over my shoulder. However, one thing about the operation bugged me. The initial climb instructions usually sounded somet like this . . . "After takeoff, left turn to 180 degr and contact departure control on 363.8 squawking three, two one."

Short, sweet and simple. Too simple. What happens if your radio conks? Your outbound course is toward the north and 180 degrees takes you out over the gulf. On a VFR day I don't fret a clearance like this. When it's IFR I ask for more complete instructions in case of radio failure.

By the way, I have had some real fine vectoring by some of the centers. A few weeks back Jacksonville center threaded us thru an almost solid wall of thunderstorms without so much as getting us wet. We were having radio problems and when he handed us over to Washington, they immediately came thru with vectors around another batch of storms.

It was a real professional show and my hat's off to them.

THE RIGHT HAND engine overheat light came on as a Navy F-4 crew was making an intercept. It went out when the pilot reduced power, so he pressed on. About ten minutes later the right light came on again but, once more, it went out when the pilot reduced power. A short while later the left engine develop vibration that induced the pilot to take the mac back home.

Four nozzle flaps were missing from the right engine and a hole was burned thru the fuselage . . . in fact, the overheat element was melted and would no longer react to a press-to-test.

The F-4 fire warning system has a bad habit of crying, "Wolf" and this time the wolf was there. Aircrews have little choice. They must accept every fire light as a valid warning . . . particularly those that react to throttle by blinking on at higher power settings and going out when power is reduced.

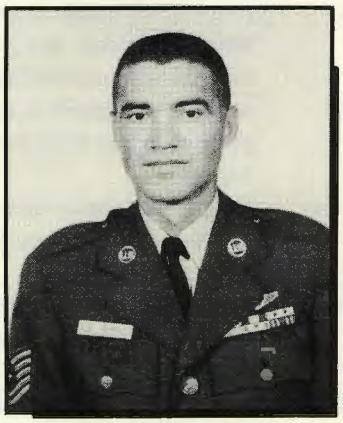
ON THE GO from an SFO, a T-bird pilot from another command show found power response slow. The aircraft kept sinking and reduce drag was his thinking. He raised the flaps and everything fell apart. The bird slammed in nose high about a thousand feet short of the runway. And there was this contractor's truck out on the overrun and that made less fun and more noise and pieces.

Moral: Learn how to stay ahead of your cotton pickin' bird and don't forget that raising flaps increases the stall speed.

SEG NEWS

4450th Standardization Evaluation Gp.

Know your Stdn Evaluators



TSGT CECIL E. PERRY
T-29/C-131 FLIGHT MECHANIC EXAMINER

TSGT Cecil E. Perry entered the Air Force in February 1951 and has had continuous service since. After graduating from A&E school at Sheppard AFB, Texas, he was assigned to the 108th FB Gp at Godman AFB, Kentucky, where he received his first flightline experience crewing F-47 Thunderbolts. In October 1952, TSGT Perry was reassigned to the 58th FB Wg at Taegu, Korea, crewing F-84s. Upon reassignment to the ZI in November 1953, he started the flying phase of his military career by checking out as a flight mechanic on B-26s with the 2d Tow Target Squadron at Mitchel AFB, New York. Since, TSGT Perry has had a continuous flying job, crewing and flying such aircraft as the C-47, B-25, C-123, T-29, and C-131. Prior to being assigned to SEG, TSGT Perry was crewing a T-29 with the 4500 Ops at Langley AFB, Va. Since joining the 4450 SEG, he has served as the Flight Mechanic Evaluator in the T-29 and C-131.

SEG WRITTEN EXAMINATIONS

A major area of evaluation during SEG formal standardization/evaluation visits to TAC units is the aircrew written examinations. An objective rating is computed and the resulting area grade has the effect of a critical area on the unit's overall rating. This means, when a unit is rated marginal or unsatisfactory in the written examination area, the overall unit rating can be no higher than that rating. During the past year, SEG has awarded unit written exam area grades that range from unsatisfactory to outstanding. The reason a unit is awarded either an unsatisfactory or an outstanding grade in this area is very easy to determine. Normally, the unit's written area grade is a direct result of the degree of individual effort being expended. A good example of this individual effort was evident during a recent formal stdn/eval visit to one of TAC's units. During this visit, written examinations were administered to assigned and attached aircrew members representing each crew position in eight different type aircraft. A total of 328 written examinations were administered with only one failure. (Yes, we expect that he did feel lonely!) The average written exam grade was 97.5%. Both the number of personnel taking the examinations and the resulting grades reflect the outstanding efforts of all concerned. This outstanding showing in the written examination area did not come about by

chance. After the SEG formal visit notification was received by the unit, the SEF contacted each aircrew member assigned and attached to the wing and told him when he was to be tested and what would be expected of him. The unit commander provided the additional influence necessary to insure full participation. Aircrew members were provided study guides and the high grades indicate that they were used and that all aircrew personnel (except one) were prepared for the examinations.

An outstanding rating on a formal stdn/eval visit is desirable to everyone concerned . . . it means everyone knows the approved procedures and is more capable of operating their aircraft safely.

NEW DATA ANALYSIS REPORT

One of the Data Analysis Branch's first assignments was to establish a system for analyzing raw material from flight checks. We wanted a system that would be speedy, accurate, reliable, responsive, adaptable, comprehensive and economical . . . in other words, the optimum system.

The SEG item area analysis reports, 01 squadron, the 02 Wing, Numbered Air Forces and Command, the 07 unqualified-conditionally qualified summary, and special reports were our first steps in this direction. But where, you might ask, does one report end and the next one start? We ran a survey and found users working with parts of all of these reports and consequently having to do a lot of duplicated effort. To correct this, we eliminated information that wasn't being used and consolidated the reports into one report.

The new SEG Data Analysis will be forwarded on a quarterly basis in sufficient copies to reach squadron level. It is compiled by aircrew, crew position, item/area, and broken down by squadron, wing and TAC. It summarizes proficiency, tactical, instrument and combat crew training. Here is a description of the 16 columns which you may find handy for decoding the new report.

* Crew Pos:	Crew position and type of report (Pilot Proficiency, Pilot Instrument, Pilot Tactical; for example).
* Area/Item:	Area/Item code.
* Description:	Word description of Area/Item code.
* Squadron:	Squadron designation with number of times an item was checked and average of current report for each squadron of the affected wing.
* Pr Wg Av:	Present wing average of each item for current report.
* Pr Cmd Av:	Present command average of each item for current report.
* Cum Wg Av:	Cumulative wing average of each item for the past year.
* Cum Cmd Av:	Cumulative command average of each item for the past year.
* Pr Wg #3:	Number of times a grade of 3 has been awarded for the specific item in the current report.
* Pr Wg #2:	Number of times a grade of 2 has been awarded for the specific item in the current report.
* Pr Wg #1:	Number of times a grade of 1 has been awarded for the specific item in the current report.
* Pr Wg #0:	Number of times a grade of 0 has been awarded for the specific item in the current report.
* Pr Wg Nr:	Number of times an item has been graded in the wing for the current report.
* Pr Cmd Nr:	Number of times an item has been graded in the command for current report.
* Cum Wg Nr:	Number of times an item has been graded in the wing in the past year.
* Cum Cmd Nr:	Number of times an item has been graded in the command in the past year.

Immediately following each type of report (Proficiency, Instrument, Tactical) the totals and averages are summarized. This summary indicates the number of checks administered during the quarter that were: Highly Qualified, Qualified, Conditionally Qualified, and Unqualified. Asterisks will appear throughout the report to indicate when an item grade is Conditionally Qualified, below, 1.70 level. The # sign will appear whenever an item grade is Unqualified, below 0.99 level.

The scope and magnitude of this reprogramming task is voluminous. The process of reprogramming started in January 1964 and the first reports were ready for field distribution in late September.

So you see, we defined the reporting problem,

ducted a survey of the present system, made an analysis of it, standardized our terms, definitions and reporting format, and then designed a new system. One final phase which remains to be completed is the follow-up. This must come from the using organization. Unless the operating personnel support it, the best of systems will not be worth the paper on which it is printed . . . and unless you can tell us how to improve with constructive criticism the new system may never evolve into that speedy, accurate, reliable, responsive system we are striving for. So, how about a helping hand?

GOOD SHOW

A good, healthy slap on the back for the 4510th SEF, Luke AFB, Arizona for their Stdn Team Digest. This digest is a monthly info sheet covering various items of special interest to flight examiners, IPs and supervisors . . . somewhat like a newsletter on stdn/eval matters. This looks like a good method for getting the word out to the troops and certainly will help keep the standardization/evaluation program popping at Luke. Perhaps some of you other SEFers might like to follow suit!

