JUNE 1963

TAC ATTACK

TAC Attack June 1963 Back the attack

TACTICAL AIR COMMAND

Back the ATTACK

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COVER PHOTO

Four Thunderchiefs return from a mission.

Contents

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General Spaatz on safety

General Spaatz on SAFETY

Overconfidence is what makes actors and kills aviators.

Whether flying Jennys or jets, 40 MPH or Mach 2, this philosophy still holds true. Overconfidence is not a respector of persons. It can infect the experienced as well as the inexperienced, the proficient as well as the less proficient.

Pilots must be aggressive, but not to the extent that they become overconfident and lose their good judgment. In my opinion, each pilot should carefully consider and weigh all factors before making any flight and then not extend himself beyond his current capabilities. Be confident but not overconfident.

Embarrassin' Peculiarity

BY CAPT DeVERN GARDNER
TAC Office of Safety
Langley AFB, Va.

ALTHO THE BIG gal is only ten years old, she is old enough by aircraft standards. Old enough that most people dating her should know all about her embarrassin' peculiarity. Unfortunately a lot of them don't.

Unlike Tiny Yokum's recent friend, she is neither good looking nor fond of small puny men. Instead, she has proven rather in-

different to all types and therein the clue to her peculiarity. er certain conditions she even resists all of their efforts to control her. They'll want to go one way, she'll want to go the other. This stubborn streak is so pronounced that she'll follow it even if it kills her. Five times last year she did just that. Four times she killed the pilot dating her.

I'm referring to the F-100, adverse yaw, and to the five major accidents attributed to this characteristic within Tactical Air Command during 1962. These accidents are proof enough that some F-100 pilots did not understand this characteristic or know what to do to compensate for it.

The F-100 is no different from any other female. She can be made to cooperate fully if properly handled. All it takes is a little understanding. With that in mind, let's study a few basic facts and apply what we learn to the ...gard hundred.

You can induce almost any aircraft to roll into a bank using rudder alone. The yaw causes a slight increase in the air flow speed across the outside wing and reduces the amount of air flowing across the inside wing by partially blanking out the wing with the aircraft fuselage. Rate of roll on any given aircraft will vary with airspeed and angle of attack. Remember that angle of attack is induced with elevator control. At speeds just above stall, a yaw and increase in angle of attack (back stick) will give a very brisk roll on many aircraft. Have some of the old timers tell you how they did snap rolls back in the Training Command.

With the F-100, we have a similar thing working except the that starts it off is not induced ...e rudder and is far harder to detect than most F-100 pilots realize.

A few years ago I attached a yaw string up near the windscreen on an F-100 in an attempt to increase my gunnery score. I found out some things. In the first place, the aircraft hunts back and forth very mildly in straight and level flight. My yaw string was never steady like the one on a T-bird is. It continually snaked back and forth about a half inch and altho you might be able to feel something like that with the seat of your pants, I couldn't. In a turn, the string moved toward the outside. The harder the turn, the further outside it went. Even tho the aircraft felt perfectly coordinated, I have seen the string at about a 20-degree angle to normal. That's a lot of yaw.

The engineers may have a reason for this, but regardless of the reason, the important thing to realize is that it can exist without being readily apparent. This explains why adverse yaw is so difficult for most pilots to recognize. Let's say you are in a hard turn with the aircraft at a high angle of attack. Any aileron you apply will create unbalanced drag and the aircraft will roll opposite to the applied control. This can happen any time aileron is used to increase or decrease the angle of bank at high angles of attack. The aircraft will start to respond, then reverse. This angle of attack business is pertinent . . . a heavy bird will have a higher angle of attack than a light one will and will be more tender. It will continue to roll just as long as the pilot holds back pressure . . . i.e., angle of attack.

It's easy to see why a pilot can get into trouble. When he rolls the aircraft by yawing it with rudder, it goes the way he expects it to. When the bird rolls due to an aileron induced yaw it goes the opposite way he expects and his normal reaction is to feed in more control which just aggravates the condition.

All aircraft are affected to some degree by adverse yaw . . . on others it isn't too noticeable because the yaw does not induce a roll like it does on the hundred. For that matter, many F-100 pilots have never encountered this phenomenon because they have never maneuvered the aircraft in the flight range where the aircraft begins to respond to the yaw.

The response will always be a roll in the direction of greatest drag—toward the downward aileron—and will usually be toward the high wing or over the top. If angle of attack (G - Forces or back stick) is not reduced, the aircraft will continue over the top and enter a near vertical spiral. The bird will stay in that spiral until G forces are released or it hits the ground. This, incidentally, is a steep, tight spiral. It is smooth with no oscillating or buffeting. The roll itself is relatively slow and is also a smooth maneuver. At a slow airspeed and a high angle of attack, a large aileron deflection will induce a good imitation of a snap roll . . . just as full rudder will do on most trainers under those conditions.

To recover from a roll due to yaw, release control pressure. The aircraft will stop being contrary immediately and you will once more be in command. A word of caution: If you attempt to recover using opposite aileron, you stand a good chance of causing the aircraft to enter a spin.

The main thing is to recognize the roll when you encounter it and then correct by releasing all control pressures.

SAM, THE SAFETY section handball expert, came in shaking his head and waving a message. "TAT," sez he, "How you going to stop one like this?"

We scraped the excess paper and stuff off the visitor's chair and kicked it toward him. "What's the matter, someone find a new way to play Russian roulette with an airplane?"

He looked at us suspicious like, "You've read it already, then?"

We shook our head.

"Well, this character checked out an aero club T-34 and flew his wife down to her folks' place. After spending the night, he whacked a landing strip out of his father-in-law's hay field. He was wanting to give 'em rides."

By now we could almost finish the story for him, but kept quiet.

"He taxied up and down the strip, then said he was going to give the aircraft a checkout."

We snorted, "that ain't no new way at all."

Sam looked puzzled, "You want to hear the rest of this?"

"Sorry, we were thinking of a guy we used to know . . . pray continue."

"Well, there was a strong crosswind and 40 to 50 foot trees surrounding the new air strip. Wind shear from the trees must have been pretty strong. Also, the T-34 had been modified with a mechanical interconnect between the ailerons and rudder so any lead foot could fly it . . . "

"And to completely spoil it for doing aerobatics," we added.

Sam ignored the interruption. "This troop had about 40 hours in unmodified T-34s but hadn't flown one in three or four years, 'cept three or four hours in this particular bird." He stopped to see if we were getting impatient.

We looked out the window, rubbed our eyes and said, "So this fella blasts off, makes a low pass and dishes out of a low, slow roll right in front of his wife and family. Was he rated?"

"Yeah, about 1700 hours, mostly jet fighter. And you were wrong. He came across inverted and d out when he tried to roll out."

"Same difference. But to answer your question, Sam, there is no sure way to stop such nonsense. We can't send a supervisor along with every pilot on every flight. Somewhere, somehow we've got to leave 'em on their own and trust that they have the integrity and good sense to obey the rules. Those that don't will eventually get caught."

You know, putting on an air show is risky by itself, but can you feature a guy trying to put on an unauthorized one with only four hours recent time in a bird and most of that straight and level?

A B-66 PILOT was in a left climbing turn during a weather climbout when departure control advised him not to exceed 4000 feet. Since he had just climbed thru 4000, he pushed the steering wheel forward and then looked at his attitude indicator. He believes the bird was in either a 90 or 120 degree bank, and says he rapidly tried to right it. He ain't too sure just which way he went to do the honors.

The navigator says he thought the bird was cranked over about 60 degrees to the left and the pilot rolled rapidly right. The aircraft shudd

during the roll... but here let us quote the message received. It said, "The pilot uttered a profane -word exclamation of dismay. The navigator interpreted this remark, the movements on the attitude gyro and the shuddering of the aircraft to mean that they were out of control..."

He left without even saying good-bye! An instructor pilot, equally confident but unable to see the flight instruments, felt all gyrations and came to the same conclusions and decision.

The pilot, deserted and alone, declared an emergency and climbed on top to see what was what. He eventually landed no sweat. The bird was re-equipped with seats and hatches, then returned to service. Somewhere, somehow, there must be a moral to this story. Perhaps it is that a too-quick reaction on instruments has a tendency to induce vertigo, near loss of control and loss of hatches, ejection seats and assorted crew members.

This can be summed up by the old ground safety cliche - slow down and live.

A JET PILOT overcontrolled his machine while cruising at flight level 410 and noticed things were ing kinda blurred. In fact, he felt like he was t to pass out. Cabin altitude was, gasp, 27,000 feet.

His buddy in the rear seat took over and brought the bird down to a lower climate and a cabin altitude of 17,000 feet. The hypoxia symptoms disappeared. Back on the ground the PE people checked out his oxygen equipment and found his mask dirty enough to do the dirty work.

AT has a couple of comments on this jewel. First we can half-way understand the dirty mask... just half-way mind you, 'cause the critters do require quite a bit of loving care and attention, but they're worth it. On the other hand we can't understand the 27,000-foot cabin altitude. Most birds will go almost as far at 35,000 as they will at 41 . . . and if you have to go at 41 in order to make it, you're flat cutting it too close for everyday, garden-variety, peacetime flying. OK, so these troops filed that high thinking they'd have a reasonable cabin altitude and the fool bird failed to perform to spec. If so, why not ask for a lower level? We've been over this road and have found ARTC most cooperative. All we had to do was tell 'em that we couldn't maintain a cabin altitude that was below 25,000.

By the way, AFR 60-16 says not to fly above 25,000 cabin altitude, except in an emergency and we couldn't agree more. The reg is a product of hard earned experience and the penalty for violating many sections is a lot more permanent than a reprimand.

WILLIE FOUR had 5300 pounds coming off the dive bomb range. This was down to 3000 by the time he entered the holding pattern at homeplate.

After some nineteen minutes in the holding pattern Willie Four started down the slide and declared minimum fuel with an even ton of the stuff on board. A ton ain't so much when your bird is of the super century series, and Willie Four was flying an F-105.

About 20 miles out he contacted GCA and reconfirmed his fuel state, then played it safe and selected one of the ground map modes on his radar. He monitored the radar until about five miles out.

When GCA advised him to perform his landing cockpit check at 13 miles, he slowed to final approach speed and extended flaps, but held the gear in order to conserve fuel. At ten miles, GCA advised that gear should be down and locked. At nine miles he intercepted glide path.

You right! Willie Four touched down gear-up in front of mobile control and slid 6300 feet down the center of the runway. On the slide, he deployed the drag chute, stop-cocked, and turned off all switches.

Before you shake your curly head and mutter something about "junior birdmen will be junior birdmen" TAT hastens to add that Willie Four had well over 4000 hours bending throttles and was a graduate of the test pilots' school and the Korean rumble. Fact is, we flew with him in the latter event and know him quite well and he rates as a fighter pilot.

