

AUGUST 1962

TAC ATTACK

TAC Attack August 1962 A Matter of Control

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A MATTER OF CONTROL

TAC ATTACK



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COVER PHOTO

This month we pay tribute to TAC's KB-50's.

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*The greatest of faults, I should say,
is to be conscious of none.*

— Carlyle

Suppose you were a Flying Safety Officer and had the opportunity to sit down and talk shop for a few minutes with one of the real old Pros — one of the greats in Air Force history.

We conducted an imaginary interview by letter with just such a man, a retired Major General. Here are some of his flying philosophies:

- The pilot is fully responsible for the operation of the aircraft.
- Know the aircraft and its limitations, then maintain a high degree of proficiency under conditions required of the mission.
- The better the feel of the aircraft, the safer the pilot.
- Prepare for flight not for crash.
- Plan the flight in the detail that the mission requires.
- Analyze the weather data personally. Believe the forecaster only when you can check his briefing on the charts available.
- Keep ahead of the flight — anticipate what is ahead.
- Know emergency procedures but don't practice them at the expense of proficiency. A good pilot can always do more with an aircraft under real emergency conditions than when simulated.
- Fly frequently — at least one flight per week and don't spend it all on touch and go's.
- Don't be a show-off. Do not compete with other pilots except during scheduled and controlled flights.
- Health and fatigue are important factors and should never be compromised. Important here is physical comfort in the cockpit to include flying clothing and personal equipment.
- Crew discipline is vital to safety.
- The maintenance crew is responsible and accountable for the ready status of the aircraft.
- The serious emergencies I have experienced were attributable to materiel failure. Therefore, the Air Force should do everything possible to insure that contractors deliver reliable equipment.
- The active and proficient old pilots (over 40) can contribute to safety by setting good examples.
- Fly only if you love and enjoy it. When it becomes a chore, it's time to stop.

Hope you like them. Now, how about giving us some of your pet ideas on flying?

Colonel James K. Johnson
Chief
Office of Safety

angle
of
attack

the *finer points*

BY CAPT. GEORGE ANDERSON

All pilots, regardless of experience and proficiency, have certain things in their instrument flying which cause them difficulty. Some work to achieve proficiency in these troublesome areas while others simply try to ignore them and hope to get by on the next instrument check.

Instrument flight examiners can usually spot the weak areas common to the average pilot. Often these areas can be determined by asking flight examiners to explain "pet peeves" . . . the things they feel to be the most outstanding weaknesses of pilots they have evaluated. By using this method I have isolated several problem areas which are well worth mentioning . . . and which could possibly be affecting your flying.

Examiners most frequently complain about the inability of many pilots to correctly copy and read back an ARTC clearance. Pilots usually have their own method of copying a clearance . . . and beforehand knowledge of the intended route gives some advance indication as to what they can expect. However, the occasional, un-

expected, nonstandard clearance can cause a tinge of pink around the oxygen mask of even the most experienced when they begin to read back.

The ability to copy a complicated clearance and read it back correctly without hesitation is a direct indication of pilot professionalism. How do you stand?

If the clearance is your particular problem you can improve your technique by learning the standard clearance shorthand published in Section II of the FLIP PLANNING DOCUMENT. In the near future a short course in clearance copying will be available in each Base Instrument School. In the meantime to help sharpen up, you can ask the flight simulator instructor to include clearance copying in your next simulator flight.

The examiners' next most frequent complaint is that many pilots use nonstandard aircraft configurations and airspeeds when they make instrument penetrations and approaches. This costs them some badly needed points on their Stand Eval and Annual Instrument Checks. If you don't agree with the configurations and proce-

dures in the flight manual, take your ideas to your Stand Eval Officer, giving valid reasons for changing the procedures . . . If you don't know your configurations, brush the dust off your dash one and do a little reading.

Too many jet pilots fail to plan ahead. They enter the holding pattern at higher than recommended airspeeds and don't know which way to turn after hitting high station. Air Traffic Regulations require slowing to the proper hold speed about three minutes before reaching the station. This, in most cases, will insure that the aircraft stays within the specified holding area providing the correct entry method is used. Entry methods are specified in the FLIP PLANNING DOCUMENT and AFM 51-37, INSTRUMENT FLYING. Check your personal copy of AFM 51-37 to see if you have the latest revision. It contains the new holding pattern procedures . . . but you'll still have to have everything figured out before you reach the station.

Most pilots seem to have one outstanding weakness in basic instrument flying. This is the inability to hold a constant angle

of bank . . . particularly, they overbank. Most instrument maneuvers demand given rates of turn requiring constant angles of bank—not to exceed 30 degrees. Banks of over 30 degrees can cause extreme or unusual attitudes and induce pitch problems. The attitude indicator is a direct reading instrument and should be used to control your angle of bank. Refer to it more often and watch your basic instruments improve.

Next on our list is a situation due partly to pilot negligence and partly to our air traffic control system. With the increased emphasis on TACAN and VOR procedures, we find that many radio compasses are gathering mold. This in turn has led to a definite decrease in pilot proficiency in ADF and RDF procedures. For better or worse, the old bird dog will be with us for some time to come, you should remain proficient in its use. Divide your training time among the various navigation systems available, don't just concentrate on one or two.

There are several other areas that deserve attention. Like the ones we've mentioned, all are not necessarily in the danger category (some might even be classified as nitpicking by the pilots being checked) but all are certainly irritating to a flight examiner.

Among these irritants is the pilot who allows his heading to drift off in the same direction at least a half-dozen times. A little trim in the opposite direction would hold him steady on. You

can safely bet that the same troop will forget to re-trim for airspeed and configuration changes too. He spends each session under the hood in a constant losing battle with the machine. Proper trim is essential for precise instrument flying and the trim button is one of the best friends you have in the cockpit. Incidentally, most pilots in this group pay no heed to the amount of bank they use for minor heading changes either, and will over-control on their GCA or ILS finals. AFM 51-37 (each pilot is entitled to one) recommends heading changes be made using one degree of bank for each degree of heading change not to exceed 30 degrees of bank. Like the dash one, this manual contains the latest recommended procedures, helpful hints, and some mighty interesting information. You have read it recently, haven't you?

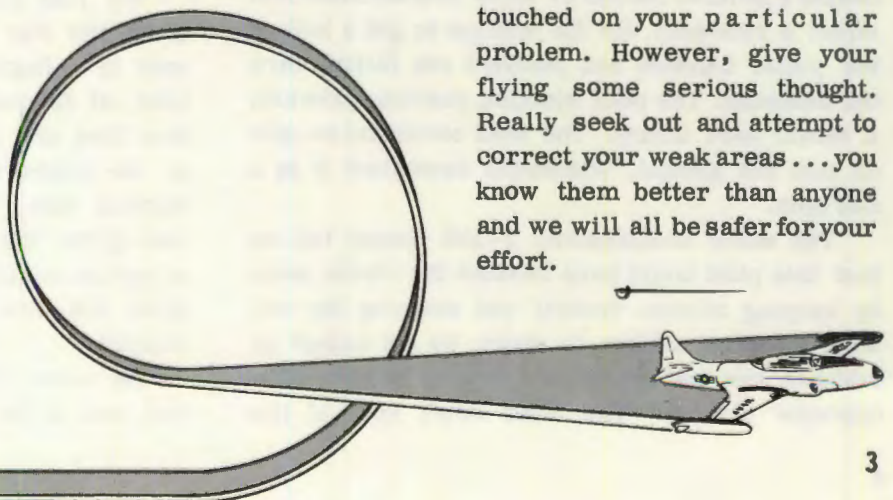
Then we run into the pilot who leaves the fix on a penetration and doesn't adjust his rate of planning to fit a speeded up sequence of events. He forgets that at lower true airspeeds (low level instrument work) 30 degrees of bank will give him a

much faster rate of turn than it did at altitude. At low level he is also working closer to the station. Things happen fast down there, but he still plans as he did upstairs where about all he had to do was make a position report every 15 or 20 minutes.