Maj Gen Doster greets Capt Horton upon completion of flight.

TSgt Shaver and Sgt Morris help Capt Pascall out of his anti-exposure suit.

READY GO

OPERATION READY GO was designed to test the capability of Air National Guard fighter and reconnaissance units to deploy overseas. F-100s of the 113th Tac Fighter Wing, District of Columbia ANG, and RF-84Fs of the 117th Tac Reconnaissance Wing, Alabama ANG, deployed non stop to Europe in mid-August. While in Europe, the units flew local training missions and then redeployed to their home stations. Ready Go proved the Air National Guard can take its place along side TAC's regular forces as a world wide strike force.

Ready Go was an Air Guard operation from start to finish. All support aircraft and tankers were from the ANG and Guardsmen from 17 states took part in the exercise. The success of the mission was best expressed by General Lyman Lemnitzer, Supreme Allied Commander Europe . . . "Magnificant." Congratulations Air National Guard... Well done.

stop me if you've heard this one

SOME AIRCRAFT incident reports read like a stock TV plot. After the first few words you know how the story is going to end. The names may change, but these classic tales of woe seem to be handed down from generation to generation. Here is an example.

Two F-100 pilots left the tanker after refueling and started a round-robin at FL 270. Thunderstorms were lined up across their course so they got a higher altitude from the center, lit AB and staggered up to FL 330 with high hopes of topping everything. Once they got there they saw that 330 wouldn't hack the program, and after getting clearance, started a climbing turn. Full military power wasn't enough, and again the element leader called for afterburner. This time, when number 4 knocked on the door, nobody w[as] home, instead of AB he got c[om]pressor stalls. The nose was hig[h] and airspeed bled off rapidly to about 100 knots. The bird fell into the clouds still compressor stalling. In the soup both the AC and DC generator lights came on and the attitude indicator froze at 30 degrees nose down and showing a right bank. On this lucky day the bases of the clouds were at 15,000 feet and the pilot recovered VFR, and added power, only to realize the engine had flamed out. An airstart on the emergency fuel system got everything working and a no sweat landing ended the mission.

The thunderstorm season is about over for this year and we probably won't see a carbon copy of this incident until next summer. This time of year the story changes and the reports will probably tell about low level cr[oss] countries that end where clouds meet the hills or tell of flights where the pilots plan for alternates they can't realistically use. All these situations are cut from the same pattern. Too often it is a fatal pattern.

Pilots get paid to make decisions. On nearly every flight each pilot is faced with hundreds of conditions that require an evaluation and decision based on that evaluation. It's rare that one poor decision puts a pilot into a dangerous corner. More often than not the problem develops after a series of marginal decisions. For example, you're on a low level in hilly country and the ceiling averages about 2000 feet. Up ahead it shelves down a little so you make your first evaluation and decide to press on and see if it gets any worse. So far so good. The vi[s] fine, so you continuously re-e[val]

uate the situation and bit by bit you ver your personal minimums. you clear the crest of a hill under an 800 foot ceiling you realize that you've goofed. Ahead the clouds touch the hills and there's no room to turn. You're cornered, but with luck you make it . . . a little wiser. Thunderstorms present the same kind of temptation. You climb a little and ease around the edge of one build-up and find the next row is higher. You re-evaluate and add more power to climb some more. But it's higher than it looks and airspeed bleeds down too far. With no horizon as a reference it's hard to tell exactly what your attitude really is which makes things even worse. One bad decision? No, a lot of little ones. You've traded away your own minimum standards of performance.

No matter what the rules and regulations say, every pilot sets own minimum standards of performance. If the approach minimums are 100 and a quarter, a pilot may set 200 and a half as his own minimums . . . although the Dash 1 may say the bird will go 1,500 miles no wind, a pilot may set 1450 as his personal max range. Pilots set their own standards based on their equipment and their own ability, and on these standards, they make decisions. Since there is no such thing as an instantaneous decision, we use all sorts of crutches to help. The take off go-no-go speed is figured ahead of time and at this time the decision is made to abort unless that speed is attained. All that remains is for the pilot to observe the conditions during takeoff and to react accordingly. Standards and limits that are set by written rules and those set by the pilot are really pre-decisions. When these standards and limits are reached, there is no need for anything except action. We get into trouble when we change our minds and make a new decision that violates the pre-decision.

The mission is foremost in most pilot's minds and it would be foolish to think that things weren't pressed occasionally in order to accomplish that mission. But there is a point beyond which we must not press even if it means the mission will not be accomplished.

What's the answer? The school solution is good judgment, but none of us possess it all of the time. Good judgment is often hindsight for the opposite of what happened. Recognize that the published rules and regulations, plus your personal standards of performance, are your pre-decisions. When you are confronted by a situation that violates these standards, follow your pre-decision as planned...do the classic 180 and live to fly another day.

"on guard"

"I LOOKED DOWN the road and saw a motorcycle approaching but didn't realize how fast he was going...as I pulled out ross the intersection the motorcle driver started to swerve and then hit the car."

A TAC airman was on the cycle. He died of head injuries . . . no crash helmet and traveling over 40 in a 25 mph zone.

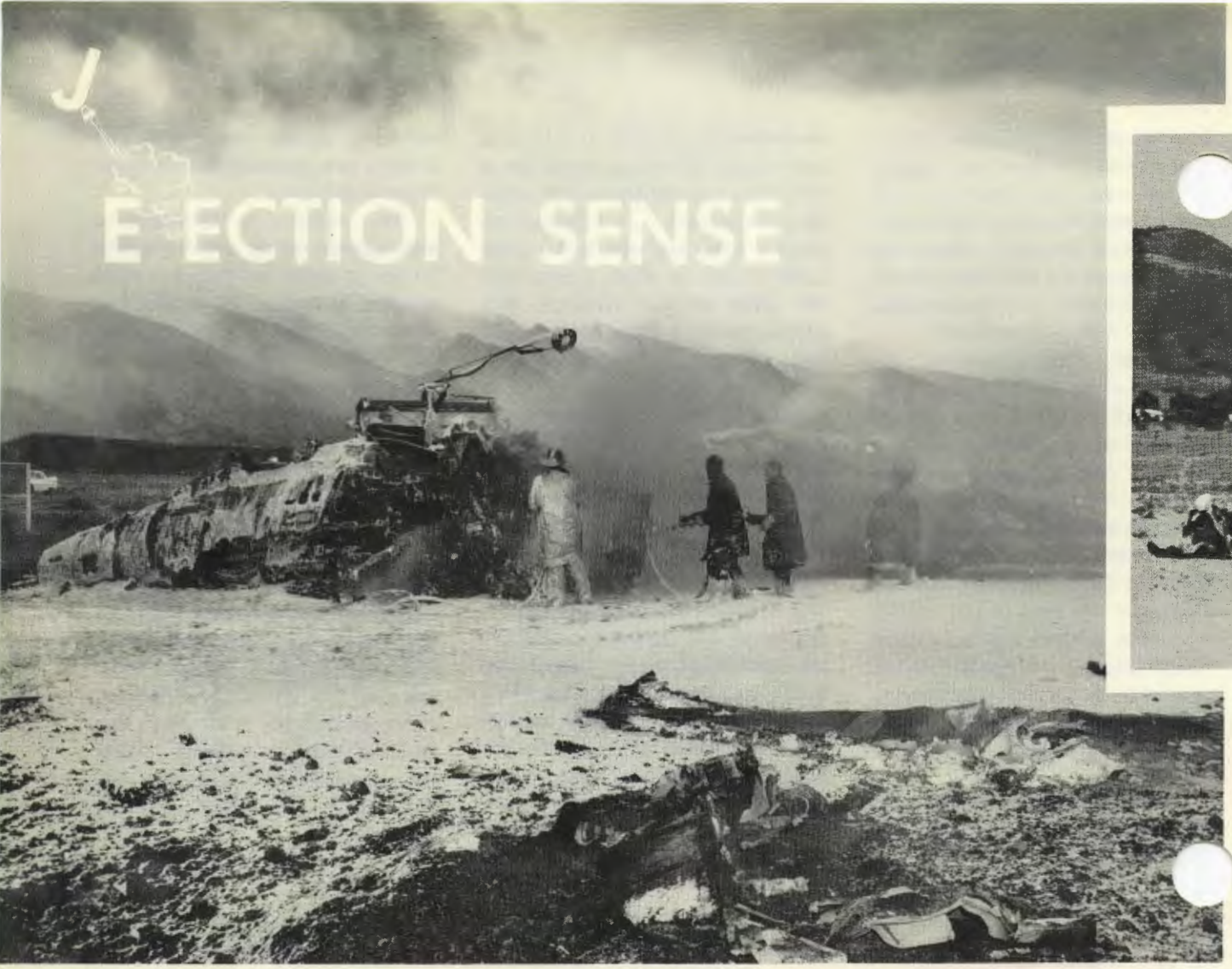
As two TAC airmen approached an intersection on a Harley, the light turned red...they were unable to stop, went thru the intersection and clobbered a car that had started a left turn on a green, left-turn-only signal. The road was wet, neither rider was wearing a protective helmet, both received major injuries.

