

# TAC ATTACK

TAC Attack June 1965



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**COVER PHOTO:**

TAC high performance aircraft at Langley AFB,  
 Armed Forces Day, 1965

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# General Aynesworth on **SAFETY**



**SAFETY IS NO ACCIDENT.** This is a simple all-encompassing message. Today as we read accident/incident reports, they can be divided into three types: (1) Operator, (2) Maintenance, and (3) Materiel Failure. This does not mean that they are not all caused by personnel error somewhere down the line. We in the Tactical Air Reconnaissance Center are engaged in training new aircrews and testing new equipment and concepts. In this type of operation we are ever conscious of the accident potential. Each time someone fails to follow a checklist or other directions, or does not follow a common-sense course (like getting careless around a jet intake or making just one more flight on worn tires), an accident is in the making. There are countless examples of flight line and flight operations in which the lack of experience, personnel or equipment shortages, a time element, or sheer carelessness and neglect lead into situations of good fortune instead of good management. Also, there are responsible commanders and supervisors who would never, knowingly, risk the lives of their subordinates, yet will accept situations that rely on unreliable chance in addition to individual knowledge and skill. As a part of the basic accident prevention effort, commanders and supervisors must place more emphasis on training programs specifically designed to improve aircrew and maintenance crew abilities to recognize and cope with inflight and flight line emergencies. Commanders and supervisors should resolve to set an example that will encourage every man to put forth his best efforts on every job. Each pilot and technician must thoroughly understand the importance of his individual job. He should know how he, as an individual, can make a positive contribution toward lowering the accident rate.

A positive accident prevention program must be "built in" at every level of command. All commanders are personally responsible to insure that safe operating principles are developed and enforced. Everyone of us must make a concentrated and lasting effort to foster a safety program. This can be done by instilling in all personnel the firm conviction that they have a personal challenge to reduce the accident/incident rate.

A declining accident/incident rate is the sum product of every individual's effort to do the job as well as it can be done. TARC is working to provide clear, practical guidelines that will lead to a solution of our safety problems. We are looking to commanders, supervisors, technicians, and civilian technical representatives for their cooperation in making the program successful.

*Brigadier General Horace D. Aynesworth was commissioned in the Air Corps Reserve on 30 June 1937. At the start of World War II he was ordered to Davis-Monthan Field and later became Commander, 39th Bombardment Group. As Commander, 454th Bombardment Group, in Italy, he won the DFC, Silver Star and Air Medal with three clusters. He is credited with 201 combat hours and 32 combat missions.*

*Following graduation from the Armed Forces Staff College in 1948, he served in the Pentagon with AEC as Deputy Chief of Staff for Operations, Hq Armed Forces Special Weapons Project. He attended the Air War College and then served as Commander of Elmendorf AFB after a tour as IG, Alaskan Air Command.*

*In 1955 he became Deputy Assistant for Atomic Energy at Hq USAF and later became Deputy Commander, Field Command, DASA, at Sandia Base, New Mexico.*

*General Aynesworth assumed command of the 837th Air Division in August 1960. In February 1963 he was named Commander, USAF Tactical Air Reconnaissance Center.*



# angle of ATTACK

*To see what is right and not to do it is want of courage.*

*- Confucius*



Colonel Gust Askounis  
Chief of Safety

In my first few days as Chief of Safety, TAC overseas operations took much of my attention. I was strongly impressed that although our airplanes and crews are often working in a strange environment, with facilities that are less than they enjoy at home, they still belong to TAC. It often appears that an overseas accident, caused by substandard facilities or shortcomings in operational control, is not our direct responsibility... that our skirts are clean. But when our people and our machines are involved, we suffer the loss. Part of the responsibility to prevent these losses is clearly ours!

Time after time accident reports come to us describing preventive action that was not taken before the accident. The preventive action is then directed... but it is after the accident.

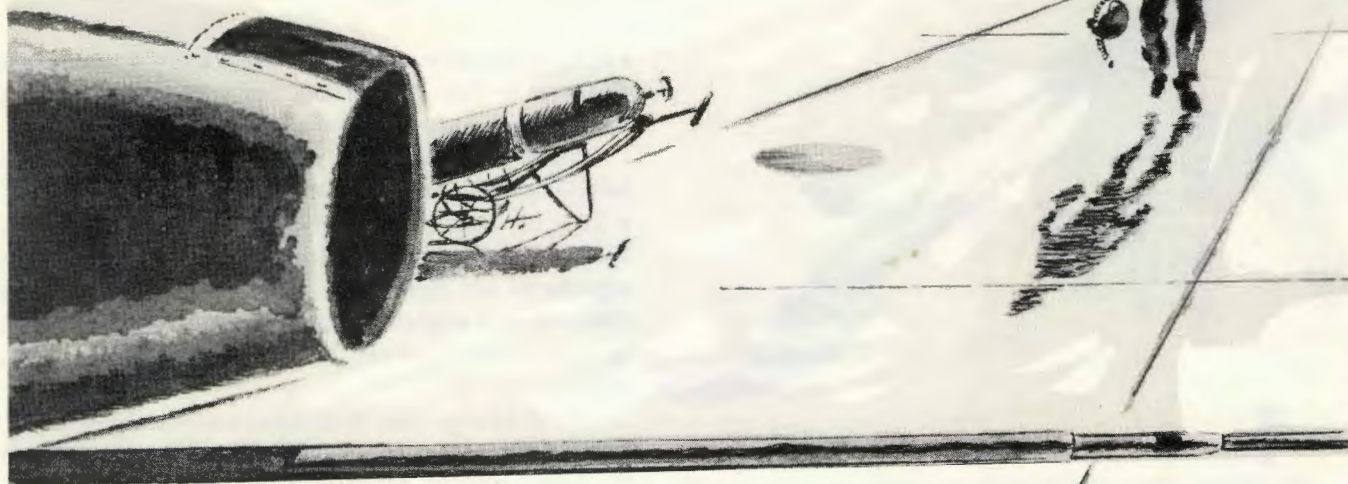
In one recent accident, the aircrew had been frequently pushed beyond normal flight duty time since arriving at the overseas base. On the day of the accident, flight duty time was arbitrarily extended by their supervisors to permit them to fly a demanding low level ORI sortie. The board found fatigue a contributing factor. When another aircraft was lost on an over-water flight, improper maintenance was a possible cause. Investigation revealed that maintenance crews at the overseas departure base were living under very primitive conditions. Fatigue and distraction surely had a bearing on the quality of their maintenance.

It is high time that we renew our emphasis on reporting hazards that jeopardize our operation... inadequate maintenance capability... substandard billets for air or ground crews... violations of crew rest and crew duty directives... shortcomings in command control. OHRs are not the private domain of the pilot or aircrew. Hazards may develop, or originate, in the maintenance area, barracks area or mess hall. And it is equally important that those of us in supervisory positions become very concerned over hazards reported to us and take action... before-the-accident action!

Every echelon of our far-flung command must re-emphasize and revitalize hazard reporting programs in every field of operations. Let's report dangerous procedures, systems or conditions voluntarily, now, rather than on a Form 711 after a serious accident.



# ONE WALKED AWAY



**Y**ou know, that's the third time I've seen that same training film about adverse yaw in the hundred. D'you suppose they'll ever come up with some new ones? Besides, I've got over 150 hours in this beast. I can tell you how it'll act when you reef it into a turn too tight and too slow. Gosh, they demonstrated it at Nellis on the first ride in an F...get some nice, comfortable altitude under you, say 25,000... let the speed bleed off till you've got a whole bunch of back trim in... roll it into a good, tight turn getting all the Gs you can. Then just wobble the stick over into the turn and... WHAMO! Over she goes, rolling away from the turn... onto her back and...

Well, I guess the movie's good for the new guys!

Better hustle on out to the bird... the rest of the flight already left in the line taxi. Wonder why the major reacted so when he found out I had 711... D'you s'pose he was worried about me flying with 450s under the wings? I carried 'em twice last week and didn't notice much more than the slower take-off... he was probably kidding when he said old seven-eleven's never been the same since it went into the barrier... trying to bug me. Never can tell about some of these old heads!

Well, got fired up on time... no sweat anyway, I'm number four... plenty of time... get lined up... nod that I'm ready... let Three roll fifteen seconds... come off the brakes and into burner. EPR's good, EGT on the money. Ninety-eight knots at 2000 feet...

kinda low, but better than most... pulling right but not too bad. One sixty knots... ease the nose up, 170... bring it up a little more. We're flying... but it sure needs left rudder! I don't remember the tower mentioning a crosswind. It's trying to settle, gotta keep the nose up.

Now, gear up. Now it's trying to roll to the right! I've got the rudder in to the stop! Rolling over... can't stop it... can't stop it... can't...

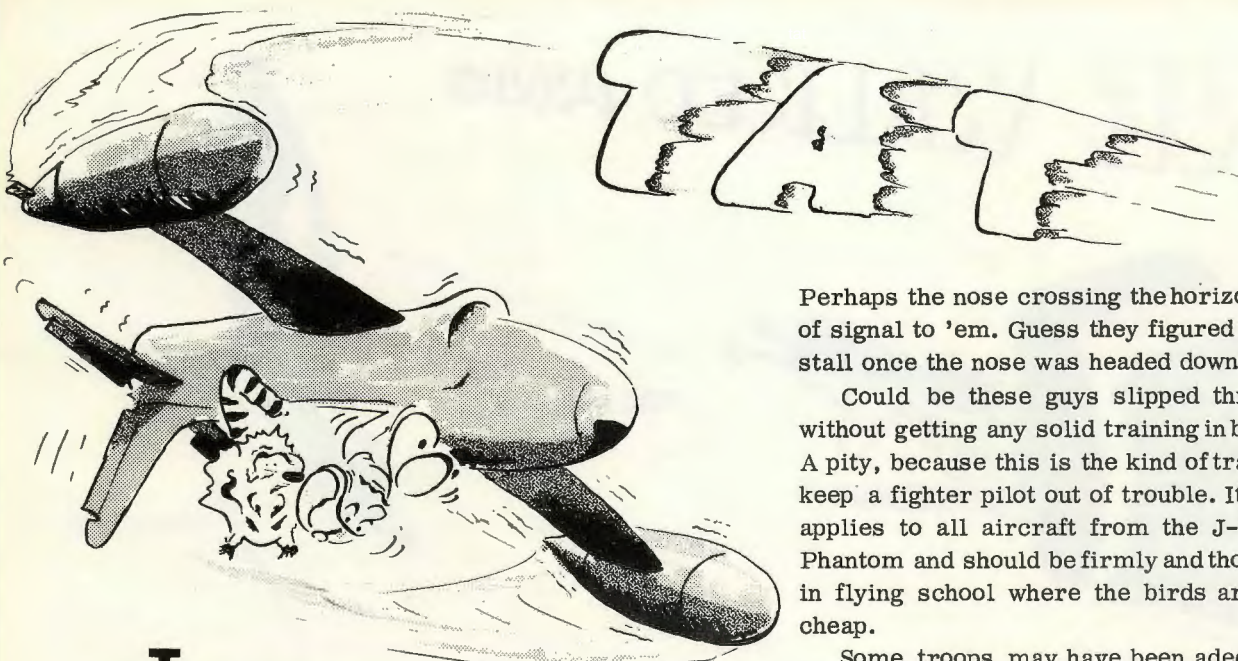
The airplane was inverted when it crashed into the overrun and exploded. The accident board said the primary cause was undetermined and listed as contributing cause the pilot's low experience with 450 gallon tanks. There were other factors.

The 18 knot left crosswind, although only about two-thirds of the limit on the airplane, contributed to the problem. Adverse yaw was induced when the pilot kept raising the nose until he reached a critical angle of attack. He was not accustomed to the heavier weight on takeoff.

But the clincher was induced some time back... After the bird engaged the barrier, it went into repair and an experienced pilot flew it on a deployment with 450 gallon tanks. He told some of the troops it took almost full left rudder on takeoff... BUT HE FAILED TO WRITE IT IN THE FORM. In effect, he just walked away from the problem.