His was a typical wheels-up landing and if it does nothing else it illustrates that it can happen to you.

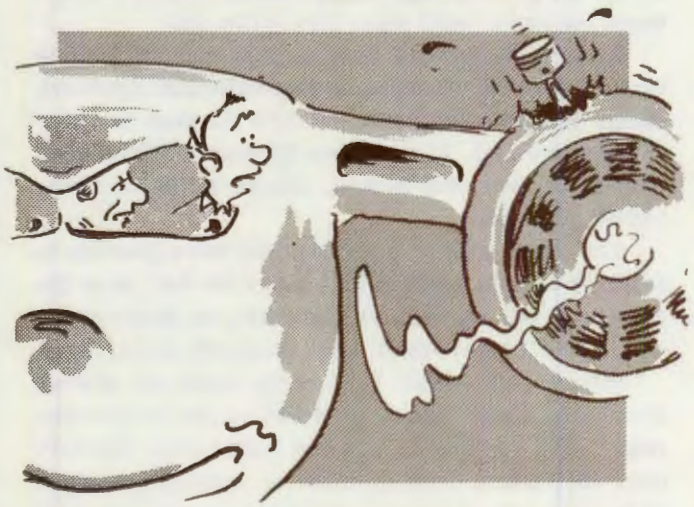
Immediate cause was concentrating on other things to the extent that the gear was completely forgotten. We almost pulled the same stunt once ourself and know how easy it is to do. There are several safeguards. First is to adopt the habit of double checking gear very religiously on the latter phase of final. Just over the fence on a normal pattern, crossing minimums on a GCA.

Secondly, is a matter of procedure. It takes darn little extra fuel to haul extended gear thru the air once you are on final and slowed to final approach speed. Try it with any bird . . . usually it takes almost as much power to hold 'em at GCA final speed gear up as it does gear down.

Drag induced by the gear at these speeds is much less than at higher speeds, while friction drag induced by the high angle of attack is so much higher than other drag it is completely predominant.

Don't take our word for it, try it out and check fuel flow in each configuration. Since it takes between four and six minutes to wander in to the runway from the 12 mile point, you can readily calculate whether the difference in fuel is worth the risk of holding the gear much closer in than that. Considering that you might forget it entirely, or at best, mess up your glide path dumping it down. We made up our mind on the subject many years back.

One final comment . . . the principal error was an error in judgment made back on the range or in the holding pattern—depending on whether approach control threw him a curve. If we have to spell this out, you don't belong in the cockpit.



WHILE CRUISING PEACEFULLY, a fan van crew heard a popping sound, accompanied by a drop in fuel pressure on number one. While watching the fuel pressure go toward zero, they heard another, louder pop. Looking outside they could see one of the cylinders sticking out thru the cowling on number Shutdown and landing were all without effort. know, that fool cylinder wouldn't have looked so funny if it had decided to poke its head out in the breeze shortly after liftoff . . . reason enough for you C-119 and other two fan types to refresh your memory on the single engine section of the red bordered pages and to spend a little time, at altitude, practicing what the book preaches.

THE USAFE AIRSCOOP tells of a gooney flopper cruising at 5000 with four eyes more in the cockpit than out; until the shocker appeared . . . two wheels, two wings, two tip tanks almost in the cockpit! After recovering from the shock, the gooney troops started to wonder where this T-bird had come from with his gear down and descending like that. They checked and found they were overflying an airpatch and that the T-bird was making an SFO.

But did the T-bird pilot see them? As a matter of fact, he did and had kept legal separation of 500 feet. Now 500 feet is way out when you have the other bird in sight, but when first view is at 500, it seems like five feet!

The AIRSCOOP can't see any good reaso pressing the minimum if you have the guy in s TAT will go along with that . . . in fact we were on the T-bird end of a similar "incident." There was a civilian C-46 on the runway as we boiled down initial at our usual 240 knots. The tower had already cleared him to roll, so we broke at the usual place. Turning base, he started moving, so the tower cleared us to land.

He must have been having trouble, or was trying to conserve fuel and engines, because he accelerated about as fast as a VW going uphill with two broken spark plug leads. At about 300 feet we decided it would be too close and advised the tower we'd take it around. We cleaned up and angled left, passing the guy when he was a little over 300 feet in the air . . . his acceleration really picked up after we'd committed ourself to going around.

Not wanting to chance any squawks from a civilian pilot, we made certain we were well beyond the legal distance by flying well left of a taxiway located exactly 900 feet to the left of the runway. This put us well over 1000 feet to the left of the C-46 . . . yet the C-46 pilot complained about us passing too close! How about that? We done our best not to bother character and he bad-mouthed us for it!

THE BOOMING AB didn't light, so the F-105 troop taxied the big mother back and tried again. Still no light... so back to the ramp and a maintenance inspection.

Everything ground checked OK - (they call it inspected IAW TO such and such, but it means ground checked OK) and ole gullible went back for his third abort. Taxiing back to the ramp the left main tire failed. Failure was attributed to PILOT FACTOR - overheated brakes and excess taxiing with high gross ght.

Tire temperature tests have confirmed that taxiing out and back with a heavy bird is in itself enough to raise the tire temp to the danger level. A point well worth committing to memory now that warmer weather is again with us.

Had this tiger been involved, the tire ain't the only thing that would have blown its hot top. We have a hard time accepting ground checked OK writeoffs when something doesn't work twice in a row.

ALL THE RETURNS aren't in, but when a bird hits the deck at 500 knots the investigators have to do considerable raking thru the bits and pieces before they can do any talking, much less writing. On the other hand sometimes the answer isn't in the wreckage at all.

But we're ahead of ourself. Some pilots in a TAC unit have been making a pass by the range tower, level with the critter, at delivery speed in order to get an accurate altimeter setting . . . the base reg authorizes this check. Most note their indicated altitude during this pass and add 300 feet to it when v make their actual delivery run.

A few like to crank their altimeter back, so it'll read 300 feet shy of a cardinal altitude. They do this while maintaining the height they had going by the tower. On their actual bomb run they fly the cardinal altitude, and have it hacked.

Got the picture? Well, this young man made his pass behind the control tower instead of in front and lost a little altitude just after passing the tower. This placed him over the range building area and into a telephone pole . . .

Perhaps something did go wrong with the bird, but that procedure where some troops reach across the cockpit to adjust their altimeter while zipping along some fifty feet above the cold, hard ground kinda turns our tiger blood into pickle juice. At the same time we can't help but wonder how this procedure will work out in a real shooting situation.

After the steel and aluminum fallout, almost any hindsighter worth his salt should be able to see the potential hazard in this operation. However, it takes real foresight and good judgment to spot and correct such potential killers before they've done their dirt.

FOR SOME ODD-ball reason when two IPs crawl into the same flying machine the ole hazard index often goes up instead of down . . . too much mutual trust or the ole thought-you-had-it routine.

Take this pair from another command. The IP in the aft seat landed a terrible T about 3000 feet down a 7000 foot runway before his buddy up front pushed the throttle forward. We doubt if buddy boy would have waited as long with a green student on the controls . . . but.

Both checked the throttle full forward, but acceleration seemed to be 'way below normal. It usually does under these circumstances. In fact, this Tiger can remember doing some hard swallowing two or three times in similar situations. You have two choices . . . gamble your life on the engine or have yourself an accident.

These troops took the second choice and chopped the power with about 2000 feet to go, 475 gallons on board and a tad over 90 knots. Well, no one was hurt. The bird was pretty well messed up but not enough to keep the investigating types from jacking it up, cleaning out the debris and running up the engine. It checked out good as gold.

Few of us enjoy having to make one of those fly-or-die decisions, so it behooves us to avoid the situations which lead into them.

—TAT—

ENGINE-ERING

IN THE MARCH TAC ATTACK, Major Paul Smith's "A Better Way" discussed the folly of indiscriminately simulating engine failures at low altitude and suggested that pilots would be better off to practice up high or in the simulator. Major Smith's ammunition for this philosophy was that in 20 years of flying multi-engine aircraft, he had never had an engine just plain quit. He said that they usually grunted, groaned, wheezed and barked until he had to shut them down.

This month we'd like to reindorse Smitty's writings on the subject and again point out that there isn't any need to panic-punch the feather button. In fact, more often than not, premature feathering compounds the emergency.

There is always some risk to operating a malfunctioning engine, but if running the engine means the difference between getting to an airfield or crash landing, it would be worth the risk.

Pilots can get some use from a malfunctioning engine and perhaps even eliminate the malfunction symptoms by following this simple checklist:

* Check engine instruments.
* Check mixture control and fuel boost.
* Check carburetor heat.
* Reduce manifold pressure to below normal.
* Visually check the engine for leaking oil, smoke, vibrations, etc.
* Check mags while watching engine and tachometers.
* Reduce RPM to 1300-1500, and MP if necessary.
* Use engine analyzer.

Let's discuss these steps. Instruments give clues about the malfunction and help determine corrective action. When troubles appear, instruments are the first thing most pilots check. If oil pressure is low and oil temp is high, the difficulty is being caused by a lubrication problem or an oil cooler problem. High cylinder head temperature can indicate detonation, and so on. It's usually not very difficult to read the gages and correlate an out-of-tolerance reading with the other indicat[ions] of a problem. But sometime[s] isn't so simple. When it isn't, go to the next items: mixture and boost.

Experiment with the mixture control; if rich, try lean and vice versa. Hold down the primer. If the engine smooths out, it is running too lean. If it runs rougher or loses power, the engine is probably running too rich. In this case, try manual leaning and, if possible, change fuel tanks.

Try carburetor heat and observe the effect. If already using heat, try cold air.

Reduced BMEP may help smooth out the engine, so throttle back.

Oil on the cowling or nacelle often indicates the nature of the trouble, but remember, a little oil can go a long way on a nacelle and wing. Smoke is often a clue to the source of trouble. Intermittent puffs of white smoke f[rom] under the cowling are generally caused by oil dripping on a hot surface. Excessive smoke pouring from the exhaust stacks or collector ring indicates a mechanical failure or mixture malfunction.

Vibration can be caused by many things. To check the cause, put the mixture in idle cut-off and retard the throttle. If the vibration continues with the engine windmilling, chances are the engine will soon fail mechanically. In this case, action is clear, you feather. Incidentally, while the fuel is off, see if it has any effect on any smoke that has been coming from the engine.

Engines have been known to work alright on one mag but not on both. If you have one that does, use reduced manifold pressure or use a rich mixture and run [on] one.

By reducing RPM you lower ction and reciprocating forces in the engine and lessen strain. This also reduces the danger of losing a propeller if the engine suddenly seizes.