Another TAC troop received a fractured skull after he lost control trying to miss a chuck hole. Again, no hard hat.

Loose dirt, rough road and zap! a S/Sgt found himself sliding along under his scooter. A crash helmet with chin strap fastened prevented serious head injury.

These are just four of the 20 scooter and motorcycle accidents we've had this year. Many of these accidents were caused by someone in a car who underestimated the cyclist's speed, didn't see him, or just pulled out anyway. You people who herd these things around the highways realize how vulnerable you are and I shouldn't have to remind you to drive defensively. I shouldn't have to tell you to wear a hard hat either, yet the record indicates that several of the people involved in these accidents didn't have a hard hat on. One had his tied on behind the seat! So, drive as if everyone else was half blind or out to kill you, wear your hard hat and don't get carried away, OK?

EJECTION SENSE



ejection sense

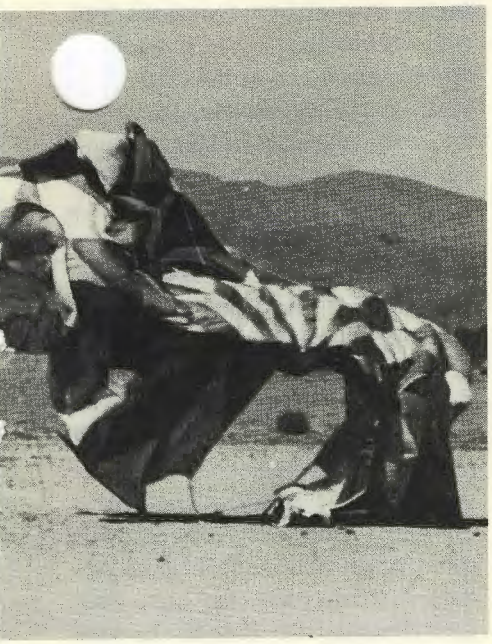
ONE OF OUR units asked us a few questions on ejections ... questions where opinions conflict and factual data is hard to come by. These questions make good discussion so let's look at them.

Ques: Is it hazardous to hook the zero delay lanyard at low altitude and high airspeed? Example: 500 knots indicated airspeed at 1000 foot MSL. If so, why? Is it because of opening shock, damage to chute, or seat-chute entanglement?

My first reaction to this question is to ask, why punch out at 500 knots when a little back pressure will convert that speed to a few thousand feet of altitude and permit a much more comfortable ejection? A sudden control malfunction is the only emergency which would prohibit this action. Chopping power and extending speed brakes will reduce speed to a more comfortable level if the malfunction can be controlled long enough to permit it. This isn't always practical, so we won't side step the question.

First, understand that any ejection at 500 knots is going to be rough. The hard part comes the first second or two after you leave the aircraft and the zero lanyard will have negligible effect on your survival ... unless you fuss with it when you should be doing something more important, like scrambling for altitude or ejecting. Think this one over ... with the zero lanyard hooked, your chute will open three and a half seconds after you leave the aircraft. In the first two seconds you will slow from around 500 knots to about 210 knots if you are at low altitude. How's that grab you? On a tangent ... at 40,000 feet, if you punch out at 500 knots true, you will still be smoking along at around 350 knots true when the chute opens if you had your lanyard connected ... and that will really grab you!

Let's face it, it really doe[illegible] matter whether you use the



lanyard during a LABS. A serious control malfunction will probably cost you 50 feet of altitude and your life. Any other ejection-serious malfunction will let you altitude and lose airspeed... you should be able to go out under nearly ideal conditions.

Regarding chute-seat entanglement. This has been reported during ejections both with and without the lanyard hooked. It is a risk you'll have to accept if you eject, but it is not a serious risk ...certainly not as serious as punching out too high or too fast when the emergency would permit riding the aircraft to a more favorable altitude and airspeed.

Next question:

Ques: Is information available which can be depicted on a chart or graph to show pilot-seat separation under varying conditions of airspeed, aircraft attitude, climb, descent, degree of bank, lanyard hooked or unhooked, from which one can determine optimum bailout conditions under varying conditions?

Again, let me answer with a question. Do you really want a rt or graph as input into the tion decision? You certainly won't be able to haul it out and refer to it when the chips are down. I want ballpark figures. Statistics give us a tip here. For example, if you eject above 2000 feet in level flight or above 10,000 feet falling or out of control, you can be pretty sure of success since over 90 per cent make it OK above these levels.

These altitudes are one ballpark. The landing gear makes another for takeoff emergencies in many aircraft. If the gear is still down when ejection-serious trouble develops, stopcock and do your best to snag the barrier. If gear is up, punch off external stores, pull back on the stick - trimming in back pressure - and eject when the rate of climb starts toward zero.

I have no rules for ejecting in turns or unusual attitudes, other than those I've already discussed ...I would intend to ride the aircraft into the intermediate altitude range and get it slowed whenever possible. On out-of-control situations which are headed downhill this means speed brakes extended, power off and punch before going thru 10,000 feet... or if lower than that...to punch just as soon as you realize you have more trouble than you can handle. The important thing is to evaluate your problem, take as much corrective action as possible, then if unable to correct it, to eject before it is too late. No one can set up a firm set of rules because there are too many variables.

Ques: During controlled ejections where terrain clearance is not a factor, what is the optimum attitude, altitude and airspeed for ejection?

As I've already indicated, try to go above 2000 feet, but below the high altitudes. Personally, I'd go at around 10,000 unless over the mountains or trying to reach dry land. I'd punch out at around gear lowering speed or best glide speed...either makes a good ballpark figure that is well within the safe ejection envelope at this altitude.

Ques: Is the low altitude zoom technique described in the F-100 flight manual correct for rocket seat ejection? Some conflicting opinion exists as to whether some zoom angles and airspeeds could result in a vertical ejection seat vector with zero forward velocity.

Yes, the F-100 zoom technique is correct - especially for the rocket seat. The rocket seat ejects forward to help reduce sudden deceleration during high speed ejections and for stability. The rocket is attached well aft of the seat's center of mass. If the rocket nozzle was set with its thrust vector parallel to the seat rails, the seat would spin aft end over tea kettle. Therefore, the nozzle is set to vector thrust thru the center of mass of the loaded seat. Look at the sled test movies and you'll see that the rocket thrusts the seat up and forward almost 45 degrees to the aircraft.

This forward vector will more than balance out the angle of attack during zoom. Don't confuse the climb angle with the angle of attack. TAC's century birds all stall at angles of attack somewhere less than 20 degrees . . . so no matter how steep you zoom, the angle of attack will not exceed 20 degrees if the bird isn't stalled. Subtract the angle of attack from the angle the aircraft makes with the horizon and you will get the angle the aircraft is climbing (or descending). For all practical purposes, if this vector is up, you are going to be thrown up. If it is down, the aircraft is shooting you toward the ground, roughly at the speed you see on your airspeed indicator. The seat will have to overcome

Continued next page . . .

this downward vector if you are to survive. Why gamble? Point the bird up.

Ques: Since parachute deployment time is inversely proportional to forward velocity, is it to the pilot's advantage to eject at a lower altitude in a slight climb at higher speed; say 210 knots, five degrees climb and 200 feet versus ten degrees of climb, 140 knots and 350 feet of altitude?

The difference in chute opening time between 140 knots and 210 knots will be a little less than one second according to the figures I have... this is a gain of 16 feet that is obviously offset by the altitude gained by dissipating speed. Further, the steeper climb in this example results in a higher trajectory during the ejection itself. I assume the speeds, climb angles and altitudes given in the question are approximately correct.