He wasn't killed in the crash... somebody else was!





**T**HE CHASE PILOT briefed Green One to make on AB speed run, some aileron rolls, a split-S and other confidence maneuvers. When it came time for the split-S, Green One was at 36,000, flying nose high at slow airspeed. He rolled her over and popped speed brakes as the nose fell thru the horizon. Shortly thereafter he reported that one wing dropped rather abruptly. Green One automatically fed in aileron. Whop! Spin instructions please!

As could be expected, Green One punched out with his machine still spinning...all recovery efforts having failed. 'Course he admitted that he did leave out one step of the recovery procedure because it seemed too difficult.

The report went on to say that Green One's supervisors had pushed him in over his head, leaving him in a sink-or-swim situation. It pointed out that he had about 500 hours total time, with around 50 in another model of the bird, but hadn't flown it in four months.

Being a strong advocate of carefully programmed training, I am not going to make nasty comments on the report. However, this bit of business reminded me of something.

A few years back I used to get my kicks giving proficiency checks in the terrible T-bird... about as docile a machine as one can find. In those days the proficiency check included a vertical recovery along with the usual get it up and back in one chunk routine. Now there ain't nothing complex about a vertical recovery...but a marked percentage of the T-bird drivers used to make it a lot more interesting than necessary. Just as soon as the nose dropped thru the horizon, these characters would whomp back on the stick like it was the answer to all their problems.

Perhaps the nose crossing the horizon was some sort of signal to 'em. Guess they figured the bird couldn't stall once the nose was headed downhill.

Could be these guys slipped thru flying school without getting any solid training in basic aerobatics. A pity, because this is the kind of training that helps keep a fighter pilot out of trouble. It is training that applies to all aircraft from the J-3 cub to the F-4 Phantom and should be firmly and thoroughly covered in flying school where the birds are tolerant - and cheap.

Some troops may have been adequately exposed, but did not retain the fundamentals. Regardless, all IP types should be alert to this type and spend a good many extra hours with them in an F or other two seater before launching them on their own.

**B**ACK IN APRIL this tiger told about the F-4 troop with a BLC failure who wanted to get rid of his external load but wasn't sure of the procedure. Well, the AMA came thru with a message that may help someone cope with similar problems in the future. They reasoned that there should be no problem at slower speeds since ordnance or other high density stores would be cleaner than the aircraft is in this configuration and should fall clear. No tests will be conducted, and this is purely slip stick calculations.

Sounds reasonable . . .you'd want to keep light-weight stores anyway.

**A**CCORDING TO THE PROGNOSTICATORS, the weather was supposed to be good. However, the untrusting gooney bird crew checked again while enroute and were reassured that there were no storms along their flight path. A bit later, while under radar control, they encountered extreme turbulence, with enough heavy rain and hail to crack the windscreen and drown out one engine. The pilot made a 180, mumbling some uncomplimentary things about weathermen and radar controllers while headed for the nearest suitable airpatch.

I reckon this story will be repeated - with variations - several more times before the thunderstorm season is over. As usual, I have a couple of comments.

First, unless I knew I was bumping into a series of storms, I'd be inclined to press on thru instead of



trying a 180. Once you've stepped into the worm bucket, the 180 usually extends the length of time you're in the bad part of a storm. Actually, the ideal time to make a 180 is before you hit the storm . . . to do so means you have to be flying clear of clouds. Staying clear of clouds is a must if you're planning on flying in a area where you expect thunderstorms.

Second, I want to remind you that center radar usually doesn't paint storms and you can't rely on 'em to vector you clear.

**T**HE MAIN TANK boost pump failed about 330 miles from destination, so the hog herder switched to forward auxiliary and pressed on, later switching to wing aux.

About 160 miles out, while in weather, he bumped into a thunderstorm which dished out a possible lightning strike, severe turbulence and heavy ice. Breaking out in the clear he got an enroute penetration with a GCA pick up.

On the go from his SECOND GCA, the J-65 started to lose power. He switched to all tanks, hit the air start, regained power, and brought the bird in for an uneventful landing. Hail had bashed up the radar reflector, gun port covers, dented the nose intake, tank pylons and the area in front of the windscreen.

I have trouble rationalizing how this young man could get his bird beat up this much without suspecting hail damage. Possible hail damage would cause me to wonder why he continued to piddle around in the GCA pattern even if he didn't have a sick fuel system.

Reluctantly I admire his nonchalance but emphatically do not admire his headwork. If he doesn't change or buy an early farm, he'll probably go thru his career wondering why everything always seems to happen to him!

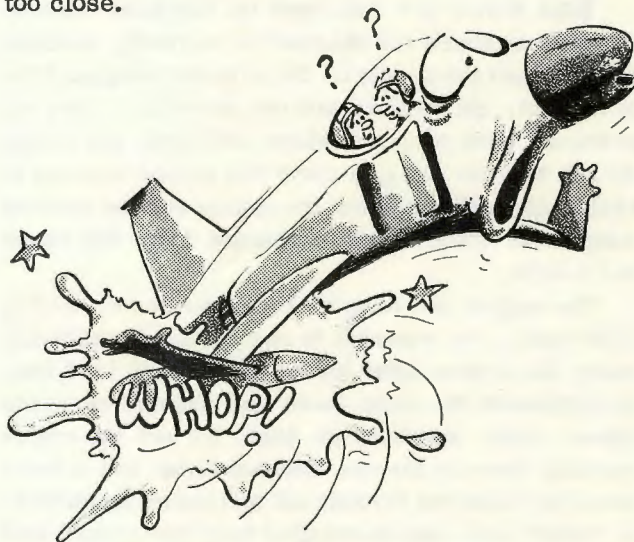
**A**CCORDING TO the message traffic, a hundred hero had just cleaned up his bird and was hurtling thru the air at 250 knots when he felt the afterburner fail. He brought the throttle inboard, but temp and tach were still decreasing so he realized the unit had flamed out. He hit the airstart switch, brought throttle to idle and had time to notice that the engine did not respond before airspeed bled off to about 120 knots and the nose pitched up.

He ejected immediately after the pitch up. All ejection systems were GO and the ejection was successful. However, the pilot did report some trouble finding the trigger. This is one problem we've lived with a long time. It can be cured with the one-shot ejection system. TAC is shooting for a standardized

system using a D-ring on the front edge of the seat instead of the old arm rest system. Yank the D-ring and the canopy will blow, followed by you and the seat.

We believe it will be safer for you to live with the present system a bit longer waiting to get the optimum, standard rig, than to have a quick mod program on the present arm rest system . . . and have you flying around in seats that could either go when the arm rest is raised or wait to be sent into orbit with a pull on the trigger, depending on whether they are modified or not.

By the way, there were some comments concerning this man's airstart attempts. He played it pretty close and just barely made it . . . a power loss on takeoff at less than 250 knots leaves little time for a proper airstart attempt . . . you'll have to be quick if you're going to try one and still leave yourself the option to eject . Remember, all those figures on ejections do NOT include the time it takes to yank up the handle and fumble for the trigger . . . and you can literally fumble away your life if you play it too close.



**H**HEY LEAD, you got a big hole in your centerline tank . . . it's streaming fuel all over the place!"

"Roge," instinctively, the flight leader reached over to the center station jettison switch and pickled off the offending tank. As he did, his F-4B pitched up violently, completely out of control!

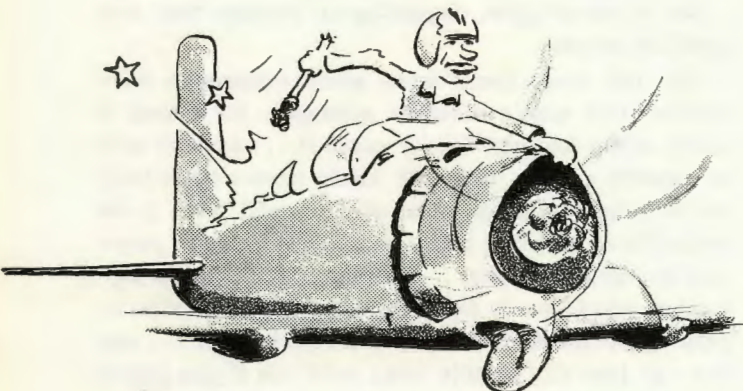
The ejections were a success.

The pilot jettisoned the partially empty tank at 18,000 feet and 315 KCAS. The tank pivoted downward, rotated aft and slammed into the stabilator!

The dash one says this tank must be either completely full or completely empty and that you must



keep the bird straight and level when you drop it. I have some earthy comments on this bear, but they won't help the situation. All I can say is remember these restrictions and do your best to abide by them. Face it, even if the fuel streaming from that tank had started to torch with the burners lit, you could stop the torching by coming out of burner. And it wouldn't do serious damage with a 315 knot breeze cooling the structure.



**T**HIS NAVY A-1 was over the big pond about 35 miles from shore and the nearest airpatch, when the pilot noticed the needle on the oil pressure gage flick to 20 psi. He headed for the airpatch ... the oil pressure went to zero before he'd gone ten miles. He left throttle and rpm alone and put the mixture to rich. About 20 miles out the engine started running rough and white smoke streamed from the lower stack area.

The engine quit when he was 12 miles out, holding 2400 feet ... he was able to restart it intermittently using the primer after losing 800 feet. At 1200 feet, he jettisoned the drop tanks and decided he would either make the field or ditch. He got the engine running steadily for the last two miles and it froze when he pulled the throttle off just before touchdown. A rocker arm cap disengaged from the rocker arm shaft bushing in the exhaust rocker box cover of the number nine cylinder to induce oil loss.

This item caught my eye because of the way this man handled the emergency. He headed for the closest field at the first indication of trouble and didn't wait for a rise in cylinder head and oil temperatures to confirm trouble. Then he brow beat the faltering engine into putting out enough thrust to get him home. A wonderfully stubborn display of airmanship.

**I** WAS READING another Navy report that described a couple of ejections from an F-4 that blew an engine during a CAT launch. Both crewmen made

it with seconds to spare ... however, one troop could only get one quick release open and eventually got tangled in his shroud lines. This made a helo pickup impossible, and he was eventually hauled on board a small boat.

The boat crew cut away those entangling shroud lines this troop hadn't already cut, and he reported that it took another officer's help to open the stuck quick release. This was the old style quick release and I hope the new fitting cures this long standing problem ... meanwhile, you troops will do well to look to your survival knives.

If you find yourself in the drink with a stubborn quick release, haul out your knife and cut the RISER. Do it quickly enough and you won't get all tangled up in shroud lines and have to fuss around chopping them one by one. If you do get tangled in the shroud lines, open both quick releases or cut both risers before starting on the individual lines.

**C**HECKING OVER last month's ough, crop, I noticed a couple of F-100 accidents that follow a familiar pattern. The pattern goes something like this ... pilot finds he has serious engine problems with vibrations, fire where fire isn't supposed to be, or explosions and pegged EGT. Either the engine quits running entirely or he shuts it down and immediately starts trying airstarts!

I have no quarrel with trying to do everything possible to keep an ailing engine running long enough to recover at the nearest suitable airpatch, that's what we draw fright pay for ... however, I do think a fella should face the facts.

To begin with, when you need power from a failing engine to keep you in the air, do your darndest to keep it running. The experts all agree that it is easier to keep it going than it is to restart it once you've shut it down. Now I said FAILING engine ... and am not talking about the J-79 when it compressor stalls. This is a different problem with its own unique cues and cure.

If you are unable to keep your engine running, or if it crumps out with shudders, overtemperature and other signs of an obvious failure, stopcock it and forget it. You'll waste time trying an airstart and may have better uses for your time ... like setting up a flameout landing, getting ready to punch out, alerting rescue and similar actions.

If you have time to burn, be my guest and have a go at starting it ... but don't blame me if you burn up your control system or otherwise compound your problems.