Last but not least is the pilot who neglects to check the procedure for a missed approach until he is required to execute one. Usually he comes completely unglued immediately after a GCA wave-off. Here again he didn't pay attention to the emergency procedures when they were given . . . instead he just rogered them. No chance to look them up, they're not published. If the radio is out, so is he. Regardless of the type approach, know what to do, IF. Study your missed approach procedures beforehand and pay attention to what the GCA operator has to say. He isn't talking just to hear his teeth chatter.

My point in writing this article isn't to be derisive, nor to set myself up as a super authority on instrument flying. Rather, I have tried to discuss some ways most of us can improve.

I may or may not have touched on your particular problem. However, give your flying some serious thought. Really seek out and attempt to correct your weak areas . . . you know them better than anyone and we will all be safer for your effort.



OLD TAT



FROM ANOTHER COMMAND comes this story of two F-100's on a transition mission. Both birds were carrying two 275's, a type III pylon on the left outboard and a type VII on the centerline.

While starting a chandelle at about 27 thousand, a bogie drove by about 2000 to 3000 feet away. The flight leader, who was flying chase, tried to eyeball both birds and the next thing he knew he felt his bird enter an accelerated stall and very shortly it rolled under to the right. He applied left aileron and the bird pitched up into a spin. Apparently it had read the dash one and was eager to demonstrate the correctness of that good book.

To make a long sad story short, and sad, the pilot didn't have his seat belt cinched down tight and was all wadded up against the canopy where he couldn't jettison stores or apply proper control to effect a recovery. He did manage to get a holt of the yellar handles and punched out falling thru ten thousand. The poor ejection position gave him a minor back injury. The bird continued to spin on into the ground. Witnesses described it as a flat spin.

The more venturesome F-100 troops tell us that this pilot could have avoided the whole mess by keeping aileron neutral and stopping the roll with opposite rudder. In short, he got caught by adverse yaw and aggravated it when he shoved in opposite aileron. The bird won't spin if the

aileron is kept neutral . . . it's much easier to recover from a roll induced by adverse yaw than it is to get out of a spin . . . and what's more, you don't scatter tanks and pylons all over the country side if you recover from the yaw.

There is one other point we'd like to make. You younger lads might not remember much about the days of wooden ships and iron men . . . but the old sailors had a saying back in those days that still holds true. "Keep one hand for the ship and one for yourself." Meaning don't get so enthused with your work that you forget to hang on. In a sense this lad failed to do that when he put all of his attention on the other aircraft and neglected his own, this is not new.

Some time back we briefed about a well experienced pilot who flew into the ground because his attention was locked onto something besides his own aircraft.

We just picked up two abbreviated reports from the Far East. The first told of the wingman in a flight of two experiencing a thump on take off followed by another thump at 500 feet, then fire and an ejection. The other report told of the flight leader, a senior officer TAT had worked with, knew and respected. It seems he had given too much attention to his distressed wingman and by the time he got around to watching after his own machine he was low, slow and falling!

He never recovered . . . and the Air Force lost one of its more talented leaders. Nuff said?

SOON AFTER lift off the U-bird crew noticed that the gear didn't fully retract. The pilot found the circuit breaker popped, so he reset it. This produced a cracking noise under his feet and turned on the gear up light.

Suspicious, he put the gear back down. The up light went out . . . but no down light. A pilot in another bird looked the blue canoe over and reported the main gear retracted and the nose gear extended.

The U-bird pilot gave the emergency system a go . . . but after cranking 57 turns the down light was still off. He made a low pass and the tower operator reported the nose gear only partly down. While the U-birdmen flew around burning out fuel, the fire department foamed the runway. The co-pilot moved into the aft seat to get the aircraft CG as far aft as possible, while the pilot made the approach at about 100 MPH with full flaps. At 200 feet, the pilot cracked the cabin door to keep it from jamming should the landing be less than successful.

Cracking the door caused quite a bit of tail buffet and made the aircraft pitch down at random intervals. The co-pilot held the door nearly closed while airloads tried to suck it open . . . meanwhile, the bird touched down at between 70 and 75 and the pilot cut the mixtures and switches. When it got over the foam he lowered the nose. Deceleration was smooth with negligible G-forces. Both props, the nose gear doors, a door bracket, the VHF antenna and its cover were damaged. The malfunction was induced by a lost clevis pin in the right nose gear door aft brace. The clevis pin is supposed to be secured by a cotter pin.

The incident investigator recommended this pin be included as a specific item on the pilot's preflight check. TAT doesn't agree. In the first place, there are so many potential trouble areas in any given aircraft that it is impossible to get them all on a preflight check list without turning the preflight into a periodic.

In the second place, crew chiefs and pilots should always automatically check for missing cotter pins, clevis pins and the overall integrity of any visible linkage. To us, putting an item such as this on a check list is like saying, check for two wings, two props, three wheels and tires!

Incidentally, you U-birders can do well to note the fuss caused by opening the main gate a crack. The dash one recommends opening it on the flare for a forced landing on soft or rough terrain but does not mention the door in other landing emergencies. You'd do well to leave it closed on landing emergencies on prepared surfaces . . . also, you'll grind off a little less garbage if you try to hold the nose off instead of putting it down immediately after touchdown. Best hold it nearly level and keep it that way until you're just about out of elevator control, then let it down.



TWO T-33 TIGERS reported a hazard earlier this year. They made a VOR number 1 let down off Las Vegas from 23,000. The aft pilot made the let down and held 200 knots for three minutes in order to clear the 12-mile limit before starting descent. And he didn't exceed 250 knots during the let down. After completing penetration turn, he descended to 5100 feet and was told to come out from under the bedsheet by the troop up front. When he did, he looked dead ahead at a chunk of rock sticking up nearly 6000 feet.

Very much shook, these troops attributed the bad position to a stronger than forecast wind. Wind was forecast to be from the north at 40 knots. The penetration goes to the south.

One of the indorsements on this scary story pointed out that the pilot had violated the 25-mile restriction for completing penetration turn...then pointed out that the peak in question is 42 miles from the VORTAC.

Apparently the character who made out this

indorsement cared less about the reasons the T-bird pair gummed up their let down.

We are concerned! We have made our fair share of mistakes and know that there but for the grace of God and a bit of weather, could go TAT on his long overdue trip to glory.

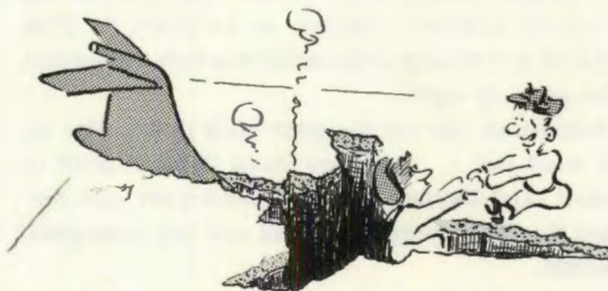
With that, we too hauled out the L. A. Sectional and the Terminal Area Chart for the Nellis VOR number 1. We plotted, checked and double checked. First off we noted another hill on a 175-degree bearing from the VOR about 30 miles from the VOR. This hill isn't quite 6000 feet high, but is above 5000 feet. Next we plotted the standard penetration, starting penetration turn about 20 miles out. Then we plotted the let down which these troops appeared to have made.

We did this by calculating their true airspeed at 23,000 for the average air temperature in the particular area at that time of year. We added the forecast wind and ended up with a ground speed of almost 340 knots. Three minutes at this speed would have caused this pair to start their let down 17 miles south of the station instead of 12. This still put the proposed flight path inside of the 5000 plus foothill, had penetration turn been started at 15,000.