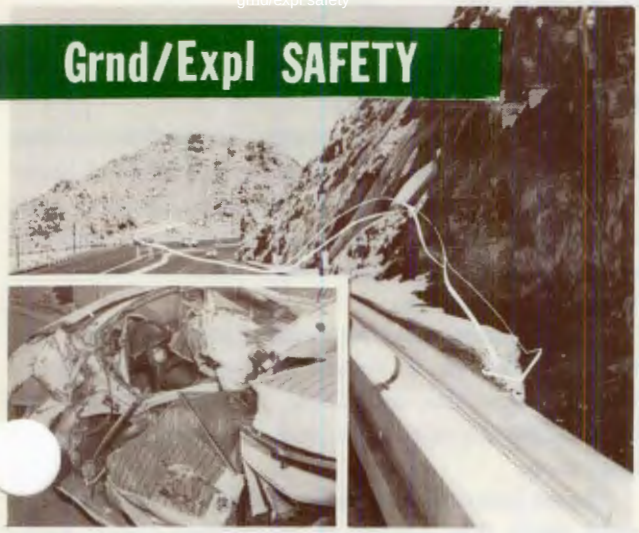
A quick check with the analyzer, when one is installed, may pinpoint the trouble and help you make a decision.

Propeller and governor malfunctions can sometimes be the source of trouble, but these are generally quite obvious. Never let warning lights stampede you into an action you may later regret. The indications can be false. Learn not to be hasty and always analyze and diagnose malfunctions, then decide on the appropriate corrective action.

Altho it's nice to have the flight manual along to help decide the best course of action, it doesn't always contain the exact remedy for malfunctions. Remember, there is no substitute for good judgment and if judgment dictates that you nurse and use a sick engine to get to a field, then you cannot be criticized for deviating from published procedures.

grnd/expl safety

Grnd/Expl SAFETY



VAR ROOM – BOOM

Low altitude aerobatics are dangerous enough in an aircraft under controlled conditions. Unplanned aerobatics in a low flying automobile are usually quite fatal. Look at the above photo and see what a TAC airman went thru on his way to eternity. According to the highway patrol he was doing well over 75 when he lost control. Slick tires, mixed with a little alcohol didn't help.

WHO WANTS ACTION

As tender as dynamite is, you'd think that the men who handle it would continually treat it with due respect. Every year or so someone gets blown to oblivion because they didn't. The events leading up to one of these accidents usually follow a familiar pattern. While handling the hot stuff, the victim soon finds that nothing happens when he drops a stick or is otherwise careless. After a bit, he loses his respect and caution for it. Dynamite, like most explosives, is fickle. It doesn't always react like it's supposed to. But in one sense it is consistent. Mistreat it often enough and it will eventually explode into action.

Altho few people in the Air Force handle dynamite, many handle explosives. These explosives have many things in common with dynamite – aside from going BOOM – so treat 'em with the respect they deserve . . . even if they do seem to withstand rough, abusive treatment.

If you see someone who isn't treating explosives with proper respect, clue him in or have his supervisor clue him in. You may be too close when the fickle explosive thinks it has taken enough abuse.

OUT, OUT, OUCH!

After reading a private motor vehicle accident report, the old editor waxed poetic. Regardless, we included all pertinent facts except for changing the airman's name. Corrective action? The airman's CO convinced him that walking was healthy and he sold his car while his luck held.

Now the bells should peal
for an airman named Wright
who fell asleep at the wheel
while driving one night.

Sixty-five was the speed
when he bolted awake,
wrestled with his steed
to escape his sure fate.

The car spun around
and was knocked out of gear
as he fell to the ground
and slid on his rear.

He jumped to his feet,
ran down the pike
and soon caught his heap
as it backed from the fight.

CHOCK TALK

HUNGRY JET

Recently a Navy maintenance man was badly mauled when he backed too close to the left intake duct of a single engine jet during a full-power runup. Even tho the engine in this aircraft gets half its air supply from a second duct, it was still a very effective vacuum cleaner. Mechanics and other people working around jets must treat jet intakes with the respect they demand, else they may get sucked in!

CORROSIVE CONDUCTOR

Corrosion usually brings to mind pitted aluminum skin and tubing, rusted cables or engine mounts. Actually this is just one phase of the corrosion problem. The crew of a twin engine aircraft encountered another aspect of this problem recently, when the right engine on their bird suddenly quit very shortly after liftoff. The only warning was a sudden loss of both fuel and oil pressure a second before it quit.

Some sweat and a little hard work got them back to the airfield where investigators were able to take over. The fire wall shut-off valves to the right engine were closed . . . which is guaranteed to cause both oil and fuel to have zero pressure.

The crew had not actuated the shut-off switch, which was guarded. Anyway, the investigators opened the valves and ran up the engine only to note more oil pressure problems. After shutdown, they found metal in the screens, so that took care of the engine.

Looking further, they found considerable corrosion in the generator and magneto airblast shut-off relay . . . so they looked some more and found salt water corrosion between the solder lug terminals on the relay. Enough corrosion to make a good enough conductor to send electricity thru to the closed side of the shut-off valve motors.

F-100 CARTRIDGE STARTS

The backbone of our tactical strike fleet is even more versatile now that it has a cartridge start capability. Two-thirds of our F-100Ds and Fs have been retrofitted with Sundstrand cartridge/pneumatic starters which can use either external air or an MXU-4/A cartridge.

The primary starting mode is still pneumatic, but the cartridge mode should be used during deployments, exercises, and ORIs. It should also be used to familiarize aircrews and to check the start operation.

Super sword pilots and crew chiefs will do well to read about this system in the current pilots' handbook and maintenance manuals and not wait until someone hits them with an exercise or an ORI where they must use, service, and maintain the system.

If instructions conflict, make certain you are using the most recent publication. At present there is conflicting information on hang-fires and misfires and the correct word is in the safety of flight supplements. This is just one more good reason why you should always remember to check the safety of flight supplement for the latest operating limitations.

Incidentally, we had some F-100 and F-105 starters damaged last winter due to starter cartridge malfunctions. Poor storage and handling technique caused internal damage to the cartridges, resulting in improper burning or an explosion when they were ignited.

There was a flurry of activity and numerous TO supplements when the depot analyzed the cartridge problem. At present TO 11A2-3-2-7, with its many supplements, contains ultra-safe cartridge storing and handling procedures and should be mandatory reading for anyone who even lifts an MXU- cartridge.

TRI NITRO TITANIUM

Sparks from a mechanic's wrench ignited a pile of or water-soaked titanium chips and started a half million dollar fire. In case you don't know it, titanium chips or dust are quite unstable. Get them wet and they will combine with the oxygen from water and release pure hydrogen. If a spark sets off the hydrogen it will burn hot enough to ignite the titanium . . . and then the fire gets going with unusual vigor. Handle titanium chips, turnings or dust very carefully and place them in proper scrap containers to keep them from getting wet and turning into a potential bomb.

F-100 TECH ORDERS

The depot has run out of money and until they get more there will be no more concurrent changes printed to the F-100 TOs. Since conflicting technical information now exists in some of the F-100 TOs, all F-100 maintenance personnel will have to be extra careful and make sure they have the latest pub . . . particularly when they run into one of these conflicts.

Supervisors will have to insure that all interim instructions received in message form are properly annotated and that everyone who may be affected knows about each change.

F-4C RUDDER MURPHY

It is possible to install the F-4 rudder feel cylinder backwards and to cross the hydraulic hoses leading to it. This goof won't cause any trouble until the bird accelerates above 235 knots—the airspeed switch cut-in point—then the rudder slams full left. It will stay full left until the pilot either slows below 235 knots or gets the troop in the aft cockpit to pull the rudder trim circuit breaker. Number one, top row. Pulling the front seat rudder trim circuit ker or trying to correct with trim will have no t.

Muscle bound types would need to apply about 540 pounds of pedal push to overcome a full hard-over deflection.

BE PREPARED

Hope that PE people in the Air Force are more careful than some of their counterparts in a sister service. Inspectors in this branch of the DOD found a first-aid kit that was filled with items too old to use. The original seal had not been broken and apparently the kit had never been checked. If Air Force troops comply with TO 00-35A-39 and the Dash Six for their aircraft, we should have no such problems . . . or bad medicine.

F-105 STAB AUG

An F-105 unit stationed on an island air base reported six flight control failures in one short month - all attributed to materiel failure. The most serious caused a spontaneous one and a half roll when the surprised pilot tried to roll out of a medium banked turn . . . corroded and arcing electrical connections. Another failure was caused by a defective integrator synchronizing drive unit and more electrical connection corrosion. A third failure was induced by low resistance between pins in the roll parallel actuator.

A failed STAB AUG push-pull switch holding solenoid, a yaw follow-up trip potentiometer out of calibration and a STAB AUG system out of calibration complete the list. Most of these failures seem to be a direct by-product of the humid island climate. In this respect, the F-105 is little different from other modern aircraft . . . it must be carefully protected from the elements when sitting on the ramp in a humid climate - at least until all black boxes are made completely moisture proof. TAC units staging into such areas may be able to save themselves numerous future problems by taking proper precautions.

LOOSE OPERATION

A transient maintenance crew changed a right tire for an overseas F-105 pilot. On the next landing the pilot noticed the right brake chattering. By the time he cleared the runway, the wheel was wobbling.

The "mechanic" who changed the tire didn't reinstall the wheel correctly... The retaining nut was only screwed on about three eighths of an inch. Luckily, only the wheel was ruined.

OLD SAD STORY

Shortly after liftoff, a T-29 crew feathered number two because the cylinder head temperature rapidly went beyond limits. As they turned back toward the air base, number one did the same th and the pilot made a gear-up landing in a pasture. The aircraft hit a stone wall, broke open some fuel tanks and caught fire, but the crew escaped without serious injury. The accident was caused by servicing personnel. They filled the machine with JP-4 from a tank truck marked as aviation fuel but filled with JP-4. This is an old problem and there are several ways to combat it, such as having a key system where fill stands and the appropriate truck filler wells are kept padlocked with locks that require the same key. If one key opens both locks, the truck is correct for the fill stand. If your base does not use some such system, now is the time to put it into effect. If your base uses a system, now is the time to check on it to make certain that no one is circumventing it in order to save time.

An extension may be used on the handle grip end of a torque wrench:

True False

Letters to the Editor

Dear TAT

The February TAC ATTACK contained an item on page 10 dealing with the F-105 control check. Such a procedure is questionable for pilots and the implication is that the check could be performed by pilots. If it is used, what happens if the relay valve malfunctions? I believe a ruptured return line hardly warrants the info gained.

I propose the relief valve be tested periodically independently of the system. I also suggest TAC ATTACK refrain from suggesting such procedures unless they are approved pilot checklist items.