The only data I have available is from the September 1963 Airscoop and at that time the only instrumented data they had available on the zoom was from tests conducted on the F-8U by Ling Temco Vought and the Flight Safety Foundation. These tests were for the clean aircraft in a flameout glide. Gliding at 220 knots, the aircraft would descend 100 feet and zoom up 300 feet before reaching stall speeds plus 20 per cent. (130 knots) At 240 knots it descended 500 feet and zoomed back 400 feet as it reached this speed.

Sound crazy? At 240 knots, the glide angle was much steeper and it took longer to rotate into a climb. Sixteen seconds, or twice as long. At 200 knots, the zoom only provided 50 feet.

Obviously, rate of deceleration during other type emergencies, along with pilot technique, is going to effect the altitude gained just prior to ejection and there can be no cut and dried set of rules. The best all around approach for all circumstances is to try and get the best zoom you can and go as the rate of climb starts to decay or at the recommended handbook airspeed if your pilot's handbook describes the zoom technique.

Ques: Does the man-seat separator guarantee separation as stated in the flight manual? A recent ejection occurred where the pilot testified he still found himself gripping the seat handles even tho the separator worked properly.

Looks to me like you answered your own question.

Regardless, if you have drilled yourself to reach for the seat belt and then the T-handle during low altitude ejections, you will automatically take care this problem and at the same back up the automatic equipment to save yourself should it malfunction. You can't hang onto the seat if you are reaching for the lap belt. Don't worry, no one has beaten the auto equipment, except when it malfunctioned.

One last comment. An ejection is a demanding experience... If you've ever made one you will know what I mean. You'll have trouble remembering lengthy procedures - even during a controlled ejection - so don't weight your mind down with a lot of unnecessary facts and figures. Keep your pre-planning as simple as possible. Then, if you are ever faced with an ejection-serious emergency, don't fret with details, get into a ballpark area, if your sick bird will let you, and punch.

Most unsuccessful ejections were that way because the involved squandered too time on his decision. On the other hand, don't go around spring loaded or you'll end up punching out of a perfectly good aircraft. You are the only one who can set the proper balance.

THE FOLLOWING TAC PERSONNEL WERE AWARDED THE AIR MEDAL FOR MERITORIOUS ACHIEVEMENT WHILE PARTICIPATING IN AERIAL FLIGHTS:

LT COL JOHN D. WILFONG
MAJOR WARREN C. ALBERT
MAJOR ROBERT G. BELL
CAPT RALPH L. BROOKS
CAPT ROBERT T. CURTIS
CAPT WILLIAM J. HOSMER
CAPT DARYL G. HUBBARD
CAPT BORIS D. KLEM
CAPT BLAINE F. MARTIN
CAPT ROBERT G. MOORE
CAPT RICHARD M. TRAPP
1ST LT ROBERT D. BARTUNEK
1ST LT DAVID S. ROBINSON
TSGT JOHN W. McDONOUGH
TSGT VIRGIL E. SCOTT
SSGT HAROLD W. HARRIS
A1C GARRY B. EGAN
A2C CHARLES H. ACTION

WELL DONE

Pilot of Distinction

Captain Robert E. Haney of the 366th Tactical Fighter Wing, Holloman AFB, New Mexico, has been selected as the Tactical Air Command Pilot of Distinction for September 1964.

While on a functional check flight in an F-84F, Captain Haney lowered the landing gear to perform a low speed controllability check. As he raised the gear, the control stick snapped violently forward and then back and jammed. The stick locked in a position that would permit level flight at 180 knots. Captain Haney found he could control his descent through power, set up a long final approach and made a perfect landing. Investigation revealed the stabilator control rod had broken and jammed in the aft section of the fuselage.

Captain Haney's professional analysis of his problem and his outstanding pilot ability qualify him as Tactical Air Command's Pilot of Distinction.

MATCH POINT III

Winning Team Match Point III

Standing - Lt. Donald W. Spier, Capt Ronald Sheppard, Capt Harvey W. Houzenga (Flt Comdr) and Capt Thomas F. Topman. Kneeling - Capt Dean Holmes (FAC) and Lt John M. Hunsley

Match Point is a recurring quarterly exercise designed to test the capability of a typical flight of TAC fighters. The exercise simulates an attack from a forward airfield against ground targets. Each Tactical Fighter Wing is represented by a team that consists of:

* Five aircraft and pilots (flight of four plus spare).
* A forward air controller.
* Intelligence officer and specialist.
* Thirteen maintenance personnel.

Normally Match Point is a three day operation with the crews arriving the first day, briefing and flying two ground attack missions on the second and returning home on the third.

Strict ground rules have been established to assure that Match Point teams truly represent a typical flight and not an intensively trained gunnery team. For example, each wing must submit by name, four teams. Then, only five days before the team is to arrive, TAC Headquarters for Operations selects at random which of the four is to compete. Also, no pilot can fly in Match Point more than once.

Match Point has proven to be valuable both as an indicator of TAC's capability and as a training device for aircrews, FACs and maintenance personnel. One highly experienced fighter pilot summed it up like this . . . "Match Point is the best training I have ever had in the Air Force. I just wish the crews were more of it."

A similar competition dubbed "Main Course" is in the mill for airlift. The ATTACK will recognize the winner of Match Point and Main Course in future issues.

THE GREY BETWEEN THE LINES

BY CAPT GARY L. BOYER
4515TH CCTS
Luke AFB, Arizona

T.O. 1F-100D-1CL-1

EXTERNAL LOAD (NO SPL STORE OR TNG SHAPE)

1. SPECIAL STORE UNLOCK HANDLE—UNLOCK.
2. EXTERNAL LOAD EMERGENCY JETTISON BUTTON—PRESS.
3. External load emergency jettison handle - Pull.
4. Armament selector - JETTISON ALL - Press bomb button.
5. External load auxiliary release buttons - Press one at a time.

AFTERBURNER FAILURE

AFTERBURNER FAILURE DURING TAKE-OFF

IF RUNWAY AND BARRIER PERMIT:

1. ABORT

IF RUNWAY AND BARRIER DO NOT PERMIT STOPPING OR IF AIRPLANE IS AIR-BORNE:

1. THROTTLE—INBOARD (CONTINUE TAKEOFF).
2. EXTERNAL LOAD—JETTISON (IF NECESSARY).

E-13

WHEN YOU look through the red or black bordered pages of your dash one, you can see page after page of black and white print. But, have you ever seen the grey between the lines? The BOLD FACE print in this section is an excellent foundation for learning to handle those moments of stark terror. However, being able to pass your stan/eval test on bold face doesn't mean you will be able to make precisely the right decision during an emergency. As the book points out, these procedures are a basic guide from which to build. So let's take some of this grey area out of those pages and see what sort of building can be done. I'll deal primarily with the F-100 but the principles apply to most any bird.

One of the most serious emergencies that a single engine pilot can have is for the rubber band to break on takeoff. The slip stick artists at Pratt and Whitney made a highly dependable power plant for the F-100. While dependability is necessary, it tends to breed complacency. When was the last time you wheeled onto the active, gave a quick check of the clocks, and went romping down the runway without a last visual check of emergency switches and a quick review of possible emergencies to insure that you were mentally prepared for the takeoff? This complacency is the first thing that must be overcome before any emergency procedures can be of value.

Let's take a look at an engine failure on takeoff . . . you should be so unfortunate! At what point would you plunk the bird back on the runway as opposed to ejecting? Refusal speeds are a help, but are not of much use to a good wingman who is devoting most of his attention to the leader - especially at night. Grey in this area will surely reduce your chances of survival.

I believe that with slight ations, the land-eject de point is when you raise the gear handle. If the gear handle is down, plunk her back on. Touchdown might be just short of the barrier at a rapid rate but ejection at this point would be touch and go at best. Once the gear is started up, the speed you have and the runway you don't have are such that the best action is to jettison the stores, make a quick zoom, and punch out.

Naturally, the gear-handle-up point is not the optimum decision point for all configurations, conditions, and pilot techniques, but it is a positive reference point for making the land-eject decision. This is particularly helpful for the guy on the wing whose transition from wing to action is most difficult.

In any ejection the first important item is an early decision. Any time you are flying close ground you must have a de point. All you need here is an indicated altitude about 2000 feet above the ground. If a serious problem develops below that point, zoom up and eject. The zoom is another area that needs a little forethought. The important point is to get out with the wings level and in a climb. Aircraft control is important so don't let airspeed get below controllable speed before starting the action. And how about trim? Trim for takeoff is around 260 knots so when the stick is released to squeeze the trigger at 150 knots, the nose is coming down. So, trim while zooming.