However, suppose this pair started their penetration turn at 12,000 instead of 15,000? If they had, they would have been about 35 miles out at the start of their turn and would have rolled out headed right straight for the hill! Could this be where they goofed?

Or was it a horrendous wind, which they should have noted on the leg to Nellis?? Our calculations indicate that it would have taken a 150 knot wind to do the dirt, plus a slower than normal let down speed. (Despite what some troops may think, a slower speed at a given throttle setting will throw you further out.)

The OHR didn't give us enough data to find out what happened for sure, but regardless, you can avoid a similar trap by using a computer and by taking wind into consideration. By doing this, you'll get a better guess for the time you should fly outbound on this type penetration. It also helps to study the let down plate. Also, when you are headed into mountain country, look at a sectional before you launch.



YOU DID THE CRAZIEST ARRIVAL!

IF YOU'VE ever been double crossed you'll be able to sympathize with an F-101 pilot who knocked the rollers off his machine while making an emergency landing. His trouble started shortly after he descended to low level on a high-low-high profile. All fuel gages, except number 2 indicated a sudden drop in fuel quantity.

Suspecting a gross fuel leak, the pilot asked for a vector to the nearest suitable field and wasted no time heading for it.

After he spotted the field, he entered downwind. In his haste he got a little too close in and had to make another approach. By this time all fuel cells were indicating zero, except for number two which indicated 2300 pounds. Total fuel reading was 2000 pounds remaining. As the bird crossed the threshold he retarded both throttles and there, right before his eyes, the whole works fell out of the sky! In spades.

Both main tires exploded on impact, the bird rolled less than 30 feet before both wheels fell off followed shortly by the right strut, the nose gear and external tanks.

When the dust settled, it was off the runway about 2500 feet from the approach end. The left wheel was 200 feet to the left of the runway, the right wheel 300 feet to the right and the pilot was more puzzled than hurt.

Investigators peeked in the fuel tanks . . . and . . . found almost 13,000 pounds on board! Good grief chief! No wonder it fell.

A Cannon plug that carries the leads to most of the fuel indicating system wasn't connected correctly. The fastening sleeve was secured by only two turns and pins were not making good contact. When the plug was secured correctly all

fuel gage malfunctions disappeared . . . just one accident too late.

Incidentally, for you seat of the pants experts who might wonder why the pilot couldn't feel the extra weight, final was steeper than normal due to trees and other obstructions off the approach end of the runway. This helped mask the overweight condition and did little to help the aircraft flare.

Gage malfunctions did not follow normal malfunction rules. Instead, when the pilot used the test system it proved the gage accurate! . . . See what we mean about the double cross?

ONE OF THE more conscientious T-bird pilots visually checks movement of the elevator trim tab during his preflight cockpit check. He does this by pulling the stick full aft, looking back at the elevator and selecting forward trim. The trim tab should move up.

The other day this check paid off. He found the trim tab wired backwards. It had been worked on, but maintenance people did not enter the work in the form one, or have it inspected. This condition was a factor in at least one fatal night flight . . . and could cause considerable sweat during an actual weather flight.



THE RUNWAY WAS WET and some 6800 feet short, but the book says it can be done. Then along came this character in his trusty T-model. Light rain spoiled forward vis, so he latched onto

GCA and plowed down the approach ten knots above standard. He made a wheelbarrow arrival some 2500 feet down the concrete—flew another hundred feet and set down again. He shoved the throttle forward, changed his mind, chopped it and got started stopping. The barrier dissipated the 60 knots he still had when he rolled off the end . . . No damage, but somewhat short of a superb performance.

Everyone, including your old TAT, botches an occasional approach . . . but you can always spot the professionals from the rest of the line up. They are the ones who know when to take it around and have another go at it. You might say that this troop almost qualified. He started to do just that, then backslid . . . must have let pride get the upper hand of judgment.

This going around business is so cotton pickin' basic it seems foolish to even mention it. So is holding proper airspeed on final. Not so well known; however, is that "proper" airspeed for this particular approach should have been about ten knots slower than standard, remember the runway was short and wet. This put him 20 knots too fast. Also, altho the T-bird dash one claims you can stop in about 5000 feet on a wet runway with the fuel he had on board, 260 gallons, not all T-bird troops realize that in order to make good on the published stoppin' figgers they MUST use the minimum run landing procedures. As we've indicated, this means being ten knots slower than normal. With 200 gallons you should drive down final at 110 and bleed off speed to cross the threshold at 100. Immediately after touchdown retract flaps and speed boards, **HOLD THE STICK FULL AFT** while applying steady smooth brake, holding 'em just short of a skid. Holding the stick full aft with the nose gear on the runway makes more difference than you'd think . . . but if it don't make enough diff, stopcock and open the canopy. The J-33 gives a lot of push at idle, and the canopy makes a most effective drag chute. Open it at 100 knots if you have to, altho we'd recommend that you write it up if speed was over 50 knots when you opened it. As we see it, this procedure isn't nearly as sloppy as getting tangled in the bird net.

—TAT—



Failure to observe speed limits on the high side (V_{no} and V_{ne}) is an invitation to trouble in the form of structural problems.

An equally important speed limit which you should keep in mind is one on the low side—minimum control speed (V_{mc}).

Ignoring this, under some circumstances, can mean loss of control and worse.

V_{mc} conditions become particularly critical when there is a loss of power on one side of a multi-engined aircraft; particularly when high power is being applied to the remaining engines on takeoff, initial climb or during a waveoff.

When power is lost on one or more engines, the resulting asymmetric thrust must be counteracted with rudder by banking away from the inoperative engine(s), or reducing power on the operative power plants.

On takeoff or climbout, the

third alternative is not always possible, since you may need everything you can get to maintain flight. The amount of rudder force or lift available is, of course, proportional to airspeed. The higher the speed, the more effective a given amount of rudder or aileron deflection.

Minimum Control Speed is defined in the Civil Air Regulations as the lowest speed at which it is possible to recover control of an aircraft and maintain it in straight and level flight with either zero yaw or less than 5 degrees of bank after the critical engine is suddenly made inoperative. The manufacturer is required to demonstrate this during type certificate tests.

The configuration required for this demonstration is:

Maximum available power.

Rearmost (or most unfavorable) center of gravity.

Flaps to takeoff position.

Landing gear retracted.

Cowl flaps (on piston-engined aircraft) in normal takeoff position.

Maximum sea level takeoff weight.

Aircraft trimmed for takeoff.

Propeller windmilling on inoperative engine (or different position if specific design makes this more logical) and full power on other engines.

Aircraft airborne and out of ground effect.

Additionally, the rudder control force required to maintain control must not exceed 180 pounds.

The minimum speed which will satisfy these conditions is quoted in the flight manual as V_{mc-air} . On all aircraft currently certified for transport operation, this speed is determined with the machine in a five-degree bank with the operative engines on the low side. This results in the lowest possible speed, and the capabilities of the aircraft are

utilized to the fullest advantage.

It is important to recognize that, with the wings in any position less than a five-degree bank angle, the minimum control speed is substantially higher than the value shown in the flight manual. On the most modern machines, the difference in V_{mc} between the five-degree bank condition and wings level condition may be as high as 20 to 25 knots!

The reasons for this large increase in minimum control speed with varying bank angle are fairly complex. Essentially, the effect of the bank is to reduce the amount of rudder power required to overcome the asymmetric thrust condition. As the wings are brought to a level position, more rudder

power is necessary. The added rudder deflection increases drag and makes a higher speed necessary.

This characteristic applies to all multi-engine aircraft. It is accentuated in the latest designs because of the large amount of thrust available for takeoff and the fact that the engines are further out on the wing. This increases the turning moment caused by unbalanced thrust.