Lt Col ADRIAN E. DREW
Commander, 354 TFS
George AFB, Calif

Dear Sir

The item in question was under Chock Talk which is a section pointed at maintenance people. We didn't anticipate pilots trying to adopt the item or we would have mentioned it wasn't for them.

The maintenance people say that if T O 1F-105-711 has been incorporated, no damage should result from this check; however, if any of your pilots blew up a return line, we're sorry and will join with you in hollering at him for deviating from the dash one.

You might also suggest he read the fine print on the inside front cover of the ATTACK... Altho we check and double check every item published, we are not infallible.

TAT

SHORT SLIDES

CAPT OSCAR J. LOVRAK
4524 CCTS
Nellis AFB, Nev.

SOME TACAN straight-in approaches are unsatisfactory for century series aircraft because the penetration fix is too close and does not allow a century bird pilot to arrive at the touchdown point in landing configuration. Using radar and radio he can usually get approach control to modify the approach during the course of his letdown. However, lack of radar assistance or loss of two way radio would present an acute problem.

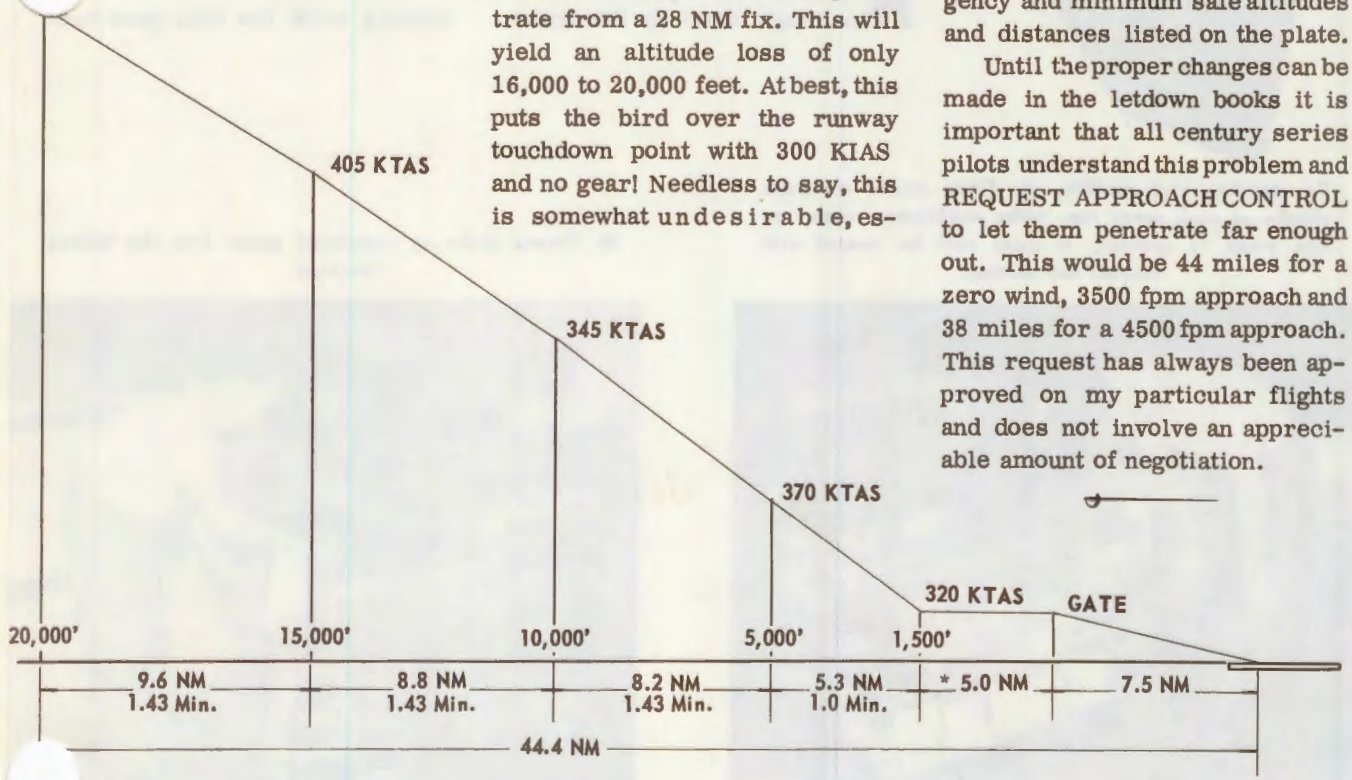
Examples of TACAN approaches that fall in the too short category are Hill AFB, Buckley ANG Base, Malmstrom AFB, Olathe NAS, and Whidbey Island NAS, to mention a few. These examples utilize an initial approach fix of approximately 28 NM instead of the normal 34 NM or more as explained in AFM 51-37.

I have filed two operational ...ard reports for the TACAN approach at Hill AFB, however, replies indicated that no change is contemplated; that my problems must have been due to winds or personal techniques.

Let's analyze a TACAN straight-in approach. The 34 NM initial approach fix is designed for an aircraft penetrating at 250 KIAS and 4500 fpm. (See AFM 51-37, pages 11-11 through 11-14.) But, century series aircraft penetrate at 300 KIAS and the rate of descent varies from 3500 to 4500 depending on the aircraft configuration. Converting indicated airspeed to true airspeed, and considering the changes of TAS throughout the descent, it will take approximately four and a half minutes to penetrate from a 28 NM fix. This will yield an altitude loss of only 16,000 to 20,000 feet. At best, this puts the bird over the runway touchdown point with 300 KIAS and no gear! Needless to say, this is somewhat undesirable, especially if the ceiling and visibility will not permit a circling or VFR approach.

The solution is not too difficult. If there is a choice of letdown plates, request the one that will give you enough room. Otherwise, simply modify the initial approach fix to make it compatible with your 300 KIAS and vertical velocity. Just be sure to watch the emergency and minimum safe altitudes and distances listed on the plate.

Until the proper changes can be made in the letdown books it is important that all century series pilots understand this problem and REQUEST APPROACH CONTROL to let them penetrate far enough out. This would be 44 miles for a zero wind, 3500 fpm approach and 38 miles for a 4500 fpm approach. This request has always been approved on my particular flights and does not involve an appreciable amount of negotiation.



...is distance needed to slow to gear lowering speed.

Back the ATTACK

Justowriters operated by Mrs Tabor and Mrs Wise, turn rough drafts into neat copy.

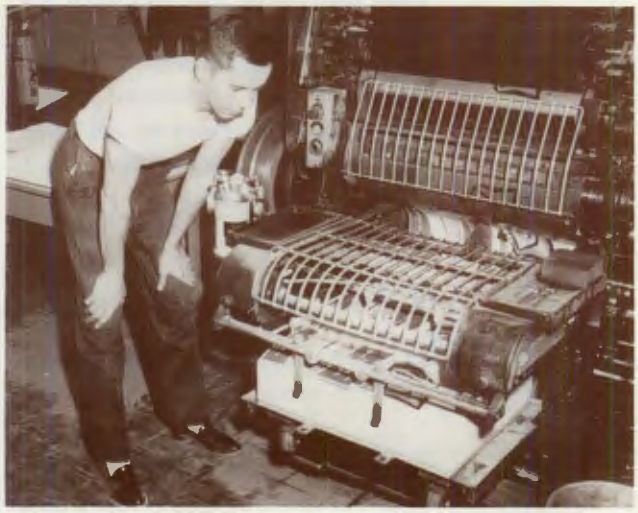
Mr Wood and Mr Smith check copy before starting camera work.

AN IDEA IS BORN, writ by hand and then double spaced in rough draft by the typist.

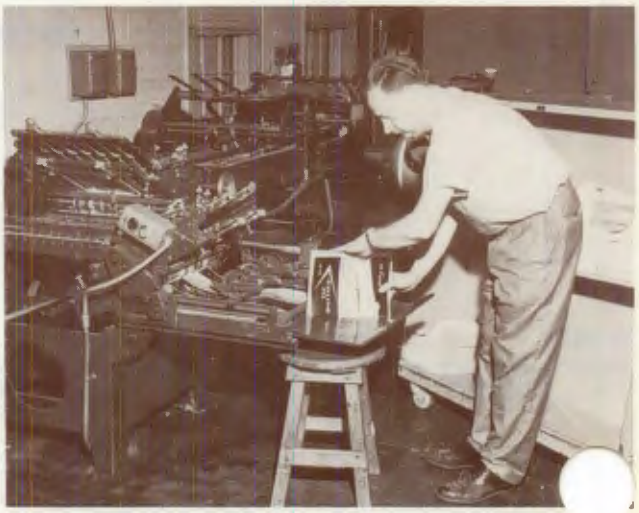
All that's left after the editors (Haze office) get their cut, is retyped and sent by courier to the printing plant where it is typed into spaced copy on Justowriters or Varitypers. Next comes the problem of layout, paste down and the final proof reading.

After many hours of bi braking work the copy goes back

To maintain high quality, Mr Craig makes numerous checks of each press run. Altho machinery, such as this press is guarded, it must still be treated with respect and caution.



Mr France picks up completed pages from the folding machine.



Mr Walker places copy in the camera board.

Negatives are stripped into the flats by SSgt Parker.

Negatives are used to make four page plates, here Mr Gross works on a plate.

to our field printing plant for their tender loving care. There the story of safety is photographed, printed and bound into a thirty-two page magazine known far and wide as the TAC ATTACK.

Getting articles, ideas and good 'os from you troops in the field meeting press time are our biggest problems. But, the personnel in the printing plant have their problems too. According to the supervisors oneof their most pressing is one of safety - how to keep fingers and toes out of unforgiving machinery. Next is trying to figger out whear we lerned how to spel.

Seriously speaking, we are proud of the cooperation we receive from personnel of the Headquarters Tactical Air Command Field Printing Plant. We think they do a tremendous job.

So goes the story of the TAC ATTACK and since one picture is worth a thousand words, smoke over these photos and become one of the fastest readers in the world -

After being colated, magazines are stapled by Mrs Asbell.

Completed magazines are trimmed to size. Cutter is operated by Mr Higgins and Mr Johnson.

SEG NEWS

4450th Standardization Evaluation Gp.

Know your Stdn Evaluators

Major Eatherly is from Chattanooga, Tenn. He graduated from Pilot Flying School in 1943 and served a World War II combat tour flying B-25's in North Africa and Italy. He instructed in IPIS at Bryan, Texas and Moody AFB, Ga., and served overseas tours in Japan, Germany and France. He has 5,000 hours in medium and attack bombers, trainers and fighters. Major Eatherly came to Stdn/Eval from the 832d Air Division in January, 1961 and departs for USAFE this June.