If you do have a lot of altitude when your problem shows up there are a few things to beware of. You are going to be busy and it will be hard to judge your altitude. Altimeter lag can eat up sky hurry and if the bird is out o

trol you may have trouble finding the handle. A final point is that if you don't have control passing through about 10,000 feet, you're not going to be able to pull out anyway.

Another emergency that can happen just after liftoff is fire, or at least a fire warning light. Naturally just the light must be treated with extreme caution, but here is where preparation can make the difference. The first step is to jettison the stores. This is not to say, however, that this must be done immediately. Jettisoned 335 gallon drops would possibly swing right into a wingman's aircraft, or there may be houses just off the end of the runway. The point is that an F-100 doesn't just blow-up like a bomb because it's on fire. The greatest hazards are loss of flight controls or complete engine failure. If these happen, then there is no choice but to punch. The decision of when to jettison stores then becomes rather nebulous and will depend on the situation. But if you know the area surrounding your base and have previously decided which way to turn, your decision will come a lot easier.

Another set of takeoff emergencies that gets pretty gamey are those that don't get airborne. A prime requisite for proper handling of these is being mentally prepared for the takeoff. Take one last look at the emergency switches. Making a quick review of the first few steps of the abort procedure just before taking the runway helps keep them fresh in your mind. Until recently, an aborted takeoff with a barrier available, presented the problem of choosing either the abort or runway barrier engagement procedure. These two options have now been combined but there are still some interesting points. For one thing, if it becomes necessary to stopcock the throttle and nose wheel steering is engaged, steering will continue to operate down to about 10 to 15% RPM. The RPM will drop fairly rapidly, but at least steering can be maintained for a short time and how about that bit on checking the speed brake up? Naturally, they were up when the brakes were released for takeoff, but it's very possible that when you hastily brought the throttle back to idle, you inadvertently moved the speed brake switch and put them down, hence the check to up. By practicing in the simulator, you can learn to instinctively move the speed brake switch to up when moving the throttle during an abort. It is interesting to note that at 100 knots and idle power, the speed brakes require about 1200 feet of runway travel to actuate from down to up. So a fairly early check of boards up is in order.

Another area that can cause some confusion is a main gear tire failure on takeoff. Above 150 knots there is not much question of what to do. Below 150 knots the two step procedure can be deceiving because there are actually more than two steps involved. At what point during the abort should you turn off the anti-skid? This requires a little forethought and perhaps thinking of the procedure as more than two steps. In addition, there is another step worth considering. If a tire blows at about 140 knots, directional control is a major problem. A very important first step is to reengage nose wheel steering and push the stick full forward. The forward stick movement will direct more weight to the nose tires giving better traction for steering. In addition, the forward stick movement will tend to lift weight (perhaps very little) off the main gear reducing the drag created by the blown tire.

Another so called aid to directional control is blowing the good main tire. There has been considerable deliberation on this subject with no conclusive solution. Not blowing the other tire seems to be the most popular theory. The theory being that at least one tire is giving positive directional traction and that braking will overcome the drag from the blown tire. Conversely, blowing the good tire reduces directional traction so that while the drag from both wheels is symmetrical, there is very little directional traction to keep the aircraft from skidding sideways. Here again a pilot should have predetermined his decision as to whether he intends to blow the good tire.

The trusty "Dollar Bird" doesn't always falter near the runway. Those interruptions to hours of boredom that occur at altitude usually give more time to think things out, but here too a little preparation is useful. What if you flameout at altitude? Do you need to scramble for an immediate airstart? Usually not. What's the optimum airstart altitude for your bird? Remember if you are dependent on battery for ignition you don't want to waste it. Another point to ponder is just what will be lost if you glide down to 10,000 feet, make an airstart and climb back up to altitude. In most birds you don't use much extra fuel and in some you may even gain a little.

One wild blue type distress worth mentioning is complete electrical failure. The 100D and F are almost immune to this difficulty but the guys flying the 100C are still susceptible. If the gener-

Continued next page . . .

ator(s) fail(s), the battery is supposed to operate for six to twenty-two minutes. Experience has shown the lower figure to be more correct. With only battery power, the IFF and TACAN are useless. So is the UHF if the battery is weak. The ADF is usable if required. If circumstances permit, it might be worth while to turn the battery off until a landing is to be accomplished. Saving the battery for landing will provide positive safe gear indication, nose wheel steering, antiskid braking, stabilizer trim, and an accurate reading of fuel for determining final approach and touch down speeds. If you must use the battery at altitude, it might be advisable to release the tail hook, jettison stores, and trim for a final approach speed. (Trim for take off). Then if the battery fails, you at least have this much working for you.

The importance of memorizing the bold face has already been emphasized many times over. This is very necessary, but a professional must know more. He must know what to expect under adverse conditions - how the aircraft will react, what considerations are necessary for a decision, and instantaneous action is imperative in many cases. There have been numerous people on accident boards who sat in their easy chairs figuring out all the things a pilot could have done to avoid the accident. Let's reverse this process. Let's analyze in advance what we can do to better cope with the unexpected. Maybe one pe: doesn't have all the answers talk it up. There are most always one or two troops who have experiences that can bring to light what may be expected in a certain situation. Developing crutches such as the gear handle up for a decision point turns grey into black and white. Being able to maintain control of an aircraft under all possible conditions is a prime requisite for any pilot. An analytical study of your emergency procedures will greatly contribute to your combat effectiveness as well as your personal longevity.

MAJOR LEWIS glared at the bird, "I should've known better than to check out in fan vans. These bang, pow, wheeze and rattle engines will never replace the blow torch."

The Old Sarge sucked on his pipe and nodded agreement. "However," he admitted, "we'd play the devil trying to haul that stuff in for TDR in a '105."

"Yeah." Lewis sighed, "Let's wander over and see how they're coming with their trouble shooting." Without waiting for an answer, he started for the door.

The Old Sarge shrugged his shoulders and knocked his pipe out in the practice bomb that served as an ash tray for the Base Ops waiting room.

"I think I found the trouble," the young airman held up a spark plug. "A couple of cold plugs... soon's I replace 'em and get her buttoned up, she'll be ready, sir."

The Old Sarge frowned, started to say something then seemed to change his mind.

Green was watching the Old Sarge's reaction, and as soon as they were out of earshot, he asked, "What's the matter, don't you agree with the diagnosis?"

"Not exactly, sir. Of course I don't know for certain what all they've checked." He grinned, "But I'm just a passenger and no one has asked for an opinion."

"I read you. Not being an expert, I don't have to hold to eth What all should he check?"

"He should look for a short circuit in the connector area by checking the connector seal to see if it is clean and isn't wet or oily. If there is any moisture, he should check the grommet and also look at the shielded ignition lead for possible failure. You said they've been having repeated trouble with that engine . . . chances are this isn't the first time they changed that pair of plugs. Incidentally, they may have cleaned the terminal connectors and were careless enough to touch 'em with their sweaty or greasy fingers. This usually ruins the insulation enough to cause flashover and the plug will foul after a few hours of running."

Lewis winked maliciously, and nodded toward the young airman, "OK, a dumb nosey pilot can always ask questions, neh?"

TAC TIPS

EARLY ABORT

A high speed taxi check is really nothing more or less than a pre-planned take off abort. But, for years aircraft have been going off the sides and ends of runways making these checks. We never seem to learn. One thing that always seems to show up in a high speed taxi accident . . . great quantities of fuel and yet, no one ever seems to know why.

The slip stick artists proved long ago that stopping distance is independent of weight. Apparently everyone believes this and never worries about fuel load on a taxi check. But, how about acceleration? It doesn't even take a slide rule to know that an F-84 with 6200 pounds of fuel accelerates a lot slower than one with 3000 pounds. Then it stands to reason that a taxi check up to 120 knots and back to zero is going to eat up more runway in a heavy bird than in a light one. Add to this the fact that a pilot's definition of moderate braking varies inversely with the runway remaining, and you end up with a "how can I explain this one" type accident.

The Air Force has spent a lot of money on defueling equipment, so if you must make a high speed taxi check, do it with just enough fuel to get there and back. The civil engineers already have a procedure for checking barrier operation -

WATER SURVIVAL

Survival is certainly an important factor in everyone's life. Since many aircrews in TAC spend a lot of their time crossing four engine oceans in single engine aircraft, water survival takes on particular significance. The TAC Sea Survival School sells a paid up life insurance policy which is the bargain of a lifetime . . . it only costs one week of hard work. In terms of training, this course simply cannot be duplicated elsewhere.