# Ground Safety

## *cad plated steak*

The office ground safety type is convinced I'm an accident looking for a place to happen. I enjoy rather active weekends by his standards, doing everything from sailing to sidewalk surfing with a fair amount of do-it-yourself building projects tossed in for good measure.

Normally, his first chore on a Monday is to come waddling into my office to count fingers, check for too much sunburn and find out if I've taken up anything new so he can lecture on the dangers involved.

Monday before last he didn't show. Oddly, I missed his nagging. When coffee break rolled around and he still hadn't appeared, I realized something was seriously wrong. I found him at his desk, planted in an old swivel chair like a bullfrog on a lily pad, looking almost as green.

"What's the matter? You look like you'd missed breakfast."

"Breakfast!" He made the word sound distasteful.

After some gentle prodding he finally told his story. It seems his weekend was compounded by tragedy. First, when he got ready to fire up the charcoal broiler for his usual weekend recreation, he couldn't find the grill. After looking high and low without success, he checked with his next door neighbor. No, that worthy hadn't seen the missing grill... but he had an old refrigerator tray that would make an excellent substitute.

The meal, as usual, was delicious...however, everyone in the family was soon quite ill...violently ill. The baked potatoes and salad were all fresh and carefully prepared...what went wrong?

Tests showed cadmium poisoning. The old refrigerator tray was cad plated and got hot enough over a charcoal fire to poison the steak!

This was a new one on me and I'm sure it was one hazard the wily ground safety troop hadn't considered. Never again will he use a makeshift grill

for a broiler. Instead, he says he'll stick to approved barbecue equipment.

This Monday he was back to normal and again checking on me. I managed to hide the burn on my thumb... "Grill any more cad plated steaks?"

He looked pained so I pressed my advantage. "You know, this outdoor cooking is pretty risky. I was reading an item where someone poisoned himself using a branch from a wild plum tree to roast hot dogs."

"You're pulling my leg."

"No, I'm serious. A cherry twig is equally dangerous. Both contain enough prussic acid to cause nausea. Further, cherry twigs contain cyanide and chewing on them can be fatal. In fact, a lot of common plants are dangerous. Rhubarb is one of the most dangerous in the garden. The stalk is safe, but the leaves contain oxalic acid. If you eat them, the oxalic acid will crystallize in your kidneys and cause severe damage... By the way, why don't you take up water skiing? It's safer than eating."

## *defensive dodging*

Three troops in a pickup.

Dark night - country road - sharp left curve.

Suddenly headlights! Fast - up over the grade crossing and down - across the centerline - straight at them!

Hard right - get out of his way!

Tires squeal - he missed!

Get back on the road - rear wheels sliding - out of control - rolling - down the bank!

Anybody hurt? Cuts and scratches.

Two stripes of rubber on the road - a demolished pickup in the ditch.

Thanx, buddy!

Does he know the three escaped his murderous, headlong charge? Does he know the driver had planned for it?

Plan to take the ditch any time this will avoid a head-on collision.

It paid off!

## *belt facts*

Automobile crash injury research at Cornell has proven that if you always wear a seat belt when riding you are 60 per cent less likely to have an injury of any sort... and 50 per cent less likely to be killed. If we could keep people from being thrown out of their cars, we could reduce traffic fatalities by 25 per cent.



# INFRARED

Another NDI technique

# *thermography*

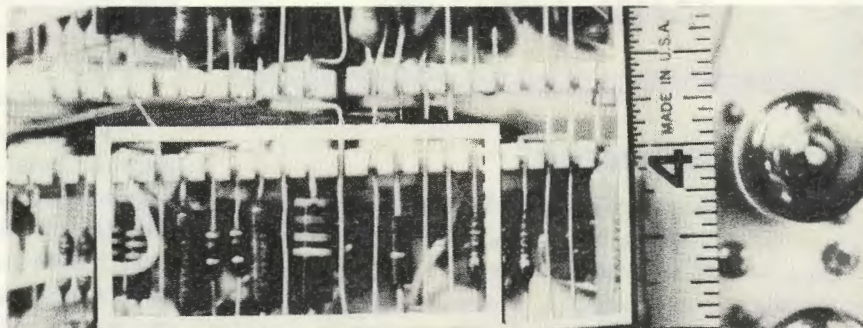
**T**he magazine business was getting a little slow, so I wandered over to the DM shop to see what Major Trent and company were up to. Trent, who has spark plugged TAC's NDI program, pushed his chair back and brought out a wicked looking cheroot. "What brings you over here?"

"Just checking up to see what's new in NDI ... someone was telling me you have some info on a gadget that checks temperatures using infrared photography."

"Yeah, you're right, only it's infrared thermography not photography."

"There's a difference?"

He nodded his head. "It's kind of hard to explain. They have a special infrared camera that uses a radiometer head that looks into a scanning mirror. The mirror scans like a TV set ... going back and forth while slowly moving from bottom to top. At every point along this scan the radiometer picks up the infrared rays from



Normal photograph of a conventional amplified circuit board. White line indicates area covered by thermograph on opposite page.

the subject, to generate an electrical signal. The strength of this signal is determined by the amount of infrared radiation being picked up at that particular point in the scan. The stronger the signal the more electricity it generates. They amplify this signal and feed it into a glow lamp that is imaged as a spot on a sheet of Polaroid film ... or any other kind of film. This spot follows the same pattern as the scanning mirror."

"I get you, it's like a TV set."

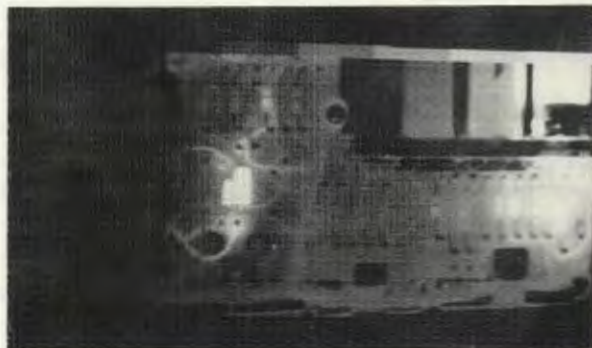
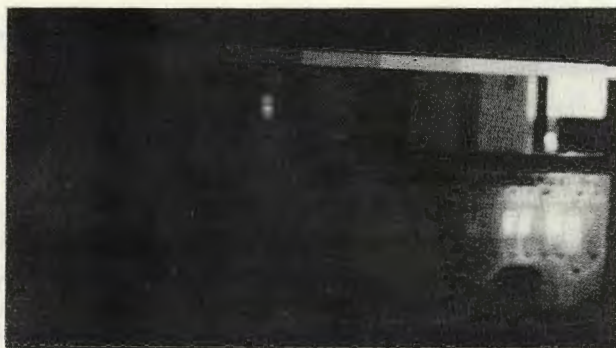
Trent managed to suppress a sigh, "Yes, but different. This infrared camera has a mechani-

cally-scanned infrared sensitive pickup that transfers the result of its scan onto photographic film."

"What do these films look like?" I figured this question would get me onto firmer ground.

He put down his unlit cigar and started shuffling through a formidable stack of paper, finally extracting some photos.

I looked them over while he explained: "Here, this is an infrared picture of a transmitter circuit as it appears on standby. The lighter areas indicate components giving off heat. Here's another shot of the same circuit when it's



Thermographs of electronic equipment clearly show the difference in heat pattern when unit is in stand-by position and fully operational.



transmitting. Notice the change in the pattern as additional components are made operative."

All this was quite evident ... but I wondered what significance this had. Trent sensed my unspoken question. "You see this graduated scale that runs along the top edge of the photo? This scale is what they call a thermal grey scale. It is a thermographic photo of a black metal plate heated to different temperatures. The coolest is the darkest. By comparing the shade of a component with the greys on this scale, using a densitometer, they can determine the temperature of the component."

"I see. How accurate is this?"

"To within a tenth of a degree centigrade. If we know how hot each component normally runs, we can get a fast go, no-go on the circuit."

"You mean if a component shows up dark it isn't operating? Couldn't you catch that by reading its output?"

Trent fumbled for a cigarette, the cigar apparently forgotten. "Something like that. A cold component indicates a partial to complete breakdown in the circuit and is easily picked up by checking output voltage, and so on. But before a component fails, it usually operates hotter than normal. This is what we can pick up with the infrared. When I was with a B-66 wing in England we had a lot of trouble with the radar system. We'd check out the black boxes and stick 'em in the birds and frequently they'd fail on the next flight. As I recall we had a 65 per cent reliability rate, which is pretty sorry.

"We started fishing for a cure and came up with a bunch of precision thermometers. After experimenting around, we found we



Thermograph of conventional amplifier. Note the difference in operating temperature between the two resistors just left of center. The resistor on the left will have a much shorter service life. Gray scale at top of thermograph is used to evaluate temperature.

could get an accurate idea when a component was in danger of failing - even tho it checked out perfectly on input and output - by using these thermometers to sample the operating temperature at several key points. It took quite a bit of time to sample these temperatures, but we did it and upped our reliability to over 95 per cent."

"Sounds good. But are these infrared pictures fast enough to do us any good?"

Trent took a final drag on his cigarette. "They certainly are. In fact, Boeing uses the infrared technique to control temperature on a tricky welding operation. They shoot a continuous photo of the welding operation, using automatic equipment that develops and analyzes the photo on a continuous basis, right on the spot. If the temperature gets too hot or too cold at any point during the weld, the equipment signals it and they can pull the part to check the weld using X-ray, Eddy current or some other NDI technique. They then pass it, rework it or scrap it. As you can see, this requires accurate temperature sensing plus fast readout.

"Our biggest problem is going to be establishing a normal for existing components. If we get with it, it should be a simple matter to crank out a working standard for the electronic equipment in the F-111 and future aircraft. Ideally, we could set this stuff up on a computer using punch cards. The computer would automatically analyze the infrared photos and compare them with data put onto a punch card. Along this line, we could use some of the existing channels in our airborne computers to let the aircraft analyze its own black boxes. This would require sensitive temperature and sound sensing probes, since you must pull the circuit boards to run off these infrared evaluations. The point is, operating temperature is an excellent clue to trouble or potential trouble, and we haven't taken full advantage of it." Trent picked up his cheroot and fumbled for a match.

"I think I see what you mean." I glanced at my watch as he exhaled the first cloud of acrid blue smoke. "Thanks a heap. I gotta get back to work ... and many thanks for the info." ➤



# B THE G PICTURE

- By Major Raymond L. Krasovich  
Hq TAC Office of Safety

**G**eneral Electric's J-79 Turbojet engine has been around the USAF for a number of years. Powering some of our first line aircraft, it's pretty efficient and sophisticated as jet engines go. The J-79 should be around for quite some time now that the F-4C has joined the USAF. This being the case, some of its peculiarities should be more widely advertised. One of these is its compressor stall.

A lot of types who just recently started flying J-79 powered aircraft relate compressor stalls to their experience with J-57 powered aircraft. The J-57 chugged and banged to create enough disturbance even the semi-conscious pilots did not need to look at the engine gages to tell what was wrong. 'Tain't always so with the J-79. To be sure, the J-79 has a stall that is noisy but this one is usually at high mach numbers, is easy to recognize, and can be cleared by throttling below mil thrust. This isn't the one we are worried about.

It's the insidious steady-state stall, usually associated with subsonic flight, that catches people. When they encounter this stall, a great number of troops misinterpret what is going on and usually end up in a rather tight situation . . . unnecessarily tight.

Many things can cause this type stall . . . such as compressor



FOD, fuel control malfunctions, IGV misrigging, afterburner surging, ingesting rocket or mis-

sile gasses and so on.

Since the J-79 is an axial flow engine the compressor blades "fly" much the same as an aircraft wing. When air flow thru the engine is disrupted, the air-foil shaped compressor blades can stall. This situation compares to an aircraft wing in a spin. As long as a pilot holds pro-spin controls the wing remains stalled. Same thing in the J-79. Once this stall is encountered and the throttle left advanced, fuel will continue to pour into the burners, rotating the turbine, and keeping the compressor blades stalled.