The point of all this discussion is that in order to achieve the best performance should an engine fail during takeoff, climb, or any other flight condition when high power is required, the aircraft should be kept in a five-degree banked attitude with the inoperative

power plant on the high side. The normal takeoff procedure assures that airspeed will be above the minimum control speed (air) with the most critical engine inoperative. This is only true, however, if the five-degree bank angle is maintained.

Any variation from the configuration of flaps, gear, and power specified by the FAA regulation will tend to make the situation less critical. Regardless of improved configuration, aircraft control is still improved when the machine is banked into the good engines.

For specific information you should refer (as always) to the pilot's handbook.

—FSF Bulletin

TAC TIPS

U-BIRD GEAR

A U-3A pilot made a fly-by to let the tower check the landing gear after he was unable to get a safe gear down indication. The tower reported the gear apparently down and locked, so the pilot brought the aircraft in to a successful landing.

The aircraft was jacked up and checked. The gear driver tube assembly, was bent and down-lock tension was inadequate. The down-lock would unlock anytime pressure was applied to the hinge point of the upper and lower brace links.

Apparently this was caused by excessive side

loads, either from taking a turn too fast while taxiing, or from extending the gear during a turn. The aircraft had a long history of gear indicator malfunctions which had been "written off" as being caused by moisture in the down-lock switch or by a defective switch.

COMMAND DECISION

While flying IFR in a layer of stratus, you suddenly find yourself in the big fat middle of a thunderstorm. What power setting will you hold?

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TAC TIPS

TRICKY TANKS.

The pilot of an F-100D inadvertently jettisoned two-450 gallon tanks while checking out the LABS equipment. The tanks fell into uninhabited mountainous country and no property damage was reported. The pilot picked up the tab for this one . . . he had placed the armament selector switch in the jettison-all position and the tanks came off when he depressed the bomb button.

WRONG PEW CLUE

If you've ever landed at the wrong airport you know how embarrassing such a simple error can be . . . Witness the gruffaws of those who have never had the experience. To prevent it, an old pro suggests that when you can't positively identify your destination airport using radio aids or landmarks and you've received clearance from the tower and have the runway in sight, simply key the mike and ask, "Do you have me in sight?"

If the answer is negative, back off and make additional checks.

RADIO PROCEDURES

Have you ever turned on your aircraft radio only to hear an interminable amount of chatter? An analysis of the general pandemonium that exists on the air-to-ground circuits generally indicates that a great deal of the trouble is caused by pilots who neglect some of the basic principles of good radio discipline. We can help to reduce communication congestion by following these simple rules.

- * Listen before talking . . . don't break in.
- * Include all required information in each transmission so additions are not necessary.
- * Omit excess words.
- * Form the habit of planning for brevity on every contact.

STARTING SMOKE

If you are flying or crewing a bird that is equipped with a cartridge starter we have a word of caution. The starter cartridge contains about eight pounds of ammonium nitrate propellant. When it fires, it produces oxides of nitrogen which are toxic. When using these starters, aircrews should be on 100% oxygen and ground crewmen should stand up wind.

TANK TROUBLE

An F-84F pilot checked pylon tanks feeding prior to take-off. However, after becoming airborne, the left tank stopped feeding so he dropped it in the local drop area. Investigators found that the electrical system was alright, but the pylon tank selector switch was badly corroded. The switch was replaced and the system checked out satisfactorily. Preventive maintenance, hava no.

IT PAYS TO WATCH!

Two airliners almost collided at a point where two airways converge. Both were flying under ATC control and both were at 19,000 feet.

The controller was at fault in this instance. He cleared one aircraft to descend from 21,000 to 19,000 feet, an altitude assigned to another aircraft, and then forgot to pass the information to another controller. Fortunately, one pilot saw the other airliner approaching and made an abrupt dive



out of the way. The encroaching airliner passed 200 feet overhead. It pays to watch when you're in VFR conditions even though you are on an IFR clearance.

REVERSE REGARDLESS?

This is the fourth accident I personally know of where a DC-6 left the runway after landing on a wet runway with a high crosswind condition.

The crew statements have been almost identical . . . This problem has been recognized for a number of years, but still exists and in all probability will recur in the future.

On some airlines, company procedure requires use of reverse propeller on all landings. This requirement is the primary contributing factor to this, and the other three incidents. During the short time required to reach the reverse propeller condition, airflow over the control surfaces is disrupted and the high crosswind overpowers the ability of the control surfaces. This is when the airplane actually becomes uncontrollable.

Had the reverse propellers not been used in any of these four conditions, there is no doubt but that the incidents would have been avoided . . . The mandatory requirement for propeller reversing on DC-6 aircraft must be reviewed and procedures designed to permit utilization of this system if the pilot deems it appropriate. In addition, the pitfalls which can be experienced by reversing under similar conditions should be clearly outlined to the pilot group for their information . . .

—ALPA "Tech Talk"

PECULIARITIES

Each Tacan station in the Enroute Supplement is classified as either (L), (M) or (H), depending on the interference free distance covered by the station. Don't confuse this classification with station power since ground equipment is essentially the same at all locations. Classification is based primarily on the distance between ground stations that operate on the same or adjacent channels.

When you're about the same distance from two co-channel stations your Tacan cockpit indications will probably be misleading. For instance, your bearing indicator may swing to and fro thru 180° of arc and your range indicator may lock on either station.

Interference free areas for different station classifications were given in the Enroute Supplement, but have recently been deleted. You can

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find them in the basic FLIP however, and it might be a good idea to check and put 'em down on your goodie sheet for in flight reference.

IS YOUR FACE RED

Many pilots are apparently not checking the remarks under aerodrome facilities in the Flip Enroute Supplement. During the last two weeks of June, ten pilots filed flight plans into McChord AFB during the hours the airfield was listed as closed in the Enroute Supplement. This indicates that pilots are not checking for notices concerning the more permanent hazards and restrictions at destination airbases, since these are normally found in the Flip Enroute Supplement. Paragraph 2b, AFB 60-16, states that special notices, procedures, etc., contained in Flip documents, as well as in NOTAMS, are directive for all pilots.

SAFE APPROACH

The greatest single safety device known is the pilot-in-command. He must continually do those things he knows are necessary to effect a safe operation. He must know the basic requirements of his flying job—the ultimate being to know everything about the machine and all the rules for operating it. The pilot must be safety conscious and apply air discipline to his thought and action. But the pilot alone cannot be responsible for every phase of every operation . . . we should all devote our activities to prevention, rather than investigation.

THE LAST LINK

When do you shut off the command radio after returning from a hop? As you enter the line or after the engines are shut down? You should wait until the engines are shut down. You might need it even after you are parked. For example, a quick call to the tower will send the crash crew should your aircraft catch fire during shut down, or fetch an ambulance for any unsuspecting soul who might get sucked into the intake or stumble into a prop . . . Your call may save his life. Don't cut yourself short, **keep your radio on until the aircraft is completely secured.**

TALKING VORTAC

To permit simultaneous transmission of code and voice on the same frequency, the Federal Aviation Agency is modifying the 760 VORs, VORTACs and Terminal VORs, which form the basis of the airways system. At the present time, code identification is automatically stopped during voice broadcasts from the ground stations.

The requirement for simultaneous broadcasts became apparent when the speed of some aircraft allowed them to fly great distances without navigation facility identification during the period when code signals were suspended for voice broadcasts.

Feasibility for the change to simultaneous code/voice broadcasts was demonstrated during a nationwide test with 20 VORs. A minor modification program will put the new plan into effect at the remaining 740 ground stations and all future VORs, TVORs and VORTACs will incorporate this provision.