In nearly every instance where death has been the result of a water survival situation, the investigation has found that survival equipment and techniques were misused. A tragic example occurred a few months ago when a pilot was down at night. Throughout the night, search aircraft and ships looked in vain for a flare or light. They didn't see anything. Near dawn, after twelve hours in the cold water, the pilot was spotted and recovery procedures started. He didn't make it. There was a brand new strobe beacon in his survival kit. It had never been unwrapped or tried. Apparently the pilot didn't know it was available. Maybe this cost him his life.

The purpose of the Sea Survival School is to prepare you for water survival . . . to teach you both psychologically and physiologically to use everything available to you. Is the training successful? Apparently it is, since no crewmember who has been through the course has died in a water survival situation.

TAC combat crews are receiving this necessary training as quickly as they can be scheduled, but others in TAC are dragging their feet. Nearly every class has room for more students and to coin that well worn phrase . . . the life you save may be your own. Come on staff types, that week in the water can be the most important week of your life.

SHORT AND SWEET

FIRST BALLOON: "If you are at base key on an actual flameout approach, ten knots below recommended speed and are going to land short, how can you extend your glide?"

Second Balloon: "Eject. It lightens the aircraft and also complies with the dash one."

TAT: Weight alone has no effect on glide distance . . . but I'll swing along with the second balloon.

Continued next page . . .

CACTUS CRUNCHER

Whenever pilots discuss accidents where someone has hit the ground, a tree or some other obstruction on an air-to-ground pass, the word judgment invariably enters the conversation. Along this line there are really two kinds of judgment... one, a rather abstract thing that influences the pilot to press minimums a little, and the other, a more specific time -speed -distance judgment that leads to the impact. To avoid those nasty, spread-yourself-all-over-the-range type accidents, you have to look at both sides of this judgment business.

First, if a pilot couldn't judge distance and speed fairly well, he would never have made it thru gunnery school. You can't talk in feet and inches because nearly everyone's conception of those measurements is different. But, any qualified fighter pilot can make pass after pass and pull out at about the proper altitude. So when a man hits the ground, it is only after he has, with full knowledge of what he's doing, decided to press "a little bit" below the established minimums.

When you make pull outs that are around 100 feet, seconds and inches become important. Take a 30 degree dive at 450 knots and you end up with a rate of descent of about 380 feet per second. Simple math will prove the difference between a 100 foot pull out and a bash is a quarter of a second. Few pilots, even in a Friday night dog fight, will bet their lives on their ability to accurately judge a quarter of a second. Nevertheless, about once a month, a TAC pilot loses that bet.

There is only one practical way to prevent these needless accidents and that is to abide by the established minimum altitude restrictions. These minimums are designed to keep you from having to depend on a quarter of a second between life and death. There can be only one description of the pilot who knowingly violates published minimums... a damn fool.

HIGH SPEED EJECTION

There can be no hard and fast rules when it comes to punching out of an airplane... too many things enter the picture. Whenever ejection becomes imminent about all we can do is try to get into the optimum ejection envelop. At the low speed end there isn't much to worry about except altitude, but as airspeed increases, so do the possible problems, and as speed increases above 500 knots, ejection becomes an increasingly dangerous proposition. Although there are some exceptions, it is nearly always possible to slow the aircraft prior to ejecting. If you have control, airspeed can be traded for alti[tude]. Even if you are out of control, you can get the speed boards out and the power back and the aircraft will slow down.

Capsules may be fine for the future, but right now you're sitting in the best capsule available... the cockpit. There isn't an aircraft made that will go very fast with the speed boards out and the power at idle. So if you lose control, get the bird into the best possible airspeed range and live to try again.

QUICK RELEASE

A new type canopy quick release should be on your parachute soon. After a couple of years of tests and troubles, the J-1 Capewell canopy release is being distributed. It looks simple and fool proof. All you have to do is open the safety cover and the wire loop pops out. A tug on the loop releases the riser and you're loose.

Delivery has already started and the modification only takes a few minutes. It would be a good move to rig up a chute harness and have everyone give it a try as soon as your unit gets the new release.

THUMPS AND GRIND

About a half hour after passing Ocean Station November, an F-105 pilot felt a severe thump accompanied by a high pitched squeal and aircraft vibration that pulsated from mild to moderate. He checked engine instruments . . . all were norm[al]. Hydraulic pressure was normal. He decided it

the air conditioner and turned off the cooling system. The squealing scraping and vibrating continued so pilot re-engaged the cooling system and shut down the ATM. There was no noticeable change so he re-engaged it. As soon as the 450s were empty he dropped them so he could cruise at a lower engine speed.

Entering the precautionary landing pattern, he retarted the throttle to idle and felt several sharp rapid thumps, but everything held together and he landed OK.

A faulty electronics compartment cooling turbine caused all the excitement.

GOLDEN RULE

Taxiing out for take off an F-4C pilot noticed that the nose wheel steering wasn't responding properly. As he lined the bird up to roll, it pulled hard to the left and he aborted. A materiel failure caused the steering problem, but this incident brings to light something much more serious. Accidents, incidents, and hairy stories heard around the squadron continue to show that pilots frequently press on even tho their bird has an obvious malfunction. This type of operation can only be classified as stupid and unforgivable. We are hundreds of examples and here are a few. Taxiing out in a T-bird both pilots see the overheat light come on. One snatches the power back a few per cent and the light goes out, EGT looks good, so press on... again in the climb, this time a 101, external tanks don't feed as advertised. No sweat, they'll start soon. About 40 minutes later the pilot realizes that if the tanks don't feed he can't make it to an airfield. For some unexplained reason everything starts working.

While he is joining up, an F-100 pilot notices oil pressure fluctuating between 30 and 40 psi. A couple of minutes later it settles down at 45, no sweat. Ten minutes later severe vibration, a fire light, a bashed aircraft. This time the little gremlin that takes care of minor malfunctions was out to lunch.

There's not much more to say on this subject except... if it ain't perfect, park it!

LOOK OUT

We were estimating Simple Simon at ten past the hour and were flying 290 assigned. At three minutes after the hour we heard Shuteye One report over Simple Simon at 350.

The center acknowledged the call and cleared him down to 280. Two minutes later we saw another bird headed our way. We turned left and descended about 400 feet. The other bird whistled by about 300 feet off our right wing, about 300 feet high.

The moral is that center controllers are not super humans. They too make errors. You can catch some of these errors by listening to the radio traffic... and catch the rest by keeping your head out of the office.

IN CASE YOU'VE WONDERED

The AIRSCOOP reported on an informal flight test someone made with a T-bird to find the effect a lost canopy has on the aft seat pilot.

The aft seat guinea pig intended to raise his visor after takeoff, but wind blast on takeoff and initial acceleration to 200 knots caused him to abandon the idea. Below 200 knots, radio and interphone reception was poor but readable... above 200 knots it was unreadable. Above 200 knots his head was buffeted, making the instruments seem to dance, or appear double. Distant vision was not affected.

At 270 knots he couldn't hold his head back against the back rest due to forward air circulation...this is when the back seat driver decided to press no faster, thinking things would get terse should his back pack decide to deploy. He was able to make a successful back seat landing. Incidentally, both pilots got a lot of dirt in their eyes even tho the aircraft had been carefully cleaned beforehand.

POEM TO PONDER

THE LORD GAVE US TWO ENDS TO USE;
ONE TO THINK WITH, ONE TO SIT WITH.
LIFE DEPENDS ON WHICH WE CHOOSE;
HEADS WE WIN, TAILS WE LOSE.

Sockroller SHOWS THE WAY

"BUT SIR, you just can't do this to me. I'd never be able to face my family, and what about my friends? They'd never forgive me. Please sir, anything except . . ."

Major Hardnose calmly sat back and listened to Ellrod's cries . . . in fact, he even had a smile on his face. "Sockroller, you may as well save your breath. I've made up my mind and nothing you say will change it. While Joe is out at school, you are going to be acting squadron flight safety officer and that's final. What's more, you better do a good job, or else!"

"But sir, I . . ."

"That's all, Ellrod. Just remember, day after tomorrow we have a stand down and I expect you to have a safety meeting."

Captain Ellrod T. Sockroller was visibly shaken, but trudging down the hall, he slowly regained his composure. He paused in front of the door to the pilots' lounge and while he stood there a twinkle and then a glow came into his eyes. By the time he strolled into the lounge, he wore a smile on his face.

"There you are, Clyde my boy. I hoped I'd find you here alone. I bring you glad tidings."