MAJOR JOSEPH A. EATHERLY
OUTGOING CHIEF, SEG SCHOOL DIVISION

MAJOR CHARLES E. FRANCIS
CHIEF, SEG SCHOOL DIVISION

Major Francis was commissioned a 2d lieutenant in the Army Air Corps in January 1944 at the ripe old age of 18. His background has been predominantly fighters in ATC, FEAF, SAC and TAC. He flew 107 missions with the 136th and 58th Fighter Groups in Korea. Major Francis was assigned to 12AF Stdn/Eval from the 506th TFW where he was commander of the 457th TFS. His duties have carried him to rotational bases in Europe and the Pacific where the requirements for Tri-Command Standardization were so apparent. He came to the Stdn/Eval Group in September 1963 and was assigned to the SEG Operations Division until replacing Major Eatherly as Chief of the School Division.

MANUAL AND WORKSHEET REQUISITIONS

Commanders and FMCOs can gain thorough working knowledge of the requirements and ordering procedures for Stdn/Eval publications and forms by having a fireside chat with the Base PDO. He will discuss the publications bulletin (TAC and USAF) which is the prime source for obtaining current information and guidance on requisitioning new publications and forms. He will also discuss AFM 5-4 which defines distribution functions. Ever wonder what the M, S, B, F, or X on the bottom of the first page of a publication means? The little chat with the PDO will clear it up. (AFM 5-4 is in the S series which requires requisition of the entire 5 series). If you have followed him this far he will tell you about F Distribution. USAF changed S and X distribution of Stdn/Eval manuals to F. This means that the FMCO determines the specific number of manuals (or worksheets) his unit requires and gives this information to the Base PDO. This is a must. The PDO cannot order manuals without a requirement. New Stdn/Eval manuals and worksheets will not be distributed automatically.

If you don't get your manuals in a reasonable time, check first with the PDO. If he can't help, notify the 4450th Stdn/Eval Group and they will take action to obtain assistance from Hq TAC PDM.

To stay ahead of the game, scan the weekly publications bulletin (TAC and USAF). This will help you anticipate the publication distribution date then you can requisition early and receive the publication immediately after printing.

A last ditch maneuver for those who don't plan ahead is to have the PDO send a TWX (info 4450th Stdn/Eval Gp) to the AFPDC or CMDPDC (USAF or TAC, whichever has distribution authority) requesting that the required number of copies be airmailed (if they are needed immediately). REMEMBER; to insure that pilots have the latest info available, you must anticipate, requisition, follow-up, and notify.

FOUR WAYS TO LOSE

Judging from questions, many of you pilots don't know all the ways you can lose and regain combat ready status. There are four. Two have been with us for quite a few years. For instance, the Commander can downgrade you - which is his prerogative. When he does, he will tell you what you have to do to get back on CR status.

Secondly, you can lose currency because you didn't get AFM 60-1 or 51 series training manual requirements. These manuals tell you how to regain status once you lose it this way.

So far, everything is very simple. But then we come to AFR 55-89. The quarterly training program is designed to meet 55-89 requirements. However, you can get in all your quarterly training and still lose CR status by not requalifying in all the required events during the year. You need quality as well as quantity.

To regain CR status you must requalify in the delinquent events and also pass a Stdn/Eval check as per paragraph 5-19b of AFM 60-2. The type check depends on how long it takes to regain Phase III status.

The final way to lose CR status is by busting a Stdn/Eval check or by not taking it in time . . . allowing yourself to get overdue. You can be fully qualified by AFR 55-89 standards, have all of your quarterly training in, and still lose CR status by getting an overall unqualified grade on a Stdn/Eval check. To recoup, you'll have to retrain as per paragraph 5-71 of AFM 60-2 and be rechecked on all unsatisfactory items IAW paragraph 5-72 of AFM 60-2.

If you let yourself get delinquent, you'll lose CR status unless you wrangle a TAC waiver. The waiver is only a 60 day delay and is granted thru paragraph 5-6 of AFM 60-2. Without the waiver, you'll be placed on supervised status for an overdue check until the check is completed.

Passing a proficiency check will do the honors since it is a form of Stdn/Eval check . . . however, you must complete all of the required tactical items within 90 days of the proficiency check, including the required proficiency items listed in the grading manual. Additive tactical evaluation questions must also be answered before the check according to 5-32 of AFM 60-2.

If all is clear as mud, let's look at Major Del N. Quent. His tactical check is due on 6 April. Del fell off the bar stool in March and fractured an elbow. The local SEF requested a 60 day waiver from SEG and it was granted.

His check is now due June 6th, D day in more ways than one. After being DNIF 40 days, the good major was cleared by the fly doc and given an IP supervised flight in April to regain currency and CR status. He flew off his quarterly training, took the written and was looking forward to hacking the check. In fact, he had it scheduled for May 15th. On the 10th, someone in PACAF exploded on take-off and the birds were grounded until the 25th. Unseasonal weather

moved into the area weathering in the range and Old Del went Phase II on 6 June.

Fortunately, the SEF flew a proficiency check with him on 6 June, and this kept him off supervised status. When the weather moved out on the 15th, Del completed the tactical items on the flight check and was once more combat ready.

But Del's delight is short. The local range has been blessed with too many broken decks at 5000— and Del hasn't qualified in high angle work since 15 June --- You're right. On 15 June he's again Phase II for being delinquent in weapons qualification. If he requalifies within 90 days he won't have to take another tactical check to return to CR status. Wish him luck and try to avoid his dilemma by scheduling yourself well in advance.

S/E CHECK CRITIQUING

We have just completed an S/E check and are walking in after the flight. It was a good flight, but a number of unexpected factors caused us to deviate from the briefing, and several notations in the worksheet need to be checked with the regs. We are tempted to give a quick and dirty critique right now, while the flight is still fresh in our mind. After all, the guy we just flew with is safe and knows the bird, he just needs to brush up on a few things. However, if we critique him now, we won't be able to check out the performance data, or look up references for some of the deviations, but we can still give him a "good" critique.

You SEACs who conduct your critiques in this manner do not belong in the Stdn/Eval Program! Remember this: "THE CRITIQUE REALIZES THE GREATEST POSSIBLE GAIN FROM THE FLYING TIME EXPENDED." A critique, therefore, must be professional and thorough. Here are some suggestions for you to follow in your specialized critiques of aircrews.

Prepare the Critique. Probably 80% of a professional critique is preparation. In the privacy of your work shop RECONSTRUCT THE MISSION using performance data, the 21a, the flight clearance, and most important, your worksheet. The worksheet was designed to permit quick notations during the flight check, but there is plenty of room for you to comment later on when, where, and how deviations occurred. As you reconstruct the mission, NOTE ALL DISCREPANCIES regardless of their importance. Discrepancies should be discussed with the aircrew, even if they do not appear in the grading criteria. You're being a professional and not a nit picker when you LOCATE AND NOTATE THE REFERENCE for every discrepancy. You will eliminate opinio documenting every error made by the aircrew. C PLETE THE PENCIL COPY OF THE AF FORM 8c including all specific comments and recommended corrective actions. INVITE interested staff or supervisory personnel to the briefing and remember, the immediate flying supervisor must attend. WHEN YOU GIVE THE CRITIQUE, try to maintain an atmosphere of "relaxed FORMALITY." This will help keep the entire critique on a PROFESSIONAL LEVEL. START ON TIME! Punctuality is a quality and a courtesy you cannot ignore. Make sure the critique will NOT BE DISTURBED. Shut the door and have someone take all telephone calls for you until the meeting is over. Now, in the undisturbed, formal, and timely critique, RECONSTRUCT THE MISSION, using the worksheet as a guide. If possible, try to sum up the OUTSTANDING facets of the aircrew's performance, before going into the discrepancies. The aircrew is naturally nervous and will be concerned with your initial statements. If he has had some areas of strong performance discuss these first and he will be more receptive to the constructive criticisms that follow. Now, in your item by item critique, remember there are three "musts" for every discrepancy: CAUSE, EFFECT and REFERENCE. In other words, tell the air why the discrepancy happened, the possible ef it may have on flying safety or mission accomplishment, then cite and explain the reference. During the discussion, DON'T PREACH, DON'T USE OPINION, DON'T ARGUE, KEEP CONTROL, and BE AN AUTHORITY. At the end of your critique, answer ANY QUESTIONS from the aircrew. Conclude the critique by showing the aircrew the pencil copy of the AF Form 8c. Here, be extremely conscientious about EXPLAINING ALL entries on the form, including over-all status, total grades, remarks, and recommended corrective action. DO NOT CHANGE THE AF FORM 8c. You have completed it objectively, you have discussed grey areas with other evaluators, now just because you are sitting eyeball to eyeball with the aircrew you have evaluated DO NOT change a thing unless you have obviously made an error. The critique is formally completed when the aircrew signs the AF Form 8c, certifying the critique.

The Stdn/Eval Program will be just as effective as the people who run it. Approach the critique in a professional and thorough manner and you will agree that "THE CRITIQUE REALIZES THE GREATEST POSSIBLE GAIN FROM THE FLYING TIME E PENDED."

OL' SARGE

"WELL I'LL BE . . ." The Old Sarge exclaimed, then briskly got to his feet and barked, "Room, 'ten shun!"

Caught with both feet propped on the Old Sarge's desk and his back to the door, Major Lewis went thru some low grade acrobatics trying to unfold and assume the required position.

Altho the Old Sarge was still much in a brace Major Lewis risked a sideways glance at the door. For a moment he doubted his peripheral vision. The only person coming into the room was Lt Green . . . Lewis turned further and spotted the insignia. Thrusting out a ham-like hand he carefully stepped out of the waste basket and said, "Captain Green! Congratulations man!"

Green transferred the box of cigars to his left hand and grinned broadly, "Thank you sir . . . and you can be at ease, Sergeant."

After taking a cigar, Lewis righted his chair and started looking for his pipe.

"It's over by the corner, sir." The Old Sarge volunteered, "It bounced off the side of Lt, I mean Capt Green's desk."

"I ought to sue you. You gave me at least two more grey hairs it'll take at least two days for to unwind."

The Old Sarge grinned. "Who were you expecting anyway?"

Lewis shook his head. "From the way you popped-to I expected at least three stars."

"The way you were trying to see out of the back of your head it's a good thing it wasn't," Capt Green chuckled.

"Say," the Old Sarge asked, looking at Capt Green, "How'd you make out on that amplifier?"

"I finally got it fixed, at a price. Next time I'll check with you first!"

"Did it finally give out?" Lewis asked.

"Yeah, it blew up. Actually, it wasn't that simple. I was listening to Beethoven when the thing gave a couple of thumps and a sick grunt then popped a fuse. Smoke was pouring from it and I was quite certain one of the output transformers had shorted."