SPOT LIGHT

Colonel William H. Holt of Hq TAC used an old cartridge case and some other odds and ends to fabricate a handy light attachment for his P-4

helmet. The installation is shown in the photograph. It is powered by batteries fitted into the molded rubber inside the helmet. According to Colonel Holt, the unit serves him well as a "third hand." It's an excellent back-up light for the fighter pilot who drops his flashlight after experiencing electrical failure. It's handy also for copying clearances, monitoring engine starts and filling out the AF Form 781 at night.

T-33 DUST COVERS

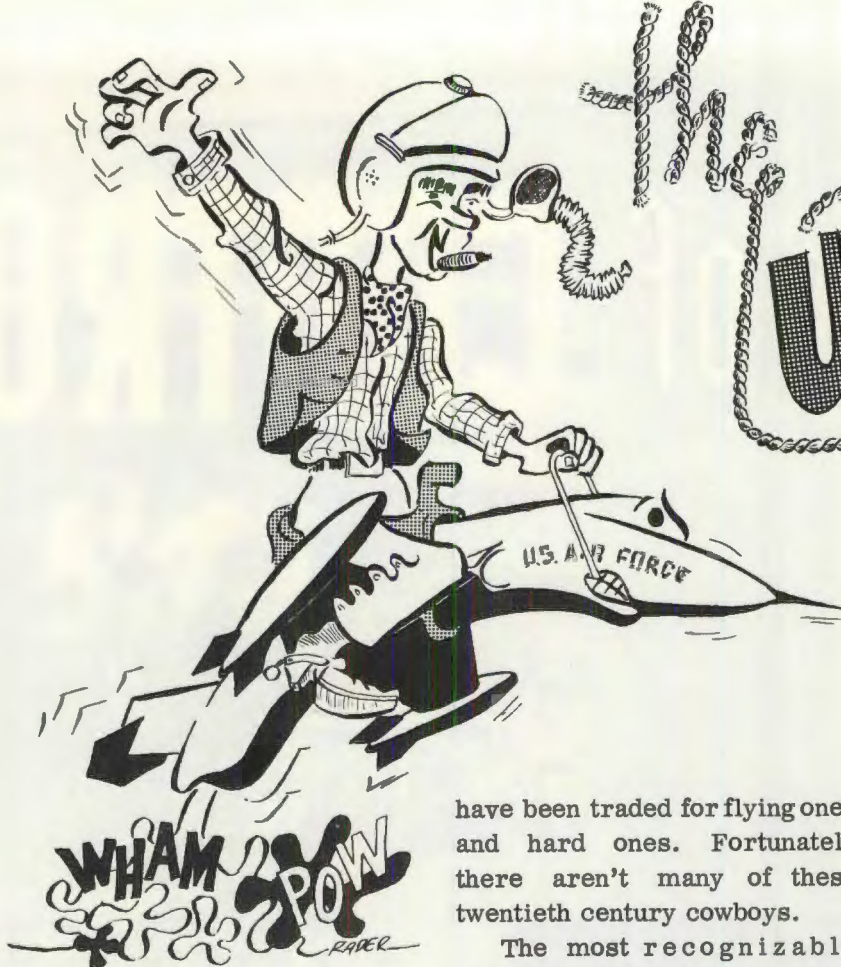
When a T-33 pilot placed the gear handle down, the main gear indicated down and locked but the nose gear indicated unsafe. The tower confirmed that the nose gear was only partially extended so he recycled it. The position of the nose gear did not change and the pilot tried without success to lower the gear with the emergency gear extension system. The runway was foamed and the pilot made a normal landing when fuel was down to 95 gallons. Investigators found that the canvas dust cover in the forward area of the nose gear well had come loose and was obstructing the nose gear drag struts. **DO NOT CONFUSE THIS DUST COVER WITH THE ONE IN THE AFT SECTION OF THE NOSE GEAR WELL.** The troublesome dust cover has a total of 18 snap fasteners, but only three were snapped. In addition, only one of the two cords which hold the top of the dust cover to the base of installed radio equipment was still tied. The other cord was loose, allowing the cover to be sucked down against the nose gear strut.

UNSCHEDULED BASH

During the let down from a scheduled mission an unauthorized tail-chase began; it turned into a simulated dog-fight at low level. The lead aircraft struck the ground, and both occupants were killed.

The investigating board found that the incident was caused by both pilots violating existing orders. Further, it appeared that both pilots were determined not to lose the dog-fight. Instead, the crew of one aircraft lost their lives—a high price to pay for lack of self-discipline.

—RCAF Flight Comment



UNTAMED

BY MAJ PAUL L. SMITH
839TH AIR DIVISION

EVER SINCE our country began developing into the great nation it is today, the scenery has been dotted with cowboys. In the beginning, they were strong, silent and capable... able to meet the charging steer or the horse stealing desperado with equal aplomb. Unquestionably, they played an important role in the settlement of our frontier.

Today, we still have a few cowboys around. But these are of a different breed. There are some outward similarities...the rough speech, hardened jaw, and recklessness of purpose, but there are many differences. The steed is several thousand times more powerful than the eighteenth century model, and the boots and ten-gallon hat

have been traded for flying ones and hard ones. Fortunately there aren't many of these twentieth century cowboys.

The most recognizable feature is their ability to make an aircraft act like a sunfishing horse or a Brahma steer on the loose. They use bursts of power sufficient for an emergency go around just to leave the parking areas. Flying debris attests to their proficiency in these areas. Stones, chocks, nuts and bolts, followed by maintenance stands, go across the ramp like bullets at the OK Corral. Excessive taxi speeds are considered child's play. Wing walkers are as disgraceful as grabbing for leather on an old time bucking bronc.

Take-offs are made as though the Sioux nation were only a scalp's length behind. Traffic pattern entries are reminiscent of the old land rush days with them that get there fastest being first. Landings are patterned after the activity near the hitching rail with smoke pouring from their rounded hooves as they try to make the first turn-off.

The old saloon still operates in the same manner too, with tales of wild rides and unnatural bravado reverberating from the walls and becoming wilder with each drink.

Corralling these critters isn't difficult because they are a dying breed and easily spotted. They will not surrender easily but this range is too important to remain untamed. Fences are in style again and the days of the Wild West are over.

Author Smith hastens to add that all the cowboys have long departed the 839th corral.

a matter of CONTROL



"Roger, Center, we, ah, swung Redball Radio at, ah, zero eight past the hour. We're estimating, ah, Cartwheel at ah . . . standby one, oh yeah, at three-two past the hour, over."

After a few more transmissions, the controller finally had the required information and had established radar contact with old Jumbo.

I was visiting an Air Route Traffic Control Center when I heard this unprofessional transmission.

Later I watched a teletype in the flight data section type off a proposed 500NM IFR flight plan, direct point to point, with no in-between reporting points. The aircraft was a T-33. You wouldn't believe a pilot would request such a clearance but there it was in black and yellow. As a military pilot, I was

HARDCHORE CENTER this is Jumbo 87, over." This radio transmission was followed by a three second pause and then . . . "Hardchore Center this is Jumbo 87, over."

Before the controller could punch the transmit switch

Jumbo came through loud and clear for the third time. Perhaps this pilot had an emergency, but he wasn't using guard channel.

The controller answered, "Roger, Jumbo 87, this is Hardchore Center, over."



embarrassed, considerably so for the second time in less than ten minutes.

Jumbo is a friend of mine. True, I don't know him personally but our profession is the same. A proud profession but his performance wasn't very professional. And now this crazy flight plan!

"I doubt that he'll get the route he's requesting," the controller remarked after he had prepared the strip and walked over to the appropriate sector controller to give him the proposed flight plan. "Capital Center will probably refuse to let him cross that many streets without reporting. However, we'll let the coordinator give it a try."

The center I was visiting covers a small geographic area but it has dense air traffic.