An aircraft spin is stopped by applying anti-spin controls, breaking the stall by decreasing the angle of attack and flying out. Same with the J-79. Decreasing the fuel flow - to zero if necessary - (anti-spin controls) will break the stall and fly her out (relight or advance the throttle).

What tells a pilot that he has encountered this type of stall? Since it is not violent and is usually accompanied by a mild rumble, the pilot has to look at and interpret all his engine instruments to really determine what is happening.

A glance at one or two gages will not tell the story and has often led to incorrect decisions. This is where the pilot needs the big picture - all of his engine gages. What he'll see is, rpm at 70-75%,



EGT 700-800 degrees or higher, fuel flow about 1500 pounds/hr, nozzle wide open. The nozzle is open, not because of a malfunction, but because it is trying to compensate for the temperatures being generated by the rich fuel mixture. Occasionally, chopping the throttle to idle will clear the stall. However, most of the time, throttle movement has little effect on engine operation and the only way to clear the stall is to shut off the engine and make a relight. This sounds like a pretty drastic

solution, especially if you are depending on one motor for flying pay, but take it from one who has been there, it works and it's the only way to go. This procedure is old hat to those lucky lads flying the F-104 but is new to many F-4C pilots. Some F-4 pilots have encountered steady state stalls but did not recognize them. If you think this is a no-sweat problem with the F-4, guess again. Recently one lad encountered a stall, didn't analyze the problem and shut down the engine. Because of

another serious malfunction he had to use full power on the other engine to stay in the air and just barely hacked it. The F-104 dash one covers this condition fully but the present F-4 dash one is sketchy on the subject. This doesn't mean you can't encounter a compressor stall on your next F-4 flight and this deficiency in the dash one is being corrected.

In the meantime, look at all the gages, get the full story, and then act accordingly.



# 474<sup>th</sup>

**TACTICAL FIGHTER WG  
CANNON A.F.B., N.M.**



ACTIVATED  
1 AUG. 1943  
AS THE 474<sup>th</sup>  
FIGHTER  
GROUP

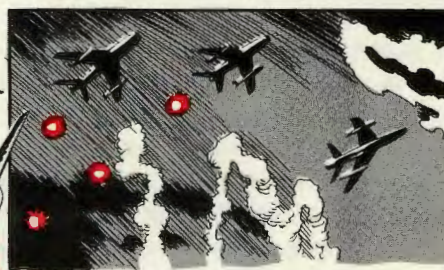
UNDER THE 9<sup>TH</sup> AF IN ENGLAND, THE 474<sup>TH</sup> FLEW P-38s ON THEIR FIRST COMBAT MISSION IN APRIL 1944, SOON EARNING A UNIT CITATION FOR ACTION AGAINST THE ENEMY.

AS A FIGHTER-BOMBER GROUP FLYING F-84s, THE 474<sup>TH</sup> WAS ASSIGNED TO TAC AND ATTACHED TO THE FAR EAST AIR FORCES FOR DUTY IN THE KOREAN WAR IN JULY, '52.



IN COMBAT A YEAR, THE UNIT EARNED THE KOREAN PRESIDENTIAL UNIT CITATION FOR ITS ACCOMPLISHMENTS.

THE UNIT  
TRANSITIONED  
TO THE F-86...



... AND IN 1954 MOVED TO CANNON, CONVERTED OVER TO THE F-100, AND WAS REDESIGNATED AS A TACTICAL FIGHTER WING.

THE 474<sup>TH</sup> HAS DEPLOYED SQUADRONS IN EVERY RECENT CRISIS, RECEIVED THE AIR FORCE OUTSTANDING UNIT AWARD (MAR. '61-MAR. '62) AND IS THE CURRENT WINNER OF TAC'S MATCH POINT V!



... A UNIT OF DISTINCTION, PRESENTLY COMMANDED BY COL. PAUL P. DOUGLAS JR.





Reduce the airspeed by moving the throttle to IDLE and maintain attitude by holding the nose up. When the desired speed has been attained, it can be maintained by varying the thrust.

## SIDESLIPS

Sideslip characteristics are normally good. However, a critical limit exists beyond which the maneuver may progress into uncontrolled flight. The out of control condition is severe.

## STALLS

### 1G Stalls.

At 1G, the aircraft is in a normal stall, with plenty of warning, it mushes noticeably and begins to shake and buffet about 10 knots

high near the horizon. The rudder should be applied against the spin when the nose is at the lowest point of oscillation because the controls are more effective. Recovery initiated when the nose is low will take one half to one minute.

## INVERTED SPINS.

### Note

An inverted spin is easily recognized because negative-G forces exerted on the pilot will force him against the lap belt.

Inverted spins are usually caused by too much forward stick during slow speed in inverted flight or by pushing the stick forward too quickly when rotation stops during recovery from an erect spin. In

# encounters

# TWO WAY TRAFFIC

Sideslip squirmed wearily in the seat, trying to restore some circulation, and pulled the letdown book from its holder. As he leafed thru, looking for Colds-ville Airpatch, he thought of the three-week TDY ahead...well, it wouldn't seem as long as this three hour haul in the F! Even with the cabin temp turned 'way down, the heavy northern flying gear was hot and bulky.

"As long as you're staying under the bag to ward off the sun, Old Buddy," Sideslip drawled, "I'll let you make the penetration and GCA...just let me pull the power off in the flare and wobble the rudders...if you think you can line us up."

"OK, Slipper, you're on." Old Buddy came back, "You hold the pole while I find the right page, and then I'll point us toward the stag bar."

"Coldsville Approach, Sideslip Two, d'you read, over?" Sideslip decided to let them know they'd be ready to descend in a couple of minutes.

"Sideslip Two, Coldsville Approach, go ahead."

"Coldsville, Sideslip Two, we're five-eight miles out at 350 on top...request enroute descent to a TACAN number one, if you will." Sideslip eyeballed the undercast, guessing it to be at about 25 thousand.

"Sideslip Two, Approach, descend to and maintain flight level 200, expect clearance on reaching the fix. Coldsville weather reported two thousand broken, five thousand overcast...visibility twelve in thunderstorms...surface wind 280 at ten...over."

As they reached the fix and started down, Sideslip

settled down in the seat to his serious-gages position and monitored Old Buddy's work.

"Sideslip Two, Approach, report established outbound and penetration turn. New Coldsville observation...one thousand five hundred overcast, wind 240 at one-six visibility five miles in rain..."

"Roger, Approach, Sideslip...we're outbound now, and...ah...request radar pickup for a precision GCA, please."

"Sideslip Two, Approach, GCA is standing by this channel..."

"Good to have those guys standing around," the Slip thought out loud. "Do you have the ILS tuned in?"

"Just leave the instrument flying to your Old Buddy-Buddy, and keep the conversation going with our friends in that nice, comfortable..."

"Sideslip Two, this is Coldsville Radar...have you started penetration turn," the radio interrupted. "You are number one for GCA...Coldsville traffic is one C-130 aborted ILS turning downwind for GCA to runway 08...active runway is 26, traffic circling to land, over."

"Roger, Radar, Sideslip. Understand we're number one for GCA...did you say circling to runway 26, over?"

"Roger, Sideslip...that is affirmative." The controller sounded very emphatic, "Coldsville now reporting...ah...twelve hundred overcast, two and one-half in rain, wind 240 at sixteen...visibility dropping."



Then the final controller came on, his confident, reassuring voice guiding them down the glide path. They broke out just as they reached circling minimums.

Sideslip shook the stick to take control of the bird, "I've got it, Buddy-Buddy...looks like the runway...come on out from under the hood...we'll call the tower and swing 'er around to runway 26."

*"...ten seconds to glide path, Senora One Three...on glide path, heading zero six five..."*

"Chee, Slipper...did you say we broke out? Oh...there it is..." Old Buddy sounded relieved. "I've got the runway on the right...Whoops!" The runway disappeared for a second as they flashed thru the ragged scud.

*"...Heading zero six five on glide path...right of centerline...Senora One Three, you're four miles from touchdown..."*

"You just watch the altimeter, Old Buddy," the Slip was tensing, "And I'll keep that pavement in sight...Ah...THERE it is!" Sideslip saw the end of the runway, rolled to the right and dropped the boards.

"Hey, Slipper...whatinell you doin?" Old Buddy was trying to sound calm, "That's the wrong runway...you're heading 180!"

Sideslip glanced at his heading and realized that he was lined up with the cross runway. He eased the throttle forward and climbed back to the base of the scud.

"Uh, Tower...Sideslip Two...we ah...turned into the wrong runway...ah...we'll make a 270 to the right and land runway 26...do you have us in sight?"

"Roger...Tower has you in sight over runway 18...weather now indefinite one thousand ceiling and one mile...rain. Do you have runway in sight, Sideslip Two?"

*"Coldsville Tower advises weather is indefinite ceiling one hundred obscured, visibility one in rain...you're cleared circling approach to runway 26...now thirty feet below glide path, Senora One Three, two miles from touchdown...advise when you have the runway in sight..."*

"Roger...roger, Tower...Sideslip is landing runway 26...gear down and checked, pressure up."

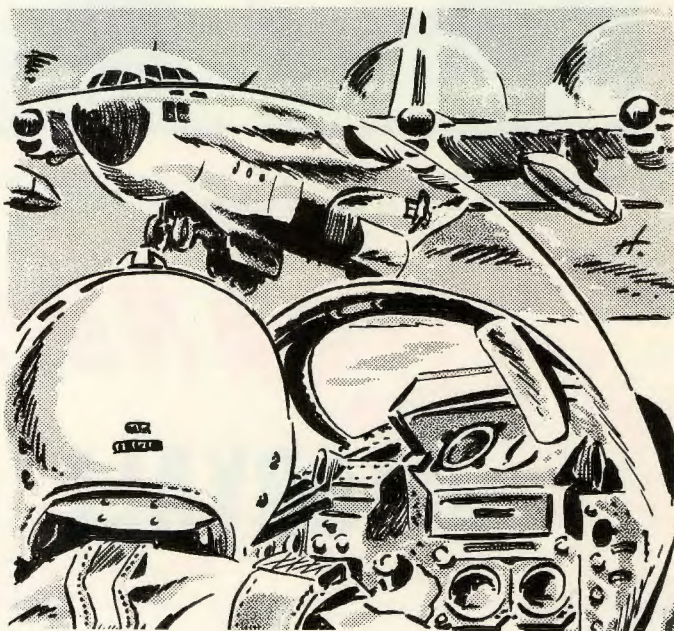
"Sideslip Two...Coldsville Tower, Cleared to land."

*"...roger, GCA...Senora One Three...landing straight ahead on 06...unable circling approach...hundred feet..."*

"Well, Buddy-boy...how's that for a beautiful landing out of a completely crummed up pattern?...now, to find a taxiway to turn..."

*"...Pull up, pull up, Senora One Three...PULL UP! Tower has an aircraft landing on runway two six..."*

"Sideslip turn left immediately...clear the runway to the left..." Sideslip stared in disbelief at the many-motor lumbering toward him down the left side of the runway. He jammed in right rudder and saw that they would pass...



*"We see the jet...we're clear of him now, going around...ah...we'll...make a missed approach...can you clear us for a circling approach...to two six?"*

*"Senora One Three, you WERE originally cleared for a circling approach to one three if you have the...ah...to two six if you have the runway in sight..."*

*"Uh, roger...realize that...however, it was going to be difficult to make a circling approach...weather dropping rapidly..."*

Sideslip, his pulse gradually returning to normal, was on tower channel and didn't hear that explanation...and the pilot of Senora One Three didn't repeat it when they met later in the VOQ office. After a rather cool meeting, Sideslip and Old Buddy admitted with the troop carrier crew that it had been a comedy of errors none of them would like to see repeated. As they joined forces to advance on the club, they decided to blame it all on the GCA guy...he had misread the weather report...and besides, he wasn't there to defend himself. ➤





Getting ready to air drop two cows into Tako, crewmembers wear flak vests as protection from small arms fire.