"Can't blame 'em." Lewis murmured "I don't see how anything can put up with that cat wailing."

Green gave him a pained look, "I borrowed a volt-ohmmeter and and checked the transformer. Sure enough, it was out cold. Shorted dead. I ordered a replacement and eventually got everything back together and running again. I was real proud of myself . . . until the new one shorted. Twenty-five bucks right up in smoke. That's when I called in the experts." He inclined his head toward the Old Sarge, "right off he asked if I'd checked anything else in the circuit."

"What'd you find?"

"Well, one of the output tubes had deteriorated pretty badly and this had thrown the circuit 'way out of balance causing excess load on the output transformer. I put in a new pair of output tubes and another transformer and she works good as new."

"I didn't know you were an electronics specialist" Lewis remarked to the Old Sarge.

"I'm not. In fact I wouldn't know an output tube from a multiple feed back circuit . . . but I have had a little experience with aircraft - enough to suspect that most failures are induced by something else. I also know it isn't enough to find the part that broke, and then just replace it. Instead, you gotta find out WHY it broke. He got off easy. All it cost him to learn this was twenty-five bucks. I've known it to cost others a lot more."

"Then you don't think Beethoven had anything to do with it."

"I didn't say that. I wouldn't be a bit surprised if the feedback from all that thumping and grinding hadn't overloaded the whole shebang, causing that tube to give out. Now if he'd stuck to real music, like Roy Acuff he'd be about seventy bucks ahead. But I guess he can afford it now."

Answer to question of the month: False.

ON HUMAN RELIABILITY

BY
COL. JOHN A. NORCROSS

THE OLD DOC has gotten himself mixed up with the human reliability program. Those of you who work with nuclear weapons, weapon systems, or nuclear devices will have heard of this program - and it's for you that this diatribe is written.

There's no point in rehashing all the jazz about retaliatory power, weapon superiority, etc., etc., because you, just like Old Doc, know this is as true as tomorrow's sunrise. We also know that our high brass tells us that the ultimate decision to turn us, and our loved ones, into millions of well-done steaks (apologies to Tom Lehrer) rests with - not the military - but the political heads of our states. We know that we have weapons; we know that they have weapons. We also know that our weapons - and we feel sure that their weapons too - have many safety devices built into them that will prevent them from going off until the political heads get themselves ape enough to press the button that says, "Have at it." Moreover, since we have a big say-so concerning who makes our decisions, we can have absolute trust that our politicians are not going off the deep end. And this is an extremely good thing.

MEAT-HEADS OBEY MURPHY'S LAW

In case you haven't heard, Murphy's Law says that no matter how well you build something, some meat-head will come along who will bugger it up; this is a rather crude, but nevertheless factual statement of M's promise . . . as unfortunate as it is true. Flighty isn't talking about the saboteurs or the people who have never progressed beyond the paper-doll-cutting stage: he's worried about those of us who, for some reason or another, snap our corks after years of apparently normal life.

Consequently, if one of these guys is in a position where he could launch a BOMARC, or release a weapon, or even foul up a weapon so that it couldn't be used if we actually did need it, we (I mean the whole national structure) have something caught in the wringer that really smarts.

Therefore, a program has been developed that is pointed at getting some potentially dangerous guy out of a position where he could cause trouble of a catastro type. This is not a new thing. i in - you'll pardon the expression- industry, a Joe with an aching back wouldn't be hired to lift heavy beer kegs - and an epileptic wouldn't be put on the payroll driving Jag E's over test courses. You must admit that a color-blind bloke would be a lousy interior decorator, particularly if you were paying the bill. So why should we put up with a co-worker in the big-bang business who might possibly foul up our democratic way of coming home to a happy home each night?

This is what the human reliability program is trying to do. It doesn't want you to fink on a pal. You're not asked to be a stool pigeon. But we do want to know if you, or your buddy, has a change in his 'normal' behaviour pattern.

DON'T PROCRASTINATE: VENTILATE!

So what should you do? \ the head-shrinkers have a term for what you should do: "Ventilate." This means that you should

talk to somebody who, maybe, could help you. It might be your buddy at the workbench, it might be your Chaplain, it might be your Doc, but it's somebody that either know or could get to k

who could help in some way: Give ce, offer a solution, ease your – and let you get back to your job, doing the kind of job you should be doing. And don't for a minute ever get the idea that the Old Doc is talking to airmen – he's talking to every one of you, up to and including colonels and (you'll pardon the expression) *****.

Flighty has been in this business long enough to know that if you're given some sort of a scut detail, you'll very quickly develop an aching back, infectious disease, or vague abdominal pain that will be aimed at getting you off the roster – this is only because you don't want to do the nauseating duty. But, when you're doing a job that is extremely important, and you know that you aren't doing it as well as you should – and that a helluva lot more than just your own next day's duty is involved – the monkey is really on your back to he saying goes) seize the bull ne tail and look the situation squarely in the face. High-level talks, summit conferences, U.N. debates, diplomatic deliberations – all have become part of our modern way of living. But lil ol' you–in the weapons and weapon systems business—should, honestly, stay out of the headline-attempt business.

CALL IN A PRO

In other words, if you know that your old pal, Clyde, gets drunk every night but is able to do a good job at work each morning, OK. But if he doesn't get drunk two nights in a row, something might be wrong and, if you don't happen to be a psychiatrist, somebody maybe should take a look at Clyde to see if there is a problem developing that should be treated. It might othing, it might be a temporary , or it might be a real serious

thing. Thus, if you're not an M.D., pass the word along so that some pro can look at him. Maybe the pro can help straighten Clyde out and Clyde can come back to his job.

However, if it's remotely possible that he's an individual who just might endanger the so-called peace in which we and our families now live - and you don't do anything about it - you will be, what the legal eagles call, compounding a felony. And this won't mean that you might have your stripes peeled back a bit beyond your own pink skin, but it may mean that Mr. K might be in a position to tell you and your bride and kids what you and your bride and kids might have to do for the rest of your lives.

And let's face it - despite even the 5BX and Presidential warnings about waistlines, softness, etc., we have become fat and happy living in a country where nobody but traffic cops and TV commercials can even begin to tell us how to live our lives. If we don't want to smoke fags with spin-filters on them, we can buy Piedmonts at the drug store - and nobody is going to put snide notes in a book that might send us suddenly to upper Smolinsk for an extended mad holiday.

So, one of the things we can do to preserve our inalienable rights to buy Piedmonts is to make sure that none of us blue-suiters does the wrong thing at the right time, or does the right thing at the wrong time. And the way to do this is ridiculously simple: just make damn sure that you, and the guys who work with and for you, don't boo-boo. If you turn AFR 35-9 upside down and read between the lines, you'll get a message that applies just to little ol' you: it says that you're part of a group of nice people trying to keep English the primary language that is taught in our school system, that you have a job to do - but right - and, if your mother has a possible cancer that needs surgery, or your bride has made nagging her middle name, or your eldest son still hasn't learned to talk at age ten, or anything else that bugs you, you might not be able to do your job right.

So all the Old Doc can say is this: When reading AFR 35-9, don't read it exactly as it's written; try to read into it the thought that says, "Use common sense in putting it in your own words."

When you can do this personal translation, you will have done more to ensure our USAF-type of happy life than you can believe.

BORED BOARD

THE AIRCRAFT really plowed in and the pilot was still on board when it did. As could be expected, he broke practically every bone in his body—yet, the board recommended that a helmet be designed to prevent skull injury!

The nose gear of an F-86F folded during the landing roll because the rotating link failed. The investigating officer recommended that the aircraft be modified by installing a small skid on the nose section.

On a fatal accident, the pilot made one last desperate radio call which was blocked by other transmissions on the same channel. The board recommended that pilots be given, "a means of overriding all other transmissions . ." Then turned around and made another recommendation advising pilots to try and save themselves rather than waste time on last-ditch radio calls.

If we've tickled your sense of the ridiculous, you're probably wondering what we're up to. At some point in your career, most of you will sit on at least one aircraft accident investigation board and will help to formulate the recommendations made by that board. The effectiveness of each board can be badly compromised by poorly thought-out recommendations. Worse, a long history of poor or impractical recommendations tends to compromise the efforts of all accident boards and reaches over into UR channels as well. We'll hit this more later. Right now let's rehash those recommendations we started this with.

It is entirely possible that other pilots have died because today's hard hat either wasn't hard enough or because it wouldn't absorb enough energy from a bl[illegible] If so, a better hat would be wo[illegible] while. The point is, in this specific accident, the pilot would have been dead no matter how excellent his helmet and everyone reviewing the accident is going to know this fact. If the board was merely "using" the accident as an excuse to get this recommendation into writing, they goofed! They closed a lot of people's minds to this recommendation and if it were made at a later date on an accident where it was appropriate, chances are it would receive desultory attention. "Those fellows out there in TAC are still beating the bushes for that new hard hat . . . aw well, we have more important things to work on."

On the 86 nose skid. A nose skid might indeed be practical and worthwhile . . . on a new design. But no one is going to spend ve[illegible] much money retrofitting an a[illegible] jet fighter with a gimmick to [illegible] down on damage caused by some part failing. They might do something to help prevent the initial failure, however.

This recommendation was offbase on two counts. It didn't correct the primary problem and was not economically feasible considering the limited service life which could reasonably be expected from the particular aircraft.

Our final example illustrates yet another pair of pitfalls. This is the recommendation which asks for the impossible . . . and then is contradicted by another recommendation. Had the board members cleared the first recommendation thru an electronics expert he'd have explained that the only way to override a transmission is by upping the power of [illegible] transmitter . . . HUMM . . . and

Bored Board

where would this sort of battle end, ...t of turning our birds into ...g radio stations?

Not long ago, the AMA fixed up a clip to hold the oxygen hose and other personnel leads to the front edge of the F-100 seat. I'm not certain what induced this mod...it could have been a UR or an accident. Regardless, the clip wasn't too well thought out. The basic idea may have been good, but the end result was that the clip got in the way of the control stick when the seat was adjusted near full up.

In the end, the operators were the ones who looked ridiculous. They hollered for the clip and no sooner did they get it than twice as many hollered to get it removed. In all fairness, this particular item shouldn't be completely blamed on the operators. It was up to the AMA to evaluate it before giving the go-ahead on it.

Appearing inconsistent or even ridiculous is just part of the problem: the real problem comes when someone makes an honest, factual and worthwhile recommendation. Too often someone at the AMA will remember some of the other stuff and give it the idiot treatment. A recent example was a recommendation to change the dash six on the F-100 requiring a temperature spread check during final trim run. The Jet Cal equipment was already being used during the engine final trim run, and making a complete spread check would have been little extra work. The AMA people who reviewed this recommendation went automatic negative and it took about three months to convince them differently.