There are six busy airports within an approximate twenty-five mile radius and the center is responsible for all IFR approaches and departures as well as enroute traffic. They divide these responsibilities among their controllers. Each controller works at a console equipped with a long range radar scope and a short range, video-mapped scope. A supervisor-coordinator is assigned to each sector console and has hot line access to other centers as well as all control towers within his center. He can also listen in on pilot-controller conversations. Their communications equipment is terrific though complex.

My host, the watch supervisor, handed the prepared strip on the direct cross country flight to the coordinator. He read it, looked at me and smiled

as he said, "I'd better check this for verification. I think there's a mistake here."

Sure enough, the teletype operator at base ops had transmitted the wrong station designator for the proposed destination. A recheck on the flight plan proved it to be legal and logical. My faith was restored. I turned to my host and said, "Most of us pilots are accurate . . . we can't afford errors." He agreed and I felt vindicated but a few minutes later I was served a generous portion of medium rare crow.

The same T-bird pilot checked in with departure control just after take-off. The controller directed him to turn to 270 degrees but when he rolled out of the turn he was heading 010 degrees on the radar scope. Further conversation revealed the old J-2 compass had done it again. The pilot reported that it disagreed with his stand-by compass by 100 degrees. It was obvious to me that he had failed to check his directional indicator against the runway heading. From the expression on my host's face, it was obvious to him also.

I was impressed at how quickly the controller caught the heading indicator trouble. He went immediately to no-gyro procedures, steered the pilot clear of several inbedded cumulonimbus and handed him off to the next center after that center had positive radar contact. I noted that his phraseology was strictly standard in all cases. No superfluous conversation; therefore, less

chance for a misunderstanding. You might say he was a very professional communicator. My only criticism was that he asked the pilot to reset his gyro shortly after he got him on course.

We all learned something from this flight. The pilot learned that prior to take-off, it pays to follow the line-up part of the check list. I learned that radar equipped centers can do a beautiful job of vectoring aircraft around thunder bumpers, even with gyro out, and are happy to give that service when equipment and traffic permit. Also, once they start the vectoring they can't drop you unless their weapon becomes bent or you request they do so. The controller learned that you can't reset the heading indicator in the T-bird like you can the DG in the old Gooney.

When the watch supervisor found that I was an old T-birder, he immediately asked when we planned to equip our T's with TACAN. I had checked with DM that very morning and had found that the estimated starting date for the mod would be January '63—completion date February '64. I passed him the information. He sighed heavily and remarked that TACAN equipped types were much easier to control.

Incidentally, the controllers are always poised for a radio failure when a T-33 is under their control. They have learned many tricks of the trade on how best to utilize radar modes and codes. For instance, they can tell if you're receiving by

requesting you to change squawks. If your transmitter is out they can clear you from one flight level to another and tell when you vacate one and arrive at the other by the same method. They may also have you acknowledge instructions by using the ident switch.

A considerable number of the controllers have military experience, often with flying type backgrounds. The requirements for entry into the field are rather rigid from a mental and physical standpoint. They must pass a Class II flying physical and complete two months of school at Oklahoma City. The washout rate at school is about 25%. After the school they spend about 18 months copying clearances and acting

fore they can work the position alone. They specialize by sectors or positions and must be checked out on other sectors before working them.

Pay is good by military standards since they start their training at a reasonably high Civil Service GS rating, but they have their problems too. They can be suspended without pay for what might be considered a very small deviation in procedures. Whenever a complaint or hazard report involving procedures is made to the center, all controllers involved in the incident must be immediately removed from the job. They remain suspended until it is definitely determined whether they were at fault. If they are cleared they are



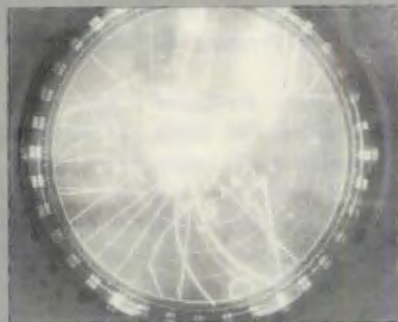
This battery of recorders puts all radio conversation on tape for later reference

as assistant controllers. Then they are evaluated for retention or release. If retained, they go through a formal controller training course for two or three months and then OJT. After completing OJT, each must be certified by two supervisors be-

returned to duty, otherwise, appropriate administrative action is taken.

The day before my visit, a complaint had been filed against the center by a military pilot. He had filed VFR on top, one hundred-mile radius of his

penetration fix for a specified period of time and had been so cleared. Apparently, he later changed his mind and contacted the center requesting an earlier approach. By letter of agreement this center had passed control of all traffic at flight



level 240 and above to a neighboring center and could not clear him down through their traffic (a copy of this letter of agreement has been in the pilot's home base PIF for almost two months). They advised him to contact the appropriate center for clearance and he replied that he could not contact them. Center then told him to stand-by. They contacted the other center by land line and after some delay received clearance for him to descend to penetration altitude at his requested time. His complaint was that he would not have known what to do if he'd had radio failure after they told him to stand-by. Honest confession is good for the soul! Center said they would have held his earlier approach time and his DD 175 ETA open for thirty minutes if they had lost contact with him. Another thing he probably didn't know was that any center or controller will

answer an airborne radio call before they'll answer a land line. The man in the air always has priority. But, at any rate, immediately after he called in his complaint, three controllers were suspended until the situation was clarified.



Among other problems is radar interference. Take a look at the above photo and notice how the one on the left is obscured near the center. This can be caused by other radar sets in the area that are slightly off frequency. The source of the problem is sometimes hard to find. It can even be caused by a TV repair shop.

I had a very interesting and profitable trip and I suggest you arrange to visit a center in your area as soon as possible. Chances are you'll find these folks much more aware of your problems than you think. In the meantime, here are a few tips that might keep them from mentally classifying you as an amateur on your next IFR flight.

- * Plan your flight strictly in accordance with the Flight Information Publications.
- * Don't accept any clearance that you don't thoroughly understand.
- * Think before you punch the

mike button. It's a good idea to run through your speech mentally before you give it to center.

- * Use standard phraseology and make position reports exactly in accordance with the pubs.

- * When requesting a clearance while airborne, deal directly with the controlling agency, if at all possible.

- * Controllers cannot suggest you climb or descend in VFR conditions. However, if you see that you can do so, suggest it to them and they'll certainly approve. It will expedite your flight considerably.

- * If you have trouble, particularly with navigation equipment, keep the center advised. They'll do everything in their power to assist you.

- * If you're flying in the high altitude structure, state your flight levels correctly. Twenty-six thousand, five hundred feet pressure altitude (29.92 altimeter setting) is flight level two six five—not two six point five.

- * Maintain a listening watch on the appropriate frequency. This doesn't include the latest hit tunes on the radio compass.

- * When VFR on top, fly the correct flight level for your heading and advise ATC before changing altitudes.

- * Pause a reasonable time between repeat transmissions. The controller may be passing instructions to someone on a different frequency.

- * Be a professional communicator and you'll be appreciated and respected.

Letters to the Editor



Dear TAT:

After reading your articles in TAC ATTACK and the FSO Kit, I've concluded that your opinions parallel mine. You don't mind pounding a pilot for using poor judgment and at the same time pounding the desk to get him better equipment and working conditions.

I'd like to tell you about an incident that happened to me last week that may give you some ammunition for future crusades.

I was giving a 60-3 Proficiency Check in a '53 model T-bird. While monitoring the preflight, I heard the victim up front mumble something about gee's. I glanced at the instrument panel and my mental master warning light came on. A quick re-take caged my eyeballs on the G-meter. It registered six and a half. I realized then that the pilot up front hadn't really said, "Gee whiz what a nitpicker!" So I placed him back in the possibly qualified category.