# COMMANDO CARRYALL

- By Lt Col Harry G. Howton  
Comdr, 311th Troop Carrier Squadron

**C**ounter-insurgency operations in Viet Nam primarily depend on airlift. Surface transportation is often hazardous and scarce with roads and rail lines frequently damaged by rain and flood and vulnerable to guerrilla ambush. Therefore, most of the men and supplies moved in and around the country travel by airlift... about the only practical way to reach many of the remote and isolated Special Forces camps near the Laotian border.

Aerial re-supply in a combat zone is challenging even under ideal conditions and is particularly difficult in South Viet Nam because of the strategic situation, low ceilings and visibilities during the monsoon season and the very

rugged terrain. The 311th Air Commando Squadron at Danang AB flies the lion's share of airlift to the northern provinces with their C-123s. A glance at the map shows rich, densely populated rice growing plain that parallels the eastern coast. To the west the Annamite Mountains rise abruptly from the plain with peaks approaching 10,000 feet. The higher ridge lines run about 6500 feet and valleys are steep sided, rough and rugged, with dense jungle foliage and trees two hundred feet tall.

This rugged area is significant to the security of the rice-rich coastal plain and the Ho Chi Minh Trail which parallels its western slopes. Small mountain outposts are manned by Vietnamese Special



Forces troops or Nungs and Montagnards, with US Army Special Forces advisors. Some stations have assault landing strips, but at others, only postage stamp drop zones could be hacked out of the jungle. There are no nav aids at the landing zones (LZs) and drop zones (DZs); they must be located the hard way. During



Off loading cargo at Kham Duc landing thru the cut shown just under the ai escorts each aircraft fr





tough as any flying assignment you can find anywhere in the world.

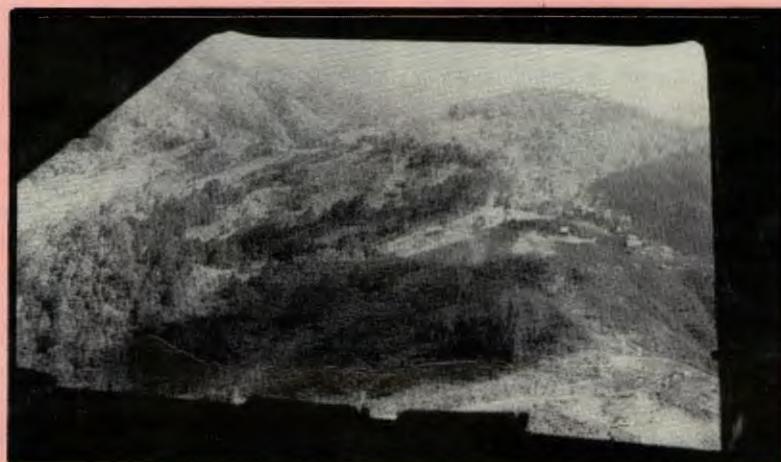
Normal VFR requirements are waived in Viet Nam and visual flight is permitted if there is "safe visibility" when "clear of clouds." Since there is no reliable weather reporting in the mountains, and radar or TACAN fixes are useless at low altitude, navigation in bad weather is very difficult. When it is impossible to find the target by flying between layers or around buildups, the only approach is to climb above the overcast. Because there are no nav aids at the mountain outposts, descent cannot be made through the clouds. However, the C-123 can make a max performance descent through a pretty small hole, using low power with gear and flaps down. There is no

When it's impossible to find the target by going over or around the clouds, the only thing left is to go under, flying up the valleys. The pilot may return to the coast and descend over the South China Sea, or make an instrument approach at the home field. Sometimes it's better to fly past the higher ridges to the better weather on the west side, and then double back. Once under the clouds, the pilot will look for a valley that leads to the target. A 1000 foot ceiling on the coast with two to three miles visibility may be enough to make this canyon flying possible but it calls for a lot of crew coordination and headwork. You never start into a canyon or valley unless there is another way out. The steep valley walls often extend up into the clouds on both

the summer, the weather is generally good in the mountains, and the fields are easy to find, but tricky mountain winds, improvised runway surfaces, and surrounding obstructions demand top pilot proficiency. Winter monsoons bring low ceilings, rain, and poor visibility to the entire area, and the air supply mission becomes as



one. Pilots have to make their approach from the left wing. An armed vehicle must be on touch down to liftoff.



Tako drop zone, a Special Forces camp near the Laos border, is 4450 feet above sea level. Less than 35 yards square, it demands precise air drop technique.

room for error under these conditions. It is easy to become disoriented in a descending turn, surrounded by nothing but clouds and green jungle slopes. Even crewmembers in the cargo compartment learn the terrain well enough to help navigate by spotting landmarks from the side windows or the open tailgate.

sides. Mechanical failure, weather, or ground fire may make an alternate route necessary. Some of the wider canyons will allow a 180 degree turn, but max performance is required in these turns with 60 degrees of bank, maximum wet power, and takeoff flaps. Flying down one side of the canyon to allow turning room, ex-



poses the aircraft to ground fire. The guerrillas concentrate along known flight routes during bad weather and take pot shots at low flying aircraft.

The unique conditions in Viet Nam and the urgency of the mission make theater orientation a very important aspect of crew training, each man must fully understand the situation before he is fully qualified. Many must relearn their map reading skills; they must know their precise position at all times for navigation and to pin-point ground fire. To keep track of the ridges in the clouds above, one pilot flies the aircraft, and the other pilot monitors instruments and checks the map against the terrain. In heavy rain he may have to open a side window for visibility. A predetermined emergency climb out procedure is a must. Only very close map reading and the ability to quickly select a heading with adequate terrain clearance will allow a safe climb through the clouds. In this situation, navigators are invaluable because they allow both pilots to keep their attention out of the cockpit.

Air drops are about the most difficult mission flown by the 311th. The two small DZs used most frequently are high in the mountains and require precision low altitude drops to minimize wind drift. Free-fall techniques are rarely used because troops and buildings crown the DZs. Tako DZ is atop a hill at 4450 feet in a bowl shaped valley with 6000 foot terrain on all sides. Gusty winds are unpredictable at Tako and wind shear is common. Extreme precision is necessary on this drop. The pilot flies the pattern and the co-pilot monitors the instruments. He must be prepared to take control of the aircraft at any moment

in case the pilot is wounded by ground fire, while the navigator vectors the pilot and controls the drop signals. The crowded valley makes the pattern small and the loadmaster, Special Forces paratrooper and flight mechanic must hustle to prepare bundles for delivery after each pass.

With a gross weight over 50,000 pounds and airspeed only seven to ten knots above stall, there is little reserve power for an emergency. Even the C-123, designed for assault airlift, could use more horsepower at heavy weight over high terrain. Losing an engine under these circumstances would call for jettisoning cargo as rapidly as possible and hoping for a lucky passage to lower terrain through the valleys.

The Special Forces camps are located in guerrilla areas and aircraft making repeated low altitude passes are handy targets. Constantly changing the drop patterns helps to reduce ground fire, and fighter cover by Vietnamese A-1Hs is available when the weather is not too bad. Mortar coordination with the Special Forces camp below has been successful. When small arms fire is encountered, the C-123 crew drops a smoke grenade or flare. The camp then lays mortar fire a few meters back along the aircraft track. The smoke pin-points the location for the mortars, and allows the pilot to avoid the area on subsequent patterns.

Each LZ has its peculiar challenges. The elevation at Khe Sahn is 1600 feet, the runway is 3200 feet of PSP with a 10 degree upslope and starts 200 feet from an 800 foot gorge. When monsoon rains soak the field the clay oozes up through the PSP and the surface gets so slick there is no nose wheel control or braking action.

Gusty quartering tail winds on final are normal.

The final approach at Kham Duc is over a ridge perpendicular to the runway. Army engineers cut a notch over 150 feet deep in the ridge for the final approach, but it is still necessary to fly an exceptionally steep final.

You may have trouble finding Gia Vuc by following the map since the symbol is a couple of miles out of place and is marked "Position Approximate," but it's down there in that valley. It is a narrow rolling pasture that has the usual ruts and mud holes. If you miss it, just fly up the valley about 5 clicks (kilometers) ... when you get shot at, you'll know you missed it. Be careful on final, don't hit the water buffalo fence and if one engine fails to reverse on landing, you may be introduced to an actual live mine field in action.

Although mountain flying in C-123s is demanding, it provides a great deal of satisfaction for the aircrews. It demands maximum discretion and judgment. The aircraft commander must decide whether the urgency of this load for this target at this time justifies the degree of risk he encounters. Each mission must rely on the judgment of the only man with the information at hand to make that decision, the pilot of the aircraft involved. To meet this challenge, aircrews must constantly strive to maintain maximum proficiency in all aspects of their mission. Precision procedures and flawless techniques are the words of the day.

There are few flying jobs in the Air Force that give the crewmember a higher sense of achievement or a stronger feeling of a good job well done with minimum compromise of safety.





# Letters to the Editor



The "Every Effort" face-to-face discussion should help all hands ... how about a progress report when the project gets going full swing?

TAT

Dear TAT

Dear TAT

Reference "Naha Notes" March 1965 TAC AT-TACK. This well written article by Capt Bosselmann was an excellent summary of the "Triple Nickle" squadron's F-4C deployment from MacDill AFB to Naha AB. As an observer on one of the tanks I want to take my hat off to the professional way the fighter jocks carried out the deployment (SAC did a fine job also). One item was in error, however, and that was the F-4C that developed a fuel leak. I believe he and his wingman, along with the tanker, aborted into Wake Island, not Midway.

A lot of water has gone under the wings since I led the 352d TFS ("World's Finest") on the first ocean crossing utilizing SAC's KC-135 tankers, (exercise "Jack High" 1960). Both SAC and TAC have come a long way in refining air refueling procedures and techniques. To further improve procedures, SAC and TAC have initiated project "Every Effort." Starting this quarter, SAC KC-135's will visit our TAC bases on a weekly basis and hold joint briefings to discuss mutual refueling problems, practice buddy takeoffs, rendezvous and refueling training. As this project gets underway present recurring discrepancies should progressively diminish.

STANLEY M. MAMLOCK  
Lt Colonel, USAF  
TAC Liaison Officer to SAC

I'd like to say a few words in behalf of some real professionalism which I witnessed last month in San Antonio. San Antonio is the home of the 433rd Troop Carrier Wing, better known as "The Alamo Wing." At the time, I was the safety member of the 838th Air Division's "Staff Assistance Advisory Team." We had completed our visit there and Captain W. G. Shown of the 433rd and his crew was scheduled to return the 516th TCW team members to Dyess in one of their unit aircraft, the C-119C.

Having flown the Charlie - One - One - Nine myself, (we called it the R4Q in the Corps), I understood the predicament the crew found themselves confronted with after losing number two shortly after take-off from Kelly. This might have resulted in an embarrassing situation except for the professionalism of the crew. The smoothness with which Captain Shown handled the emergency and the crew coordination demonstrated, was a distinct credit to any flying program.

While we are on the subject TAT, why don't we see more articles in the ATTACK on our Reserve Units? The troops are really doing a fine job and the majority of them are blue ribbon operators. Seems they are deserving of a little more recognition from time to time. Got any plans?

Capt Charles H. Van Diver  
516th Troop Carrier Wing  
Dyess AFB, Texas

Dear Charlie

Many thanks for the kind comments on the 433rd...and agree with you that the Reserve Forces do a grand job. We carry a great deal of information on the Reserve Forces...you may miss it because we prefer to treat them as an integral part of TAC and not as a separate force...meaning we refer to a Reserve unit as a TAC unit and not as a TAC Reserve unit.

However, we could stand some more C-119 oriented articles...how about it troops, anyone have anything?