We recommend that all board members take a cold, hard look at any recommendations they plan to make to determine if they are pertinent, practical and possible. . they will also do well to get over the idea that they must recommend "something" just to prove that they have earned their pay!

TAC TIPS

CUTTING CANOPY CAPERS

SAAMA, system support manager for canopy breaking tools, has made numerous tests with one of the test tools. The tool has a tempered steel, cadmium plated blade and is an improved version of the knife developed by ADC. During the tests, it took an older field-grade type 67 seconds to cut a hole and climb out of the front seat of a T-bird. A younger captain blasted his way out of the rear seat in 25 seconds. More room to work in the rear seat! Both pilots had on parachutes and helmets.

The tests proved that you'll encounter some hazards getting out of a bird this way. First, plexi-... might get into your eyes so keep your visor ... Second, the hole you cut will be pretty jagged and sharp so wear gloves and be careful when you clamber thru.

Present plans call for producing about 15,000 tools.

BARRIER

Even tho AFR 55-42 is more than a year old, quite a few jet types don't know that this reg requires all jet trainers and fighters to land and take off toward an arresting gear if one is available. This applies for all normal operations.

This reg also says that it is the pilot's responsibility to ask the tower for the barrier to be raised before taking off. Any violators?

T/R AND G

A little reminder about guard channel. Page one of the FLIP Enroute Supplement says that the UHF radio selector switch will be kept on "Transmit, Receive plus Guard" at all times while you are flying, except during tactical missions where monitoring the emergency channel will interfere with the mission. Transmissions on emergency frequency 243.0 (guard) are RESTRICTED TO BONA FIDE EMERGENCIES. Are you complying with this directive?

LOVE THAT OXYGEN

The AIRSCOOP from USAFE tells of a graying, non-shakeable veteran major from Berlin lift and ATC days, who rolled in forward trim and reached for his oxygen mask. While the Douglas racer descended, after the long night at 9,000, he breathed steadily through his hand-held mask.

"You really like that stuff, huh, Major?" the copilot asked.

"Yep, best safety medicine in the world." The major held the mask away from his face long enough to reply.

"Really helps, huh?"

"Yep, sharpens the vision and clears away the cobwebs."

"You mean you can really notice the difference?"

"Yep, takes the fuzzy edges off those instrument lights."

The copilot sat back, pondering a somewhat awkward situation that only he was aware of. Finally he reached over, held up the dangling hose of the major's oxygen mask and asked, "How come you don't plug it in?"

BOOST FOR PRIVATE LINE

In response to a letter from the Commander, T regarding single frequency approaches, USAF dispatched a letter to all commands outlining the program to be followed. AFSC has been designated as the program monitor, but Air Force will continue to press for full implementation of the single frequency penetration and approach system, including aggressive follow-up action with FAA. First priority on the program will go to those facilities that primarily serve single-pilot aircraft.

SPLIT FLAP FLAP

Wiser T-birdmen are careful to start flaps down when airspeed has decreased to 175 knots and just before starting their turn to base. Despite this precaution, a split flap can still be a surprise. Recently one pilot heard a loud snap half way around his turn to final. The aircraft pitched up slightly and yawed into a hard left turn. He recovered with rudder, aileron and full power. A control check indicated flap trouble, so he made a no flap landing. The flap actuator drive screw was bent which placed an excess load on the clevis bolt going thru the flap drive tube assembly. The bolt failed during turn onto final and allowed the right flap to retract.

Actual cause was someone dumping flaps do well over 175 knots during an earlier flight.

F-4 ABORT

A Marine F-4 pilot released brakes, pushed both engines to 100% and then selected AB. The right burner failed to light. The pilot pulled the right throttle back to military and reselected burner. This time it lit. About this time, the left tire failed and the pilot lost directional control . . . rather, he lost the utility hydraulic system and nose gear steering, then lost directional control. Too slow to use rudder, he blew the right tire and skidded back straight with the runway, then lowered the hook and aborted the takeoff. The barrier kept damage to incident proportions.

FUN WITH WORDS

From a hazard report: "As various jobs get more complex it becomes more important for publications to be well written . . . the attached TWX is a prime example of how far we are from this goal. It is an interim supplement to a TWX which is a supplement to a basic tech order published by AMA in message form."

ALTIMETER CORRECTIONS

·al recent near mid-air collisions occurred FL 290 when the aircraft involved were operating at the proper altitudes for the direction of flight. The pilots, however, thought that there was considerably less than 500 feet separation. Altimeter error in some tactical aircraft exceeds 500 feet; therefore, it is imperative that altimeter corrections be applied. Technical orders require that altimeter correction cards be installed in those aircraft with significant altimeter errors. Pilots should diligently apply the correction, and standardization/tactical evaluation sections should give this item special emphasis during check-out flights and proficiency checks.

WALKIE TALKIE

In order to speed up response to emergency situations, all Tactical Air Command hospitals are installing radio equipment. The system permits direct contact between the medical control center at the hospital and the various medical teams. Should be a big assist to crash rescue efforts.

START THAT FLIGHT RIGHT

You've no doubt seen a complacent cockpit swiftly turned into a muddled mess? Like on a beautiful instrument day with nice smooth stratus, no ice, no sweat and destination forecast to hold a comfortable 1500 and 15. Taxiing blissfully toward the active, anticipating nothing worse than a via flight plan clearance, all is shipshape. The route is familiar, charts are tucked under one leg, the checklist is complete except for runup and copying the clearance.

An obviously busy ground controller calls, "Air e 39048, Placid Ground; I have your ATC ance, are you ready to copy?"

"Ah Rog, Placid, ready to go."

Screech! . . you brake to a halt and reach for the parking brake. Clank! . . . your knee board bounces to the floor. You dive after it and your pencil slithers down your boot. Good grief! The parking brake releases, the finnegan falls off the mike boom, your unlit cigar falls down the front of your flight suit, charts scatter while the controller rattles off the clearance.

Farfetched? Not according to IPs, stan/eval and other guardian types. The solution is quite simple. Just reply, "Air Force 39048 unable to copy at this time."

The controller can get on with his work and you can get your clearance after you're parked in the runup area.

For some reason the phrase, "ATC clearance" arouses a sense of urgency in most pilots, especially when the controller is obviously in a hurry. Inexperienced pilots (and some not so inexperienced) are likely to react with confusion, trying to memorize when they are too busy with other matters to copy.

So don't say you are ready to copy until you ARE READY . . . with the bird parked, writing materials on hand, radio volume properly adjusted and the proposed route data handy.

—Army Aviation Digest

CALLING DOC WATSON

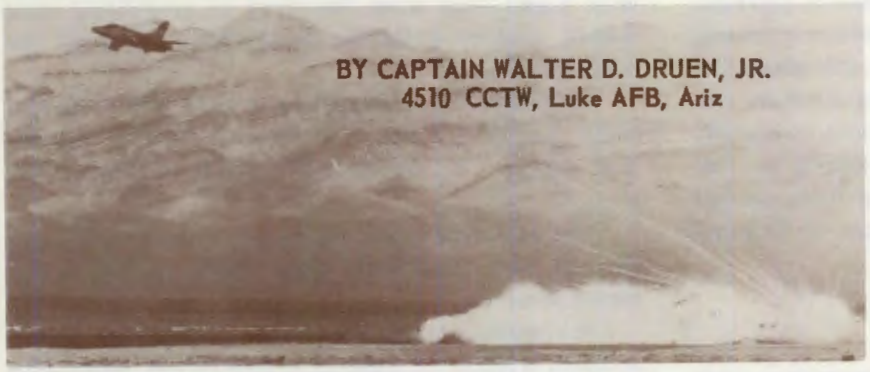
The Armed Forces Institute of Pathology, Washington 25, D. C. maintains around the clock service to assist in accident investigations. AFR 160-109 tells how to request their aid . . . your Flight Surgeon should be familiar with it. The AFIP has also developed a good film #TF-1-8191, The Role of the Air Force Pathologist in Aircraft Accident Investigation. It's pitched at the pilot and investigator's level and is an eye-opener.

WONDERCHIEF

We noticed a press release on the 49th Wing flying F-105s out of Spangdahlem. The release told where the 49th had launched 140 bombing and gunnery sorties in a single 16-hour day. Only one sortie was cancelled during the day . . . and on one of the air-to-ground missions a pilot scored a perfect pass with 101 hits on target out of 101 rounds from his 20mm Vulcan. Looks like the Thunderchief is coming of age.

RANGE SAFETY

BY CAPTAIN WALTER D. DRUEN, JR.
4510 CCTW, Luke AFB, Ariz



WE KNOW there have been many weird incidents and accidents associated with air-to-ground range missions over the past years ... flight members used as skip bombs on a farewell pass, dented wings made by healthy skip bomb target posts, and many others. These, of course, could have been prevented by a little common sense just prior to execution; however, other incidents have happened that cannot necessarily be attributed to operator folly. These concern the unexpected.

In combat crew training the unexpected is the expected. New fighter pilots getting familiar with the air-to-ground business have their hands full, especially in the initial part of their indoctrination. Therefore, many hours are spent briefing and rebriefing all possible situations that may or may not develop on the range. Delivery pattern changes are kept to a minimum to preclude situations that have not been properly briefed. These briefings and an alert instructor in the air and an equally alert range officer on the ground tend to foster a healthy and safe environment.

I do not intend to say that this does not exist on all ranges in the Tactical Air Command, but I do want to make a point or two.

Good sound briefings cannot be overemphasized regardless of the experience level of the pilots. In a tactical squadron, every minute must be used to meet existing requirements so every minute should be planned prior to launch on a mission. Briefing guides and the standard gunnery patterns we have today are a great help as far as briefing is concerned; however, they also tend to cause a certain laxness when heard over and over again by experienced pilots. Changing briefing officers or flight leads from time to time helps to stimulate and maintain interest. Occasionally exchanging slots between flights also helps.

While briefing, we must remember the purpose of our training. We must be certain our delivery conditions simulate, as closely as possible, live weapons. Anyone can press in and possibly get a better score with training ordnance; however, this person's training is for naught if and when he has to deliver live ordnance on a firepower demonstration or in combat. Be sure to allow minimum escape distances for the weapon being delivered and keep release conditions compatible with the type of entry being used. (An excellent article on this subject appeared in a recent Fighter Weapons Newsletter.) Once the standards for delivery have been obtained, select the technique best suited to your ability. Delivery techniques do differ, however slightly. Again, an exchange of ideas, along with constant evaluation, will produce better and safer conditions.

Enough on briefings, how about at the range itself? The best briefing in the world may go astray When the unexpected occurs. Vigilance in the pattern is a must. One seemingly extra radio call has saved many possible mid-airs. If you're not sure where a flight member is in the pattern, give him a call. Similarly, if for some reason you must alter your pattern, let the man behind you know what you are doing. This just could save you from an embarrassing situation and possibly prevent a mid-air.