I think a lot of my skin so I crawled out for another look-see at the bird. Satisfied nothing had been overlooked, I rechecked the 781. Capt Blank had successfully completed his 60-3 Instrument Check on the previous flight and there were no write-ups. From your writings I'd judge that you've been through just about every conceivable maneuver in the T-bird. I've been through a few myself... double Immelmans, zero airspeed, reverse yaw string and such. But what in the name of sacred standardization do you s'pose they did on an instrument check to pull 6.5 G's? Besides you can do any maneuver in the ATC syllabus and not pull over four G's, even hard landings don't register that many. At least I've never seen that many indicated during numerous landings with three-handed cadets. Anyway, a hard landing should have been entered in the aircraft forms.

I've never heard of anyone pulling the wings off the ol' bird with just plain G's. It'll take much more than the max 7.33 straight and 4.9 rolling G's. But how many cumu-

lative G's will it take and why waste them on a scheduled instrument mission? How's for beating the drums about that?

I hear that the engineers have developed a gadget that will record cumulative G's along with peaks and duration. Must be that they think cumulative G's cause metal fatigue. Sounds peachy keen and I'd like to see you go to bat for something along this line. The data collected from this little jewel would be really great, but to be useful, it would have to be installed when the bird is born. It's too late for the tired ol' T-bird but how about the F-110 or the TFX?

Didn't mean to be so windy, but you know how it is when you get all wound up about something. Don't pull too many G's TAT. As for me, I'm joining the be nice to old birds and fly safe club. I've had enough thrills.

Yours truly,

Capt John Beach

Friend Beach

TAT is with you all the way. When feeling real foxy we've been known to grunt thru about five to five and a half G's to do our special one and a half vertical roll. However, we flat won't try one in an old bird and certainly not on an instrument check. Incidentally, you said it so pretty, we just published your letter as is.

—TAT

Good judgment comes from experience and
experience comes from poor judgment.

Dear TAT

Having just returned from another Operation, I again observed a condition which apparently continues to escape our planners. We all recognize the need for odd-hour operations in an exercise. We also recognize the fact that crew rest will be extended on certain occasions in order to

meet the mission requirements. However, look at a couple of occurrences I noticed during other recent exercises.

Crews were alerted at one o'clock in the morning, airborne by three, and arrived at their staging base at 0500 and put to bed. Activity on the airfield continued as more and more crews arrived. However, the individuals who arrived at five in the morning were expected to go in, lie down and go to sleep. The last crews arrived around 1000 so that the noise in the billets finally stopped at 1100. At 1400, the first crews that arrived were awakened to begin the mission. The crews that arrived at ten then experienced a continuing noise factor as more and more of their buddies got up to fly the mission. Sleeping under these conditions was somewhat difficult.

After a good night's sleep, a crew was scheduled for an 1800 take-off. Although their mission the night before ended at six in the evening and they stayed up until midnight, they woke up at eight or nine in the morning. In most cases this meant that these individuals were up eight or ten hours prior to the time they started a twelve to fourteen-hour crew day.

The purpose of this discussion is to point out how our crew rest rules are actually being violated, although the operation orders are meeting, or nearly meeting, the minimum requirements outlined in TAC Manual 60-130. As a flying safety officer, I feel that operation orders should be coordinated with the safety office so that we can look at situations like this and make recommendations to improve the crew rest problems.

Getting back to this last exercise. There were numerous instances of crews arriving on base at around midnight with an aircraft out of commission, requiring them to put in considerable time on the line, and yet, eight hours later they were blocked for a new mission. We all realize that these things will happen once in a while. However, I believe that the men who planned several of the missions that I have been on, failed to consider anything except the absolute ten hours minimum from one hour after touchdown until two hours before take-off. Let's get some safety officers behind this program and start pushing for a better deal for our aircrews.

Maj Paul L. Smith
Director of Safety
839 Air Div

Dear Smitty:

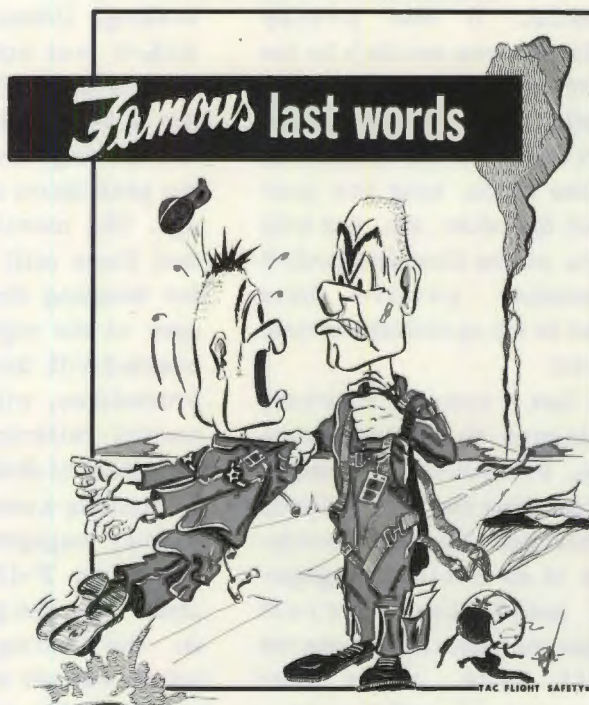
You certainly have a pertinent point, which has lighted a small fire under a few feet around these parts. Not all of the difficulty can be blamed on the people who dream up these projects. For example, personnel at the staging bases could smooth out

many of the rough spots with intelligent scheduling of transient quarters. Frequently, scheduling is by a young airman with no knowledge of what his guest are doing or are expected to do. The guests themselves sometimes add to the trouble by being noisier than necessary.

Next exercise, try educating the billeting people into filling blocks of quarters with incoming guests rather than giving them rooms willy-nilly . . . a few hints on how many will arrive when, and a little pitch on how important uninterrupted rest is to the overall effort should accomplish this.

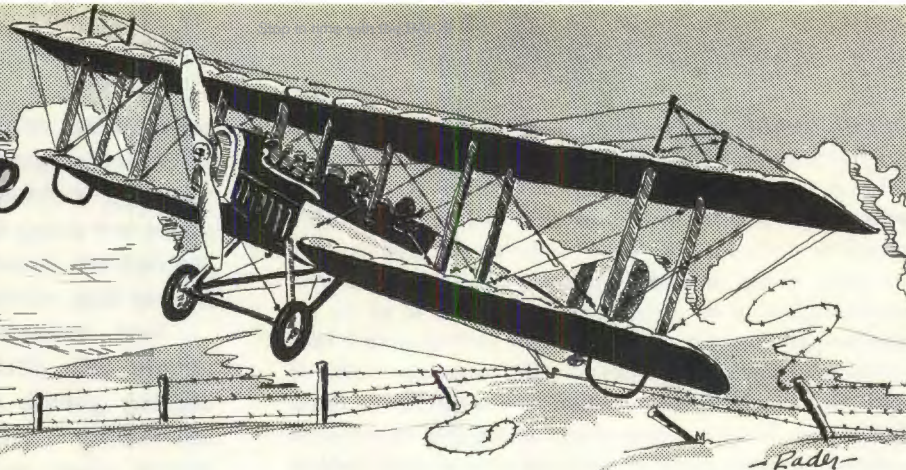
Crew conditioning type quarters would help cure some of the other points. The rest? Well, meanwhile back to the sweat shop . . .

—TAT



BUT SIR ... IT GROUND CHECKED OK !

Stop in Time with the BAK-9



When the BAK-9 was first installed, many people were rather skeptical of its reported efficiency. They were probably justified in this attitude since the box score for the previous equipment was nothing to brag about. Worldwide, the MA-1A was just breaking even with only 57 percent of the engagements being successful. It was pretty restrictive—you couldn't be too fast or too slow and the configuration had to be just right. It wasn't fair to be off center, run over the chain, snag one gear and not the other, etc. But with reports of the first few BAK-9 engagements people have started to sit up and take notice. It works!