"What is it, sir?"

"Well Clyde, I have been very pleased with your progress here in the squadron. You're ops ready now and you have every right to be proud of yourself. I think the time has come for you to reach out, to climb higher. I feel that it's time for you to take a more responsible position in the squadron. Although I had to go pretty far out on a limb, I have managed to have you appointed as acting assistant squadron flight safety officer."

"Fine sir," Clyde Youngfellow replied, "but what am I supposed to do?"

"Well, the boss asked me to help you all I could so I volunteered to be acting FSO for a few weeks. You get a program set up for the next fly safe meeting and I'll check it over and make sure it's OK. By the way, have a two hour fly safe meeting ready tomorrow, I'll check it in the morning."

Clyde Youngfellow realized that he had been harpooned, but he knew he couldn't do much about it. Long into the night the flight planning table was covered with charts and papers as he worked on posters and notes for the meeting. "Well, that ought to just about do it," he thought as he left. "I'll get together with Ellrod in the morning."

When the morning briefing was over, Clyde led Ellrod into the flight briefing room. "What do you think of the posters, sir? This first one 'Fly Safe' ought to look good over the duty desk, and I thought I'd put this other one in the pilot's lounge. See, it says 'Stamp out accidents.'"

"Clyde, you fell into the same trap that has been catching safety people for years. Sit down for a minute and listen. First, do you know what the word 'safe' means?"

"Sure I do, it means . . . well you know . . . safe."

"According to Webster, 'safe' means free from danger. Now let's be reasonable. When you're flying night low levels and long overwater deployments, you are not free from danger. You just can't fly safe, so why tell people that they should?"

Clyde's morale dropped sharply as he watched his leader slowly crumple the poster and throw it away. "Well sir, at least we can use the other one, you know, the one on accidents."

"Nope. It's the same kind of thing, Clyde. The message is all wrong. If something is accidental, that means it happens by chance. Airplanes don't fall out of the sky by chance . . . either something breaks or someone goofs. These bashes are not accidents, they're mistakes."

"Thanks a lot for all the guidance, sir. Just what can I do if I can't tell the troops that they ought to fly safe and not have accidents?"

"Clyde boy . . . you sound almost as if you had lost your sense of humor. What I want you to learn is that safety is nothing more than an adjective that describes a good operation. Materiel, mainten

pilots and the airfield itself can te the problems that end up a hole in the ground. But this month let's aim our effort toward cutting down pilot error type prangs. Before we can do this we should look at the kind of errors a pilot makes. Roughly you can split them into two groups. The first is pretty simple . . . a troop just makes an error in technique or misjudges a fairly routine operation and there he is, touching down in the overrun. The other group is more complex and results from what may be years of marginal operation. This is the old 'chain of events' story. When you investigate one of these, it's just like turning over a rock. I remember one where a flight of two went out on a low-high nav mission. The number two man flamed out and punched. When the board started digging they found the whole operation was like a poor man's flying He was low on fuel on take- nd knew he couldn't fly the entire route. The ceiling was about 3000 feet and they were on a 1080, hoping it would break up so they could come back at altitude. The ops officer knew of all this, but apparently thought everything would work out somehow. Finally, even tho all the red lights were on, the pilot let down about 60 miles out. A real bucket of worms . . . the pilot, the flight leader, the ops officer all goofed."

"Yes sir, but I still don't see what we can do about it."

"One thing all pilots have in common is pride in their own ability. We need to use this pride to make them safe. If a pilot is working to make every flight perfect . . . if he is trying to fly good formation, to do everything better than he has before, he isn't going make stupid mistakes. Nobody ing to land 1000 feet short if he is really trying to grease it in opposite mobile. Most of the simple error accidents result from a 'close enough' attitude. I think the best way to keep everyone at their sharpest is to be competitive. We'll start watching traffic patterns and landings and such. The same kind of thing can work for late takeoffs and we'll get the ops officer to check briefings and flight planning. In other words, when anyone starts looking like an amateur, his flight can throw a party for the rest of the squadron. We can keep score on a weekly basis and call the flight that loses 'Fink Flight.' They can pull all the nit pickin' details like compass swings for the next week."

Clyde was sitting up straight and busily scribbling on a piece of scratch paper. "We'll announce the ground rules tomorrow, sir. Why not include daily quizzes on the airplane and procedures manual?"

"Good idea, Clyde. Grab the master question file and pick out a couple of questions for each flight."

"But this leaves us with that other kind of bash, the ones that come from a series of goofs."

"Whenever an accident board investigates one of these accidents, they find all sorts of messy things. Usually it turns out that the unit has been slowly lowering its standards of operation until just one little error stands between a completed mission and a prang. When you start compromising in order to hack the mission, it's easy to keep right on compromising. Every mission has some element of risk. Naturally some are hairier than others, but it's possible to reduce risk to a minimum. This is where we come into the act. As safety types we have to review every phase of our mission and spotlight the high risk areas. Then we can figure out the best way to get the job done with minimum risk, and make sure everyone does it that way."

"But Captain Sockroller, won't the ops officer crawl all over us for getting into his business?"

"I don't think so. A lot of people have the mistaken idea that a mission isn't effective unless it is dangerous. Sounds stupid when you say it out loud, doesn't it? Really just the opposite is true. If you can reduce risks to a minimum, it means that the pilot has more time and energy to spend on the important part of the mission . . . hitting the target. In this area we should simply look at what we are doing. If we can get every man in the squadron to try and find better ways to get the job done, we'll end up with safer, more effective techniques and procedures."

"Sounds good to me sir, but like I asked earlier, how do we do it?"

"Lots of outfits have used the old emergency-procedure-of-the -day to get the troops thinking. What we'll do is have a mission of the day. We'll bring it up in the morning briefing and then keep after it all day long. The next day we'll review the whole mess and see if we learned anything. Even if nothing is changed, we will have gained a lot just by talking it over."

"I think it will work, sir. This will probably be the only safety program in the Air Force that doesn't have Fly Safe as a motto. But I think we should have some kind of slogan or something tho', what do you think?"

"Got any suggestions?"

"How about this . . . 'If you can't get max performance safely, you can't get max performance!'"

"It swings, Clyde, it swings."

CHOCK TALK

C-130 GEAR

A C-130 crew made a left turn on the taxiway while taxiing out for a mission. As they completed the turn, the left main rear gear collapsed causing minor damage to doors and fairings.

The shelf bracket (PN 353728) to the left rear main gear is the part that broke. This allowed the rear main gear strut to swivel out and turn the main gear oleo strut.

F-100 AUTO PILOT

When auto-pilots first showed up in fighters they were met with mixed feelings . . . nice on a long haul, but no self respecting fighter pilot ought to need one. Still, in the special kind of privacy found only in a single seat airplane, most pilots eventually reached down with a nervous finger and flipped the switch marked "auto-pilot on." Far too often, the fighter pilot's natural distrust was confirmed by a wild gyration that left him hanging from the seat belt trying to find the paddle switch or circuit breaker or anything else marked "off." From that day on any suggestion that he use or check out the auto-pilot was met with a nod and unspoken thanks for single seat airplanes.

Auto-pilot reliability has improved greatly in the last few years . . . the 101, 105, and the F-4 are equipped with real friendly auto-pilots. Unfortunately the same can't be said for the F-100. Consequently few F-100 units bother to use up maintenance man-hours trying to keep them in good condition. On the surface this seems reasonable, but some real serious problems can develop and sometimes the result reads . . . "a possible cause of this fatal accident was a flight control malfunction of undetermined nature."

Neither time nor talent permit a detailed re of the F-100 auto-pilot system. However, in gen the auto-pilot is permanently hooked to the flight controls. When the auto-pilot is off, many servos, linkages, switches and assorted goodies are still operating tho disconnected from the flight controls. It stands to reason that if all these bits and pieces are never worked on or checked they are not going to operate properly. This sets up situations where a short circuit or malfunction in the auto-pilot system can inadvertently connect it to the flight controls.

Since most of these malfunctions are transitory, it's hard to nail down statistics . . . but, there is a definite relationship between the quality of auto-pilot maintenance and flight control problems. The only answer is to check and maintain all components of the automatic flight control system. This is a tough job and may seem fruitless, but if the airplane is to be safe, it's a job that must be done.

BEHIND THE ACCIDENTS

TO THE MECHANIC . . . don't think of yourself as a parts changer. You will change a lot of parts because that is the quickest way to get the aircraft flying again. But changing parts is not the an

All it is, is a chance to study the problem and find out [illegible] caused it. Finding the cause is the challenge [illegible]he fun and the satisfaction.