TAT



Dear Stan

Thanx for the kind words ... coming from one of the old timers in this ocean crossing business, they mean a lot. Forwarded your letter to Wally Bosselmann since we're still scratching our heads over the island mix-up. Readily acknowledge that a quick glance at the map would have shown us the extra miles involved in going to Midway. (Who said they all look alike from 30,000 feet?)

TAC ATTACK





By Lt Col Allan D. Read  
TAWC Information Officer  
Eglin AFB, Fla.

### X-BAND TRANSPONDER BEACON

During INDIAN RIVER, DESERT STRIKE and GOLD FIRE, TAC C-130 crews found that landing and drop zones are very difficult to identify either visually or with radar under low visibility conditions. This prompted TAWC to test a lightweight air-dropable X-band transponder beacon housed in a fiberglass container. Positioned at the desired delivery point, it indicates the location of drop or landing zones when triggered by a signal from a C-130 as much as 50 miles away. It returns the signal to show up on the C-130 radar screen. According to TAWC officials, the tests have proven highly successful. Additional tests are in progress using the beacon with fighter aircraft in a close air support role.

### RADIO RELAY SYSTEM

The Air Force has long needed better communications with Army ground units in forward battle areas. The Forward Air Controller cannot provide the entire communications link sometimes required in fast-moving battle situations. Toward this end, TAWC has procured 30 ARC-54 radio sets, which will eventually become the standard Army ground radio, and has modified CH-3C, C-130, F-105 and F-4C aircraft to carry these radios in external pods.

Tests started during INDIAN RIVER III and GOLD FIRE I to evaluate the overall effectiveness of this equipment on tactical aircraft are continuing. In addition to providing direct communication with Army field units, the radios are capable of VHF FM automatic relay which will help the Army extend its VHF line of communication.

### STATIONKEEPING EQUIPMENT

TAWC recently completed tests on a new system which will help position large formations over a drop zone in adverse weather or at night. AN/APN-169 intra-formation position system, generally referred to as Stationkeeping Equipment, was installed in three C-130s assigned to TAWC for the tests.

Each aircraft in a formation must be equipped with the system. It provides a range/azimuth indicator above the instrument panel in each aircraft. One aircraft is the master station and all the others are follower stations. After clock synchronization with the master station, the follower systems provide range information to each other. Should the master station be lost, any aircraft commander in the formation can assume the role of master station by switching his set to the master position.



### LTV COMMAND DISPLAY CENTER

In the old Tactical Air Command Center, airmen were often seen busily writing (sometimes backward) on huge transparent display boards. This will soon be a thing of the past, at least with top echelon command posts in the field.

Plexi-glass and grease pencils just can't keep a situation map posted fast enough in today's complex and highly mobile joint force operations. Today's systems must be capable of storing both operational and intelligence data for future use, must rapidly post displays, and at the same time, must be capable of being quickly moved from one place to another.

TAWC is testing a research and development model of an automatic display system for its Control Center.

In the photo, an Intelligence Specialist establishes a position on the small map with his left hand and selects a desired symbol with his right hand. The display equipment automatically writes the symbol on the command center display board.





### ABCCC TESTS

Tests on the Aerial Battlefield Command and Control Center which began during GOLD FIRE I are being continued by TAWC.

The ABCCC is in a pod which fits snugly into a C-130E and permits a commander and his staff to direct combat operations from the air. The pod can be quickly removed from the aircraft and used as a ground command post, freeing the aircraft for other uses.

In the current test phase, the ABCCC is being operated in conjunction with the "See Fast" reconnaissance gathering concept being developed and tested by the Tactical Air Reconnaissance Center at Shaw AFB.

"See Fast" uses three RB-66 aircraft; two are equipped with TV equipment that collects data over the battle area. This data is then relayed by the third RB-66 to TV screens and processors in the ABCCC. This provides real or near real time readout. In addition to the TV screens, the extensive communications gear in the ABCCC includes a battery of tape recorders that store valuable radio-transmitted information on battle activity so it can be played back and evaluated.

### AIDED VISUAL GROUND ATTACK SYSTEM

TAWC and APGC are jointly testing an aided visual ground attack system. Installed in an F-4C as an air-to-ground weapons delivery system, it incorporates a LASER ranger, an attack computer, a driven sight, and a semi-automatic weapons release feature. Essentially an air-to-ground computing sight with the addition of a semi-automatic weapons release, the attack computer considers weapons ballistics information and gets inputs from the aircraft air data computer, inertial platform and LASER ranger. A semi-

automatic release feature eliminates below-the-nose MIL depression when delivering high-drag weapons from level flight. It also simplifies the problem of pendulum effect during dive bombing by directing the aircraft velocity vector toward the aimpoint of the target. The test system is mechanized for practically all delivery modes.

### PROJECT "SPARROW HAWK"

TAWC is conducting suitability tests and collecting operational data on F-4Cs, F-5As and A-4Cs at Eglin AFB. The F-5As are on loan from the Military Assistance Program and the A-4s are borrowed from the Navy. The tests are to evaluate each aircraft's capability to deliver standard tactical munitions, the accuracy of weapons delivery, and the support required to maintain the aircraft in a tactical environment. Six of each type aircraft are being tested for a 90 day period.



### LIGHTWEIGHT SOIL CONTROL MATERIALS

Recent joint Army-Air Force exercises have revealed the need for lightweight soil control materials to waterproof and control dust on assault landing strips. The flexibility and mobility required in today's air-ground combat operations do not permit using heavy pierced steel planking such as was used in World War II. A neoprene-based material is now being tested, which will allow aircraft weighing 118,000 pounds or more to land on a forward assault strip.

Without this covering on an airstrip, C-130s landing on the sandy soil around Eglin could sink into the sand as much as two feet. However, on the material now being tested, fully-loaded aircraft made only 8 to 12 inch impressions in the sand. This poses no problem for the C-130, either on landing or take-off.





# CHOCK TALK

chock talk T-birds

## *color it fragile*

The F-105 was straight and level on downwind in the gunnery pattern when the left outboard pylon separated from the aircraft. The master armament switch was off and the pilot was not actuating any armament switches. When the bird was impounded after landing, the pylon attaching fittings were still on the wing but were loose. This indicated possible mishandling of the pylon before it was installed, causing one or more retaining balls to slip by the annulus. These pylons are shipped in special containers marked "fragile." Now, just because it's out of the box, Clyde, don't throw away your kid gloves.

## *looking ahead*

Airman First Class John R. Theys, at England AFB, was loading a BDU-11/E training shape onto an F-100 type VII pylon when he noticed the cable that connects the MC 982 and the retainer snap was contacting the pin control relay. Since 28 volts goes thru this relay when the pilot brings up the gear handle, Airman Theys realized that even a training shape must be treated as a live item and that this is a potential hazard . . . a hazard easily corrected by potting the pin control relay. A cover would be more convenient, but doesn't work too well since it tends to fill with hydraulic fluid.

A tip of the old hard hat to you, John . . . you are seeing beyond the obvious.

## *t-birds*

The Thunderbirds are looking for Staff Sergeants holding AFSCs F30151, 30450 or 64750. Openings will occur 1 September. AFR 20-25 gives application procedure . . . better hurry, deadline for applications is 1 July.



## *eyes have it*

Eye-catching yellow and black stripes mark physical hazards in the supply warehouse areas of the 4th Tactical Fighter Wing. Applied cautiously, to avoid needless distraction while highlighting obstructions, the color marking adds to the orderly appearance of the storage facility and helps equipment operators to steer clear, for accident prevention.



## *foreign object damage*

Foreign object damage is a tough problem that is more serious than most people suspect. Most bases have rather extensive FOD prevention programs... BUT NO MATTER HOW VIGOROUS THESE PROGRAMS ARE, IT TAKES ONLY ONE CARELESS MOMENT, ONE CARELESS ACT, TO SHORT CIRCUIT THEM! For example, someone leaves a high speed countersink bit behind after doing some minor repair work in an intake duct... someone else fires up the engine and the engine fails to check out. In fact, it must be changed... the first seven compressor stages are completely wiped out and the remaining compressor blades are nicked and damaged. Far fetched? It happened just recently.

Modern jet engines are very intolerant of FOD... a 10/32 screw isn't very big, yet when one found its way into the intake of an F-5, it caused extensive damage to one of the J-85 engines.

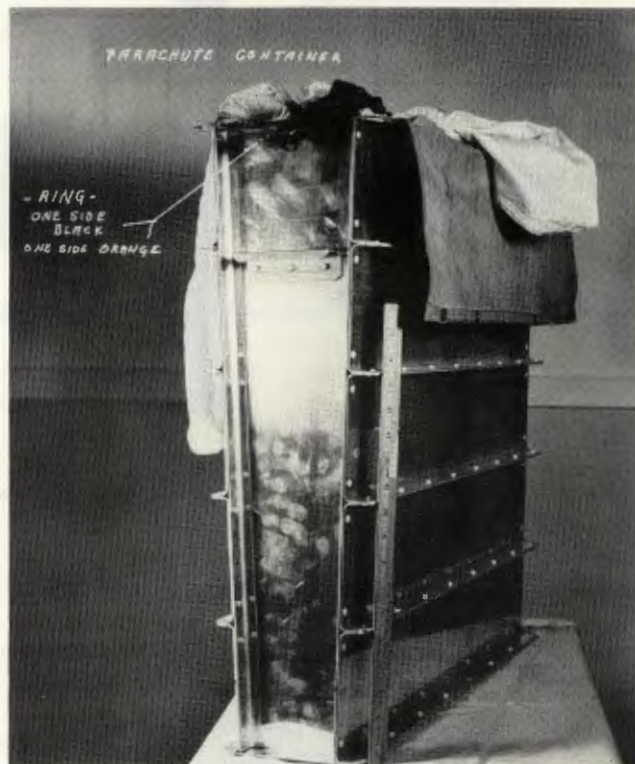
The FOD problem is not limited to engines. Tools, screws, drill shavings and bits of safety wire frequently induce electrical shorts or cause control problems. Trash on ramps and taxiways damage tires... the list goes on and on. The point is that everyone connected with this business must be conscious of the danger and continually guard against it. To do less, opens the door to FOD.

## *rats*

After a weapons loading, the crew turned in their MJ-1 to the repair shop because the left hand lift arm cylinder was leaking. A repair crew disassembled the cylinder to fix it. Lo and behold, they found pieces of a rat... tail file between the piston and front plate. Sure glad the last guy to use that file doesn't fix aircraft engines or, for that matter, any other part of an aircraft.

## *spectrometric oil analysis*

At TAC's request, AFLC is taking priority action to provide three Spectrophotometers to TAC units deployed in Southeast Asia. These units will permit timely spectrometric oil analysis for all TAC aircraft operating in this area and should help preclude engine failures. Incidentally, since March of last year, TAC's spectrometric oil analysis program has permitted maintenance teams to remove 48 engines that had defective parts and were in danger of failing. Twenty-three of these engines had worn bearings and gave no other symptoms of impending failure.



## *drag rag boxes*

Altho the New Jersey ANG's 108th Tactical Fighter Group hasn't been in the F-105 business as long as some, other units may be able to profit from their experience. Initially, the 108th had trouble handling and installing drag chutes until they found they could use a metal container to keep the drag chute from swelling or getting out of shape after it was packed. With this container one man can close the drag chute door with reasonable effort. The container is easy to handle, maintains the chute as packed and protects it from fluid spills and damage. The chute is stored in the container until installed in the aircraft.

Since drag chute failures are often caused by cocked D-rings, they painted the top of the D-ring a fluorescent orange and the bottom black. When the crew chief checks the inspection window and sees all orange, he is sure that the D-ring is properly positioned.

The 108th Tactical Fighter Wing at McGuire AFB will be happy to forward photos and drawings of the drag chute container for the '105B to interested units. Drag chutes in D and F aircraft are slightly larger, but the basic plan will work fine once dimensions are adjusted to the MB-8 chute.