There are some pilots who believe you must have a cons plus three on the G meter to have a qualifying mission. I disagree. We should not have a rat race around the range towers or target. Again we are training toward a combat delivery situation. We certainly do not want to stay close to defended targets. Use your G s where they are needed, for smooth coordinated entries and for hard, safe recoveries. This, of course, relates back to knowing the position of the other flight members and meeting proper entry conditions.

These points are not necessarily a sure cure for all the ails that may arise, but one thing is sure ... if we can all have a sound and sane basis for our missions, we will not have to worry so much about flying safety. It will take care of itself.

By Captain Walter D. Druen, Jr. 4510 CCTW, Luke AFB Ariz

TAC TALLY

A COMPARISON OF TACTICAL AIR COMMAND ORGANIZATIONS

MAJOR ACCIDENT RATE
1 JAN – 30 APR

TYPE	1963	1962
ALL	12.5	13.6
F-105	57.2	25.2
F-104	53.3	18.6
F-101	45.6	41.4
F-100	12.5	13.5
F-86	0	93.7
F-84	42.0	20.2
B-66	0	0
B-26	0	0
[illegible]39	0	0
[illegible]33	0	0
T-29	0	43.8
KB-50	0	29.9
C-130	0	0
C-123	5.5	8.6
C-47	0	25.6
U-10	0	

APR TALLY
GUARD AND RESERVE

UNIT	MAJOR	MINOR
94 TCW	1	

ACCIDENT FREE
(MAJOR & MINOR)

JET			
ACTIVE	MONTHS		ANG
27 TFW	7	22	113 TFW
388 TFW	6	20	102 TFW

CONVENTIONAL			
ACTIVE			RESERVE
314 TCW	45	77	434 TCW
463 TCW	23	40	442 TCW

APR TALLY
ACTIVE UNITS

UNIT	ACDNTS*	INCDTS
4 TFW	1	7
12 TFW	1	5
15 TFW		2
27 TFW		11
31 TFW	1	11
354 TFW	1	7
355 TFW		5
388 TFW		9
401 TFW	1	9
474 TFW		8
479 TFW	2	11
TARC		4
4510 CCTW	1	24
4520 CCTW	2	12
516 TCW		1
314 TCW		1
463 TCW		
464 TCW	1	3
4505 ARW		5
4442 CCTS		
1 ACG	1	1
4500 ABW		2
4453 CCTS		3
831 CSG		
SAWC		
4433 ATS		

*MAJOR AND MINOR

In April the Reserve forces lost one aircraft, a C-119 which was landed on an overrun almost three feet below the level of the runway.

The Regular forces came thru with an unseasonal shower, guaranteed not to grow anything; 11 *majors and two minors.* The F-100Ds headed the list with four. One F-100 *pilot ran into* the ground at high speed after apparently becoming disoriented during a night formation mission. Another ejected after his aircraft suddenly lost all its fuel and the engine flamed out. A third made an emergency landing after the right main gear refused to extend. A fourth F-100 pilot made a successful landing *after the* aircraft caught fire in flight, but the fire caused substantial damage.

The F-105s were a close second with two majors and one minor. A small civilian aircraft ran into an F-105 entering traffic, killing both the civilian pilot and the F-105 pilot. In the other major, the pilot ejected after *one main* gear went beyond the normal down limit and rotated. The *minor* was caused when the main gear scissors of another aircraft broke during landing roll.

An F-104 pilot was killed when he apparently ran into the ground while checking his altimeter prior to starting a bomb run. Another F-104 pilot ejected after the aircraft flight control system *failed.* An F-84F pilot was killed when he pressed too close [illegible] hit *the ground* on a gunnery run. Another F-84F pilot survived a crash on takeoff after either getting behind the power curve [illegible]xperiencing a power loss. A C-123 crashed, killing all four crew members during a classified mission. A T-28B accounted for [illegible] second minor when the nose gear retracted on the landing roll. Aside from *the F-105* gear problems, there appears to be no particular trend.

Well Done

It was the Ides of March when Captain Ronald A. Stinson, Operations Officer of Detachment 4, 4440th Aircraft Delivery Group, E. Harmon AFB, Nfld., received a call from the duty officer at Harmon RAPCON. The duty officer advised that a C-130 arriving from Keflavik was overhead and that th pilot was unable to lower the landing gear. Captain Stinson immediately proceeded to RAPCON with a C-130 dash one and went through the emergency procedures with the pilot, but the nose gear would not extend. The pilot advised that there was an accumulation of ice around the downlock mechanism. Surface temperature at Harmon was 23°F and the nearest recovery base with above freezing temperatures was McGuire AFB, N.J., over 900 miles distant, and beyond the range of the aircraft.

Captain Stinson, who has extensive experience in the C-130, advised the pilot to remove gear inspection plates, turn his cabin heat to full hot, and pressurize to 4 PSI. Although this procedure is not mentioned in the dash one, he was confident that the pressurization would force the warm air into the gear well and melt the ice. The pilot followed these instructions and in about 20 minutes all gear indicated down and locked. About this time, the pilot of a second C-130 arriving from Keflavik reported that he could not get any of his gear down. Captain Stinson gave him the same instructions, and in about 15 minutes the ice was melted and all gear locked down.

It was raining and the runway and ramps at Keflavik were wet when these aircraft took off. The temperature was 36°F. The gear wells on both aircraft still contained considerable moisture when they were checked after landing at Harmon AFB.

Captain Stinson's outstanding professiona knowledge and judgment displayed during this emergency is a credit to him, Tactical Air Command, and to the United States Air Force.

TAC units and personnel are to be commended for the safety award recognition received for 1962.

Three units received USAF Flying Safety Award Plaques for outstanding aircraft accident prevention programs. They were the 354th Tactical Fighter Wing, Myrtle Beach AFB, South Carolina, the 314th Troop Carrier Wing, Sewart AFB, Tennessee, and the 309th Tactical Fighter Squadron, Homestead AFB, Florida. This is the third consecutive time the 314th TCW has earned this coveted award. To date no other Air Force unit has surpassed this accomplishment.

Along with the Flying Safety Plaque, the 354th TFW was selected to receive the Colombian Trophy for having made the most meritorious achievement in flight safety among Air Force tactical units.

Two pilots were selected for recognition in the Well Done section of the Aerospace Safety magazine. Captain Walter J. Swaney, formerly of the 4th TFW, Seymour Johnson AFB, was featured in the April 1963 issue and Captain Robert M. Bond of the 4520th CCTW, Nellis AFB, Nevada, was featured in the May 1963 issue of the magazine. Their exploits make interesting reading.

USAF Missile Safety Plaques were presented to the 4520th CCTW, Nellis AFB, Nevada, and the 31st TFW, Homestead AFB, Florida, for their outstanding missile safety programs in 1962. The 4520th was recognized for its excellent safety record while training pilots to deliver GAR-8/1A, GAM 83 and ZUNI missiles and rockets. The 31st was recognized for an enviable safety record while handling missiles during the Cuban Crisis.

RECOGNITION

CREW CHIEF OF THE MONTH

Staff Sergeant A. C. Ferguson of the 4529th Organizational Maintenance Squadron, Nellis AFB, Nevada, has been selected as the Tactical Air Command Crew Chief of the Month. During one month, Sergeant Ferguson's assigned F-105 flew 29 scheduled sorties for 54:50 flying time with but one abort; a sympathy abort due to malfunction of an accompanying aircraft. This set a record for Nellis F-105s. In the three-month period before going into Project Look Alike, his aircraft flew 43 scheduled sorties without an abort. This outstanding record is indicative of Sergeant Ferguson's ability, initiative and technical knowledge. He works in close harmony with specialists and other members in his flight and his leadership has contributed to keeping the in-commission rate of his flight at a consistently high level.

MAINTENANCE MAN OF THE MONTH

Technical Sergeant John J. Gillan of the 15th Armament and Electronics Squadron, MacDill Air Force Base, Florida, has been selected as the Tactical Air Command Maintenance Man of the Month. He was one of the first airmen assigned to the unit after its activation and served initially as line chief of a two-squadron Fire Control Branch. His initiative, while acquiring and installing initial ECL and UAL equipment, contributed greatly to the efficient organization of the 15th Squadron. During the Cuban Crisis, the constant effort he directed toward line and field maintenance procedures proved a significant factor in shaping a fledgling organization into a combat ready unit. Although an authority in his field, Sergeant Gillan is seeking further knowledge through an advanced electronics course at the local university.

Pilot of Distinction

Major Raymond Waski of the 31st Organizational Maintenance Squadron, Homestead Air Force Base, Florida, has been selected as the Tactical Air Command Pilot of Distinction.

Major Waski was letting down after making a functional check flight in an F-100D when the oil pressure suddenly dropped from 46 to 20 psi and smoke started pouring from the aft section. The Major reasoned that a bearing carbon seal had failed and that he should have time to land before he lost all oil pressure. He reduced power and intended to set up a flameout pattern, but as he arrived at the base was forced to make a straight-in approach because of poor weather conditions. Three miles out the oil pressure decreased to 8 psi, then dropped to zero just before the aircraft touched down.

Investigators found that Major Waski's analysis had been correct and that the entire oil supply was lost after the number 4½ bearing carbon seal failed. Thru outstanding knowledge of his aircraft and superior pilot ability, Major Waski saved a valuable combat aircraft and truly demonstrated that he is a Pilot of Distinction.

PRINCESS ANN

QUALITY MAINTENANCE PAYS OFF IN LARGE SAFETY DIVIDENDS...

A SUCCESSFULL AND EFFICIENT MISSION STARTS ON THE GROUND. FOR EXAMPLE, FOR EVERY HOUR OF FLIGHT, AN F-100 REQUIRES APPROXIMATELY **26 HOURS** OF **MAINTENANCE** !

QUALITY MAINTENANCE IS BUILT FROM MANY THINGS, RANGING FROM ACCURATE FORMS AND REPORTS TO...

..A GOOD **FOD** PREVENTION PROGRAM...

KEEP 'UM RAMP CLEAN

..A HEARING PROTECTION PROGRAM...

..AVOIDING UNNECESSARY GROUND MOVING OF AIRCRAFT...

..FOLLOWING CHECKLISTS AND TOs.. EVERY STEP OF EACH OPERATION...

CHECK AND DOUBLE CHECK

..AND INSURING THAT FUEL, OIL AND HYDRAULIC SYSTEMS ARE KEPT HOSPITAL CLEAN...

KA-POW!

HIRSCH 6-63

IT ISN'T A SPECTACULAR PROGRAM, BUT IT AVOIDS SPECTACULAR FLIGHTS!