We will never run out of problems as long as the engineers keep grinding out improvements, each with its own set of bugs.

– FSF Mechanics Bulletin

HURRY, HURRY

A ground crew hurriedly completed an inspection and released the machine for a ground check and hover test intending to launch it on a rescue mission. During the ground check the machine rolled left after engagement and tried to chop holes in the ramp.

Hurry is the most common prelude to disaster and the most illogical, unsatisfactory excuse for a mishap. Hurry is hasty action - unthinking or rash action . . . it is flurried and impatient, frequently touched by confusion, agitation and inaccuracy. There is neither safety or efficiency in a hurried job because hurry defeats the very purpose of the work.

Actually, no one wants people to hurry even tho they shout the word. They want the work done quickly, carefully and well . . . which is quite different from hurried work. It takes much longer to rebuild the wreck or heal the wounds than to do the job properly - [illegible]ly - in the first place.

[illegible]esist the temptation to hurry, especially when a [illegible]se situation or high pressure operational commitment puts everyone under pressure.

– FSF Mechanics Bulletin

PRESS-NO-TEST

An oil pressure drop was the first indication that the engine was coming unglued. The chip detector warning light never came on because a wire to the circuit was broken. The chip detector plugs and warning lights were supposed to be checked for continuity every 30 hours. The maintenance types thought the press-to-test feature of the cockpit light checked continuity . . . it didn't. All it checked was bulb condition.

AIRSPEED DIFFICULTY

An F-100 pilot had to make a wing landing from a GCA after his air speed indicator went out of whack. The hose to the pitot static source was twisted and kinked, causing the malfunction. This problem is not unique with the F-100. Kinked or twisted hoses on the pitot static or pitot pressure lines can cause serious [illegible]peed errors in any aircraft and has been known [illegible]luce accidents in the past.

F-100 STEER DAMPERS

We are completing a retrofit of our F-100 fleet with newly overhauled steer dampers. Failure reports since this project began have been increasing, and several dampers have been returned to the depot as UR exhibits.

TDRs on the returned dampers show that malfunctions were caused by improper installation procedures at base level. There is good evidence that the damper controls were not rigged properly, which required major adjustments on the damper output pulleys. One damper had been overstressed, apparently by towing the aircraft with torque arms connected.

A simple check list giving step by step rigging, installation and adjustment instructions, and a supervisory inspection of damper installations will prevent many of these failures and, perhaps, save an aircraft.

BITS AND PIECES

Little pieces of safety wire that work their way into cannon plugs and terminal blocks are common cause of electrical problems and aircraft emergencies. How do they get there? After a mechanic safeties a connection, he clips off the surplus wire which usually goes flying off into the airplane. The next time that little piece of wire shows up it's listed as the cause factor of an incident.

TSGT Robert C. Coker of the New Jersey ANG's 108TFW has found a way to eliminate this problem. Simply put an adhesive substance on the pliers. This will hold the wire until it's picked off and discarded. The process is simple. Close the jaws of pliers and fill the cavity with windshield sealing compound. Let it set for 24 hours, then split the compound with a razor blade and you're in business. It works. As Sgt Coker said, "It's a sticky solution to a compound problem."

Thanks, Sgt Coker, for getting to the root of this universal problem.

Recognition

CREW CHIEF OF THE MONTH

Technical Sergeant John T. Graber of the 314th Troop Carrier Wing, Sewart Air Force Base, Tennessee, has been selected as the Tactical Air Command Crew Chief of the Month for September 1964.

As crew chief on a C-130B, Sergeant Graber performs his duty with pride and perfection. During a recent five month period, his aircraft flew 387 hours and 126 sorties without an abort or late takeoff. He flew with his aircraft during much of this period and was required to perform considerable maintenance and many hourly inspections at exercise airfields with limited maintenance facilities.

Sergeant Graber's ability to perform his duties in an outstanding and professional manner qualify him as Tactical Air Command's Crew Chief of the Month.

MAINTENANCE MAN OF THE MONTH

Master Sergeant Dennie M. Stevenson of the 12th Tactical Fighter Wing, MacDill Air Force Base, Florida, has been selected as the Tactical Air Command Maintenance Man of the Month for September 1964.

AS NCOIC of the 12th Field Maintenance Squadron pneudraulic shop, Sergeant Stevenson has repeatedly demonstrated his ability to perform his duties in an outstanding manner. An example of his initiative and professionalism occurred recently when his unit's F-4Cs experienced repeated failures of hydraulic flight control lines. Sergeant Stevenson's investigation discovered the cause of the failures and his recommended corrective action was approved by higher headquarters and directed as a fix on all F-4Cs. His prompt and complete action probably saved the Tactical Air Command dollars, aircraft and lives.

Sergeant Stevenson's dependable, pr[illegible] sional performance qualifies him as Tac[illegible] Air Command's Maintenance Man of the Month.

Aerospace Vehicle Records Maintenance

TSGT CLARENCE H. OSBORNE
4435ATS, Hamilton AFB, Calif.

SSGT JOE C. SKINNER
4442CCTG, Sewart AFB, Tenn.

A1C JAMES W. HOAR
366TFW, Holloman AFB, NM

TAC TALLY

A COMPARISON OF TACTICAL AIR COMMAND ORGANIZATIONS

AUG TALLY

UNIT	MAJOR	MINOR
3 TFW	?	
401TFW	1	
4510CCTW	1	1
4440ADG	1	
516TCW	1	

ACCIDENT FREE
MAJOR & MINOR

JET			
ACTIVE	MONTHS		ANG
12TFW	15	19	121 TFW
366TFW	4	16	140 TFW
CONVENTIONAL			
ACTIVE			RESERVE
4500 ABW	38	93	434 TCW
464TCW	16	54	435TCW

MAJOR ACDNT RATE

TYPE	1964*	1963
ALL	10.9	10.3
F-4	4.8	0
F-105	30.7	23.5
F-104	13.0	33.2
F-101	29.6	13.9
F-100	18.0	12.8
F-86	0	0
F-84	23.3	22.9
B-66	0	0
B-26	107.2	8.6
T-39	0	0
T-33	0	1.6
T-29	0	0
KB-50	15.8	4.1
C-130	.9	1.0
C-123	6.4	4.6
C-47	0	0
U-10	38.2	11.6
T-28	0	37.2

1 JAN - 31 AUG 1964

Four major and two minor accidents in August brought TAC's accident rate down for the third straight month, but a look at cause factors ruins the picture... pilot error in every case!

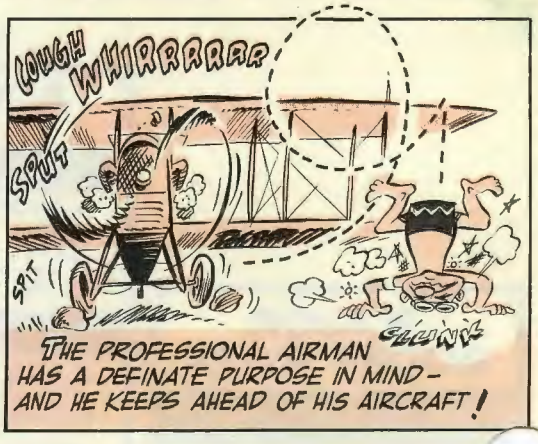
A KB-50 with a check pilot in *the right* seat landed gear up . . . major damage. A C-130 pilot *forgot* to lower the gear during a low altitude parachute extraction and the aircraft dragged its belly causing minor damage.

Two F-100Fs ran together while each was flying practice instruments. One was able to land but both pilots ejected from the other aircraft. An F-100 pilot flew into a tree on a dry skip bomb run with fatal results, and another F-100 pilot was able to land with minor damage after he let his aircraft *hit* the target on a strafe pass. Finally, an F-100 pilot neglected to turn on his external fuel tanks and flamed out on a *night* low level. He ejected OK.

Princess Ann

MSGT HIRSCH 10-'64

DURING THESE CRITICAL DAYS - WE IN THE AIR FORCE MUST BE ABLE TO SHOW TRUE **PROFESSIONALISM!**



REMEMBER, BACK IN PRIMARY WHEN IT WAS NECCESSARY TO HAVE A FORCED LANDING FIELD IN SIGHT AT ALL TIMES? HAVE YOU BECOME COM-PLACENT AND FIND IT'S TOO MUCH TROUBLE TO MAINTAIN THIS VIGILANCE?