# SEG NEWS

4450<sup>th</sup> Standardization Evaluation Gp.

## *Know your Stdn Evaluators*



MAJOR JAMES G. ABRAHAM  
F-4C TEAM CHIEF

Major Abraham is a native of New Castle, Pa. After studying mechanical engineering at the University of Pittsburgh, he entered the aviation cadet program and completed flying training at Williams AFB in February 1951. He flew F-84s in the 20th Fighter Bomber Wing and 508th Strategic Fighter Wing where he was a Special Weapons Delivery Instructor, Instrument Training Officer and a Flight Commander. After one year as a special project officer for the Inspector General, HQ USAF, he was assigned to the 4520th Combat Crew Training Wing and later to the 354th Tactical Fighter Wing where he was a Flight Commander and Operations Officer. On completion of a tour with the 8th Tactical Fighter Wing as SEF Commander, he was assigned to the 4450th SEG in August 1963. He has flown 3100 of his 3700 hours flying time in jet fighters.

### IN RETROSPECT

Throughout TAC, in 1964, 80 aircrewmembers were killed in aircraft accidents with a resultant dollar loss of over 105 million dollars. In addition, consider for a moment the potential of combat capability that these losses represented. The pilot loss would have manned three fighter squadrons and the money loss could have bought 52 new F-4C fighters or 27 C-130E assault aircraft. All these facts have caused concern, and rightfully so.

This is a lot of combat potential down the drain. We in the 4450th Stdn/Eval Group are concerned

because in one-third of the accidents, pilot error was assessed as the primary cause. Specifically, accident analysis attributes 35 percent of TAC's major accidents in 1964 to the pilot cause factor. A more encompassing look at the major and minor accident analysis shows a pilot cause factor of 37 percent for TAC (34 out of 91), 61 percent for ANG (11 out of 18), and 80 percent for Air Force Reserves (4 out of 5).

Frankly, these figures have given us cause to look hard at the results of the stdn/eval program. Of the 18,000 flight checks conducted in 1964, almost 22 percent of the aircrews were highly qualified, 76.2



percent were qualified, 1.2 percent were conditionally qualified and only .7 percent were unqualified. When we analyzed the 1964 pilot error accidents by comparing them with the aircrew's last stdn/eval check, no significant trends were found. However, consider this point - there were a total of 336 aircrews who were considered qualified and safe up until the time they took their stdn/eval check. During the check, weaknesses were uncovered that were spotlighted for additional training. Identifying the items where aircrews are weak before these weaknesses result in an accident is the heart of the standardization and evaluation program. By evaluating all the essential elements, supervisors at all levels can scrutinize aircrew performance item by item, determine strong and weak items, and then analyze the results and suggest the proper corrective action. This is an essential part of "before the fact" identification.

An overall analysis of these 18,000 checks revealed items of aircrew performance that need additional emphasis right now... emphasis by commanders in the field. The following items are presented for command-wide emphasis for three aircraft:

In the F-100, the item "techniques on final approach and the touchdown point" gains significance when we consider that - of the 12 F-100 accidents in 1964 - five occurred in the traffic pattern from final approach to the touchdown point.

In the F-4C:

Techniques on final approach, and the touchdown point, positioning, airspeed, and altitude on down wind, proper entry to the holding pattern, climb airspeed, and base leg airspeed, altitude and heading... all need emphasis.

In the C-130, for the pilot position:

Engine-out landing and reversal and ADF approach airspeed.

C-130 Co-Pilot:

Engine-out landing and reversal, missed approach procedures, holding pattern procedures, penetration course and heading, and again, the airspeed on ADF and on ILS approaches.

In addition to an analysis of the results of the flight checks given by all flight examiners in 1964, we have spotlighted additional areas that need improvement as a result of our SEG visits to the units.

In 1964, our flight examiner teams visited 83 units, of which 26 were found to be less than satisfactory. The results of these visits parallel closely the pilot cause factor that was mentioned earlier.

We are convinced that correcting the weak areas, which have appeared as a result of our visits, can reduce the aircrew cause factor.

Amazingly enough, no unit was graded below satisfactory because of flight checks. Out of 639 flight checks, SEG flight examiners found over one-third of the pilots were highly qualified, with only eight conditionally qualified and 14 unqualified. These results confirm the breakout of the 18,000 checks given in the field. As can be expected, the failure rate of checks given by SEG flight examiners is slightly higher... 1.3 percent compared to the all TAC rate of .7 percent. SEG flight checks given to non-pilot crew positions show essentially the same results.

It is in the written examination area that there is reason for concern. Each unit is given a minimum of two months advance notice and every aircrew has the same exam questions available for continual study. Of the 3500 written exams given to pilots during our visits, 4.8 percent, or approximately one out of 20, failed. Results of written exams given to non-pilots during SEG visits show an even darker picture. Of the 1,915 given, there was a failure rate of 11.2 percent. Over one out of ten aircrews failed to attain the passing grade of 85 percent, or failed a bold face emergency procedure!

Aircrews must know their aircraft at all times, not just before coming due a flight check. These aircrews can be accidents waiting to occur. The written exam failure rate is too high, indicating a definite lack of weapon system knowledge... as well as a lack of preparation. The poor showing on the written examinations has spotlighted an area that must be emphasized in 1965. There is no doubt that a lack of knowledge is as bad as a lack of ability. It can kill you.

Throughout TAC, visit results have shown stdn/eval administration or "flight management" of some of the units to also be marginal. Will a lack of professionalism on the ground be carried into the air? Here is another area for your emphasis in 1965.

Let's make 1965 a better year by continuing to increase our "professionalism" thru spotlighting and correcting all areas of aircrew performance that need improvement; and by further reduction of the pilot cause factor percentage in accidents - a percentage that has decreased over the past years because everyone has worked hard to improve our aircrew quality. We cannot rest on our laurels... there is still a long road ahead.



# TAC TIPS

## FOOD FOR THOUGHT

One of Mac's pilots got the surprise of his young life while on a flight to test the separation characteristics of the BDU-4/B from the outboard wing station of an F-4. Shortly after takeoff, at about 400 knots the aircraft suddenly yawed about 30 degrees and abruptly slowed to 220 knots. Seems the BDU-4/B chute deployed and slewed the bird around before it yanked the shape from the rack.

At this writing we don't know what caused the chute to deploy. Fortunately, the way this thing is built, the main chute isn't likely to deploy at slower airspeeds, such as during takeoff. But, you should be aware that it CAN come out, and if it does, IT WILL BE SCARY, regardless of the station it's on.

## AIR REFUELING MANUAL

Judging from recent air refueling incidents some troops still are not with the air refueling manuals. Specifically, TO 1-1C-1 dated 1 Sep 64 and its appropriate supplements.

This TO is NOT automatically distributed and your unit will have to order 'em thru the TO Distribution Officer. Each pilot should have his private copy of the basic TO along with the supplement for the bird he flies. The squadron file should contain an appendix for the tanker.

## AIR PHLOUGH PROBLEM

Phantom phlyers at MacDill recently encountered some auxiliary air doors that would not close. Repeated gear cycling failed to cure the problem and abnormal air flow in the engine compartment lit up the fire warnings. The dash one doesn't devote much space to this problem, but the NATOPS manual calls for an immediate power reduction. Best plan appears to be: Do not use burner, decrease thrust to cruise setting and avoid extended periods of high power.

## READY

When an F-104 pilot pulled the gun trigger during a strafing pass, the MN-1A jettisoned. All bomb switches were off except the drop-lock switch, which was in the ready position. Investigation revealed that vibration from the 20MM cannon caused the special stores emergency drop relay to make contact. This allowed current to flow to the centerline jettison cartridges when the special stores drop lock switch was in the ready position.

A shock mounted special weapons emergency drop relay is being sought as a remedy. But in the meantime, it may save a dispenser or two if you 104 pilots will turn off all bomb switches before shooting for 98 per cent.

## FAN FUN

During a recent co-pilot upgrading flight check a C-119 driver thought it would be a good confidence builder to demonstrate how the electrically operated mechanical stops keep the prop from reversing in flight. Unfortunately the demonstration resulted in an example of what happens when a prop goes to flat pitch in flight. Of course, he could not move the throttle forward again and, with a very red face, made a single engine landing. The moral of the story is that this gadget was not installed for day-to-day operation and like all things electrical it only works almost all the time. You wouldn't throw your car into reverse at 60 mph even if it had a device to prevent this from doing bad things, would you?

## PHLIPPED

The Phantom is one of those hot headed birds that seem to be forever phlipping their lids ... at least judging from the USAF and Navy message traffic. Latest incident occurred when a Navy RIO caught his sleeve on the canopy lever as he twisted around to see if fuel was dumping from the wings.



## CHECKLIST CHECK

No argument about the value of checklists... however, only when you use them as intended. Not long ago a T-39 pilot noticed he had an off flag on the attitude indicator. The ADI slowly started to indicate a bank to the right, altho other instruments said the bird was straight and level. A little shuffling around in the cockpit uncovered the problem. The circuit breaker to the attitude indicator was pulled. The breaker is on the left console. The pilot experimented around and found that the metal binder on the checklist had caught under the circuit breaker and he inadvertently pulled the circuit breaker when he moved his checklist. Other T-39 pilots have reported the same thing happening with other circuit breakers.

## LUCK!

After becoming spatially disoriented, a reconnaissance fighter type had to eject as he passed 10,000 feet. The egress system worked just fine and the chute deployed automatically, but the pilot lost a glove and his helmet during the ejection. Luckily, a ship happened by and picked him up about ten minutes after he hit the water. He was in pretty good shape, but a little short of survival gear. It seems he hadn't bothered to hook his survival kit and raft to the chute harness, nor did he wear his LPU-2/P underarm life preserver. Fortunately, he hadn't forgotten his rabbit's foot.

## ONE WING LOW, WOE

Captain Rondeau of the 4453d CCTW reported he had an extremely strong illusion that he was in a 30 degree right bank while driving an F-4 thru weather. The white fuselage light under the left intake had burned out, causing a much brighter glow from under the right intake. The off-balanced light created the effect. He flipped the switch off and corrected the problem at its source.

## SPECIAL CONTACT VFR APPROACH

For many years the term "contact approach" was used rather loosely in the civil flying arena to describe the gyrations that start when a pilot stops staring at the gages and looks out the window to complete his approach. Realizing the old definition was a bit vague, the FAA published new definitions and procedures to be used after 1 May 1965. These make a Contact Approach almost synonymous with the Special VFR defined in AFR 60-16. Both procedures are designed to allow special approaches to an airfield below normal VFR minimums. Both require a minimum of one mile flight and runway visibility

and flight clear of the clouds. Both require an ATC clearance. So don't be confused if you ask for Special VFR and are cleared for a Contact Approach. Like it's all the same!

## CROSS WIND CAPERS

Here's a little reminder from PHUMBS UP, the 4453d Combat Crew Training Wing safety pub, which will interest all pilots flying birds equipped with drag chutes.

The effect of a crosswind increases as speed decreases... meaning if you need your chute to get stopped, get it out early and then dump it when you begin to run out of directional control.

In most aircraft, you can safely deploy the chute the instant your bird's nose gear touches down. As speed falls off, so does the drag from the chute, but by then your brakes are becoming their most effective and you gain little benefit from hanging onto the chute if you're having trouble keeping lined up.

## BATS

You'll never believe this but one of TAC's control towers is absolutely batty! Between 100 and 200 of the little winged creatures moved in to nest between the walls. Any further comment would tend to strain our good relations with the hard working tower troops.


## PERSEVERANCE

OK, guys, it took a while, but the old D-ring is back! The loud and long chorus of complaints from fighter pilots who dropped out of formation, fell into unusual attitudes or lost sight of the lead while fumbling with the new improved, full swivel T-handle has finally paid off. All fighter outfits will have their parachutes re-equipped with the good, old fashioned D-ring. The old story that wind blast on ejection could pull the D-ring and cause premature parachute opening is completely unfounded. As far as we know there has not been a single instance of this actually happening. The TO for the retrofit should be in the field now, kits are being procured and should reach the PE shop within sixty days.

## SQUEEZE PLAY

An F-4 troop got a big squeeze from his G-suit just after liftoff. He promptly pulled the hose loose and, after getting a little altitude, checked to see what was up. It seems he left his checklist on the left rear console and it slid onto the manual inflation button during takeoff. You might say that this is just one more verse in the old sad song about loose items in the cockpit.





# Wrong Port in a Storm

"George, I didn't expect you in this morning," the base commander's voice boomed into the safety office and sent two stockinged feet flying from the desk to the floor. The wiry figure behind the desk struggled to attention.

"Colonel, I'll guarantee you that if I'd gone home right after all the shouting was over a couple of hours ago, I wouldn't be here now. As it was, I wanted to listen to the approach control and GCA tapes again to get a better feel for what led up to it." George self-consciously ran his hand over the stubble on his chin, then took the pencil from behind his ear.

"You see, sir," the safety officer went on, "the pilot insisted that the wind shift was so rapid that when GCA told him about it being a tailwind, he was committed to land."

"Yes," the colonel took the visitor's chair and leaned back. "He started an approach to runway 27 while that thunderstorm was still north of the field. There was a pretty stiff crosswind at that time, but he wanted to use GCA . . . which was pretty good thinking since he had one engine caged. If the wind switched around at the last minute, he was in a pretty tight spot. Remember, he couldn't

see how intense the storm was because of the dark, and from the appearance of the tracks where he skidded off the runway, he was perfectly lined up. Looked to me like he may have been hydroplaning and the cross wind just blew him off."

"Yes sir, he made the best of a real bad situation . . . got it back on the runway, and under control without doing much more than tear up a couple of tires and a brake line. The scanner said the airplane wasn't in a crab at touchdown . . . he could see out the side window even though the rain made forward visibility almost zero."

"Well then, George, if he was already committed to land when he learned how bad the situation really was, what bothered you enough to keep you here all night?"

"Colonel," George leaned forward, "you can take a C-97 around on three engines right up until you're at minimums . . . that's part of what has been bothering me. I wonder when he committed himself."

He rummaged thru the clutter of papers on his desk and drew out an airways chart. "He was about a hundred miles from here when he lost number four. As I understand it, he declared an emergency

and got a radar vector right away. He chose us because we have GCA and ILS and a good long runway. Thunderstorms west of here helped him make up his mind to turn back, but he didn't get a report on our weather until he was almost halfway here. At that time . . . about thirty-five minutes before he landed . . . there was a 12 to 15 knot left crosswind on runway 27, rain showers and thunderstorms in the vicinity. As he approached, the wind got stronger and started to swing around to the east. Approach Control passed him to GCA, who vectored him to runway 27, but because the wind was almost a direct tailwind, he was told to circle and land on runway 09. This was six or seven minutes before he landed."

"I'm beginning to see what you're driving at, George . . . he had plenty of warning."

"Well, sir after a bit, everything started to bunch up on him . . . ten miles out on final, GCA told him they had heavy precipitation returns between him and the base . . . and more over the base itself. Right after that they told him the wind had come around to 040 at 20 knots."

He glanced at his note pad and went on, "one minute later . . .



two minutes before landing . . . GCA said there were extremely heavy rain showers on final approach, and that field visibility had dropped to one mile . . . below circling minimums. When GCA asked him his intentions, he said he would land out of the GCA. The turbulence was getting worse, there was lightning all around, he was on three engines, and had a crowd of passengers aboard . . . that twelve thousand foot runway looked awful good. One minute before landing, GCA gave him winds of 050 at 25 gusting to 36 knots . . . by the time he digested this information, he was over the approach lights . . . committed!!"

"Alright, we're in the classic position of trying to understand the sequence of events after the occurred . . . the old Monday morning business. I've always

tried to keep an open mind in this situation, George . . . it's too easy to go off half cocked." The colonel leaned forward, "We don't know what went through this guy's mind when he selected an emergency landing field. He had to consider the seriousness of his emergency. What were the odds for or against the situation deteriorating . . . another engine quitting? Did he weigh this against the weather reported here? The fact that he drove about 50 miles toward us before he knew what the weather was, makes it look like he just picked the closest field with a good instrument approach and then closed his mind to the weather. Then, as he turned GCA final, the weather started to be mighty important to him, but he had made up his mind. Because he had not considered any other field right

at the outset, he was unable to think of not landing here when the weather became real terse."

"That's it, sir," George realized that they were thinking alike, "we can't damn the guy for his handling of the landing situation . . . but we must question this fixation he got toward his initial decision, which is what placed him in a rough situation."

George stopped the cigarette halfway to his mouth and put his lighter on the arm of his chair, "You know, Colonel, we have you lined up for a short pitch at the Fly Safe meeting Thursday . . . I was digging out some FOD poop for you to talk on, but I'm going to put it all back in the file. I think it would make a better pitch if you talked about not picking just any port in a storm."



## PILOT OF *Distinction*



Major John M. Lowery of the 4th Tactical Fighter Wing, Seymour Johnson AFB, North Carolina, has been selected as a Tactical Air Command Pilot of Distinction.

After completing a functional check flight, including a supersonic speed run, Major Lowery leveled his F-105D at 10,000 feet and 450 knots. Without warning, his aircraft began to porpoise. Major Lowery turned off the stability augmentation, the generators, and the battery; however, the aircraft continued porpoising and went out of control. He turned the battery on and extended the speed brakes in a final attempt to save the aircraft. At 200 knots, Major Lowery recovered his Thunderchief and discovered that he could maintain control by using the stick grip override switch.

Major Lowery again momentarily lost control when he lowered the gear for landing, but recovered the aircraft and lowered the flaps. He continued his landing approach and in spite of pitch control difficulty during the flare, successfully landed without incident.

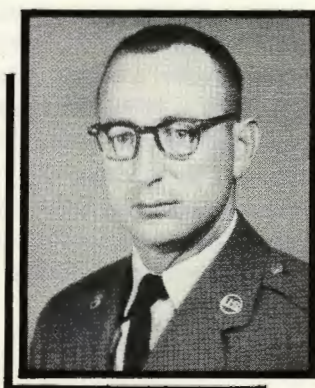
Investigation revealed the porpoise was caused by a frozen lubricator bolt in the stabilizer actuator bell crank and internal failure of the stabilizer actuator servo piston.

Major Lowery's outstanding airmanship and skill while handling a difficult flight control emergency qualify him as a Tactical Air Command Pilot of Distinction.



## MAINTENANCE MAN of the MONTH

Master Sergeant Donald L. Martinat of the 4515th Munitions Maintenance Squadron, Luke Air Force Base, Arizona, has been selected as a Tactical Air Command Maintenance Man of the Month.



## CREW CHIEF of the MONTH

Technical Sergeant Paul T. McElvain of the 463d Organizational Maintenance Squadron, Langley Air Force Base, Virginia, has been selected as a Tactical Air Command Crew Chief of the Month.

## AIRCREW ACHIEVEMENT AWARD

A C-130 crew, number E-007, from the 317th Troop Carrier Wing at Lockbourne AFB, Ohio, has been selected for the TAC Aircrew Achievement Award for the period ending 31 March 1965.

During a high gross weight take-off into weather of 200 feet and one half mile, the C-130 aircraft struck a flock of birds. Birds hit the windshield, both wings, and were ingested into the number one, two and three engines. Power was completely lost on the number one engine and the number three engine would only produce about 75 per cent power. The

number one engine was shut down and the co-pilot rapidly and accurately accomplished the correct emergency procedures, as directed by the aircraft commander. The navigator responded to the decision to land at the departure base with a heading for an airborne radar approach, while the flight mechanic calmly and precisely advised the aircraft commander of engine readings and approach speeds. Through the coordinated efforts of each crewmember a successful emergency landing was accomplished despite the very poor weather.

The professionalism and team work of Major Sam B. Barrett, Aircraft Commander, First Lieutenant David E. Schneebeck, Co-pilot, Captain William C. Pendleton, Navigator, Staff Sergeant Willie F. Carroll, Flight Mechanic and Airman First Class Rodney M. Davidson, Loadmaster, during a critical phase of flight, demonstrated a coordinated effort that merits their selection for the TAC Aircrew Achievement Award.





# TAC TALLY

A COMPARISON OF TACTICAL AIR COMMAND ORGANIZATIONS

## APR TALLY

UNIT	MAJOR	MINOR
401TFW	3	
479TFW	2	
474TFW	2	
4510CCTW	1	
4520CCTW	3	
3TFW	1	1
4TFW	1	
122TFW		1
131TFW	1	

## ACCIDENT FREE MAJOR & MINOR

### JET

ACTIVE	MONTHS	ANG
4485TW	13	20
363TRW	11	17
		123TRW
		117TRW

### CONVENTIONAL

ACTIVE		RESERVE
4500ABW	46	101
4442CCTG	17	62
		434TCW
		435TCW

## MAJOR ACDNT RATE

TYPE	1965*	1964
ALL	9.1	10.5
F-4	3.1	4.9
F-5	0	0
F-105	21.0	26.7
F-104	27.4	12.1
F-101	0	20.1
F-100	16.4	18.8
F-86	206.3	0
F-84	0	21.6
B-66	0	0
B-26	0	76.0
T-39	0	0
T-33	0	0
T-29	0	0
C-130	1.5	1.2
C-123	0	8.6
C-119	0	1.9
A-1E	26.3	10.7
U-10	0	28.6
T-28	0	0

\*1 JAN - 30 APR 65

Our flight safety record for April, 13 major aircraft accidents, two minor, and seven fatalities, was the most devastating month in the last three and a half years.

After the first weapons delivery pass, lead and the tower lost contact with number two ... the F-105F was found in 20 feet of water with no evidence that either pilot tried to eject. On recovery from a weapons delivery mission, the throttle of an F-105D froze at about 100 per cent. The pilot was able to configure the aircraft for landing and shut off the fuel on final. A porpoise developed on landing and the nose gear failed.

An F-104G student didn't perform the prebriefed level off, or turn. He did not answer the IP's transmissions. The student's aircraft slowed, became unstable, yawed, and struck the ground. He made no attempt to eject. After the fourth firing pass to check an M-61 cannon, an F-104C's gear fell down, followed by an explosion and loss of control ... the pilot ejected.

The F-100 had high oil pressure, engine vibrations and fire reported coming out of its tailpipe. The pilot stopcocked and ejected after attempting airstarts. Another F-100 had smoke in the cockpit and an explosion followed by loss of power, with 1000 degree EGT ... the pilot also ejected after unsuccessful airstarts. Another F-100 pilot aborted after nose lift off when the engine lost power. Both the BAK-6 and MN-1A failed, the nose gear folded and aircraft burned. A fourth F-100 had an inflight fire and flameout during an over-water ferry flight. The pilot ejected and was picked up safely. A fifth F-100 accident occurred just prior to entering the landing pattern when the overheat and fire lights came on accompanied by loss of flight controls. The rear seat pilot ejected safely, but the front seat pilot did not, even tho he had ordered his companion to eject. A sixth F-100 was lost and the pilot killed when the aircraft hit nose high and left wing low during recovery from a camera gunnery pass. A seventh F-100, overdue after completing some aircraft checks on a weapons range, was found wrecked with its fatally injured pilot. And, number eight happened during a rocket salvo pass when the underside of an F-100's left wing and external fuel tank received minor damage.

An F-86F pilot ejected when fire lights came on and his wingman advised that fire was coming from around the speed brake. He had just tried an airstart after hung rpm and unusual engine noises caused a flameout. A gun charging cable in another F-86F shorted against a hydraulic line, engulfing the gun bay in flames. The fire was fed by the ruptured hydraulic line.

During a formation takeoff, the lead pilot of the second element of F-84Fs ran off the edge of the runway and collapsed the gear attempting to continue takeoff.