At last it looks as if we have the answer to runway overshoots. Procedures are simple too—just drop the hook and keep the aircraft on the runway. There is no minimum engagement speed. One aircraft engaged the cable at between ten and 15 knots. At the other extreme, a successful engagement was made at almost 170 knots!

A word of caution. With BAK-9 operating as well as it does, we may begin to rely on

it too much during approaches and landings. Landing long and hot on a slick runway is still not a good procedure, especially if the chute fails. It happened to one of our friends recently. He lost his drag chute somewhere along the line and thought, "no sweat, I've got the BAK-9." He confidently dropped the hook and apparently didn't try any further braking. Unknown to him the BAK-9 was out of commission on this particular day. Luckily the MA-1A pulled him up short and the only thing damaged was the gear doors and a little of his ego. The moral of the story is that there still is no substitute for touching down on the right spot at the right speed. This, coupled with the proper braking procedures, will go a long way toward relieving that thrilling sensation of doubt.

Here is a sampling of BAK-9 barrier engagement reports:

- * An F-100 lost a drag chute when the pilot deployed it on the landing roll. Braking action was not sufficient to stop the aircraft and the BAK-9 was engaged at about 30 knots. Contact was comparable to rolling to a smooth stop with brakes.

- * The throttle of an F-100D stuck in afterburner after take-

off. Fuel became critical and the engine flamed out. The pilot landed 6000 feet down the runway, lowered the tailhook, jettisoned the tanks and deployed the drag chute. The BAK-9 was engaged at an estimated 150 knots. The engagement was successful with no aircraft damage.

- * A pilot landed an F-101 at a gross weight of 45,000 pounds. The drag chute failed to deploy because he failed to pull the handle completely out. The right main tire blew out at the 5000-foot mark making optimum braking impossible. He engaged the BAK-9 barrier at 80 knots. There was no damage to the aircraft.

We can learn several things from these reports.

- * Put the tailhook down early. If the drag chute fails you may stop the aircraft and then again you may not. Play it safe—if there is any doubt, use the hook.

- * Use normal braking until within a few yards of the cable, but don't use the brakes while crossing the cable, it may blow the tires.

- * Deceleration is positive after cable contact but not violent. It feels similar to a drag

chute, depending on contact speed.

* Disengagement and re-setting takes only minutes. Consequently, the runway is closed for only a short period.

* If an overshoot is likely

at a base that is equipped with just an MA-1A, drop the hook anyway—it will most likely catch the cable if the landing gear doesn't.

* Most bases equipped with the BAK-9, also have additional

arresting gear, such as the MA-1A, in the overrun. Therefore, your aircraft should be configured for a follow-on engagement in case the BAK-9 fails for the first time.



LT GREEN HELD the poster at arms length tilted his head critically and pursed his lips.

"Princess Ann again, sir?" asked the Old Sarge who had looked over the mountain of paperwork on his desk in time to observe the inspection. "What are they emphasizing this time?"

"Emphasizing?" Lt Green replied just a little blankly, "Oh, they're still on that fluid contamination kick. I wonder why?"

"Probably because it's needed," said the Old Sarge. He tilted back his chair and reached for his coffee mug. "As a matter of fact, I asked Sgt Deal about that very thing the last time he was thru here."

"Who's Deal?" Green asked.

"Are you making a pun, or don't you remember him? He was maintenance member on that survey team," said the Old Sarge.

Lt Green nodded his head and put the poster down. "Oh yeah,

the short soft talking chief master. He seemed real pleasant."

"That's the one," said the Old Sarge "The only reason he seemed pleasant was because we were in good shape . . . but that's another story. He was telling me that they still find outfits who aren't capping off lines on either aircraft or hydraulic mules.

"It's the same old story. They think that it takes too much time. They ought to check their hydraulic pump failure rate against ours and see how much time they're losing changing pumps."

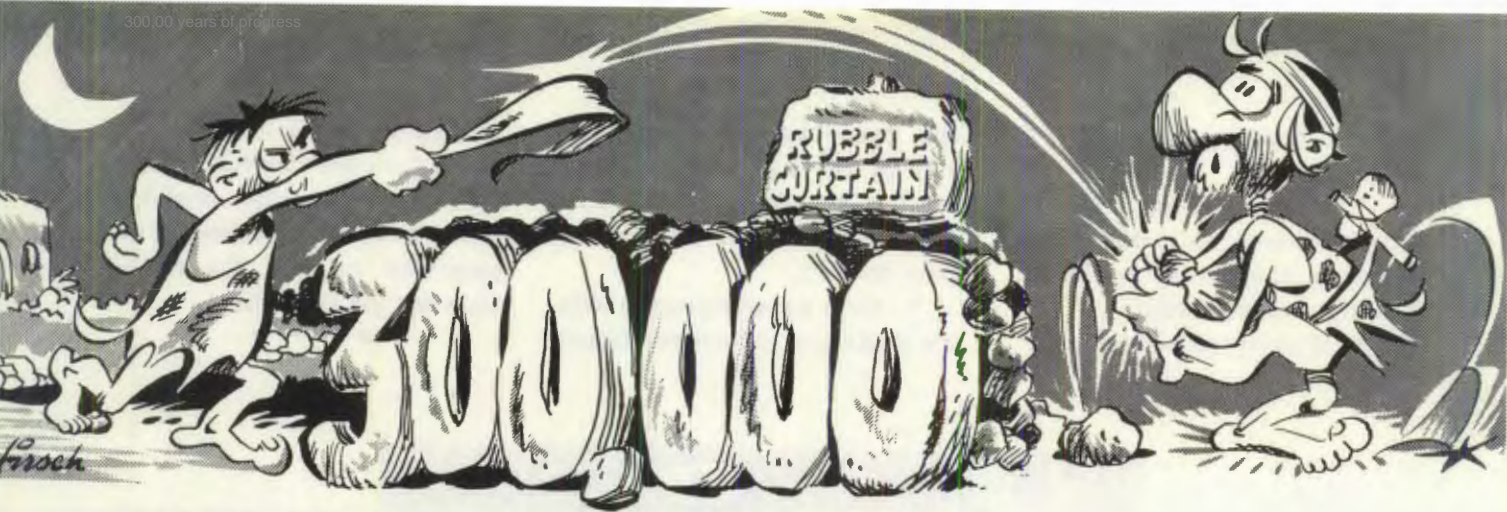
Lt Green nodded his head in agreement, then asked, "Seems to me we've always put plenty of emphasis on that subject . . . why haven't the others?"

The Old Sarge took a sip of his coffee before answering. "Not always, sir, not always. We had to learn too, but that was before you came. I hadn't thought much about fluid contamination. Then shortly after

we got the century birds we started having pump failures. At first everyone blamed the pumps. I don't know who was the first one to get smart, but it really doesn't matter. The chief of maintenance had us flush out the mules and replace all the filters. Then we took each bird and gave it the same treatment. There sure was some squawking, but we did it. At the same time we started giving right close attention to capping off lines just as soon as they were parted, both on the birds and on the mules. Just like we do today." He grinned, "It didn't come easy. We had to get pretty tough before everyone got the idea and I'm afraid I wasn't very popular around here for a good long while."

"Well, it sure pays off." Lt Green said "Let's see, we've only replaced two pumps in the last 30 days."

"Right," said the Old Sarge, "And they were both on birds from other outfits which stopped here on deployment."



YEARS of PROGRESS

BY MAJOR JACK O'BRIEN
Chief Loading Standardization Branch
Headquarters TAC

THE HUNDRED-THOUSAND Years War ended today when the Red Army surrendered their few remaining rocks and men to the victorious Blue Army. When asked to comment on his defeat, the dejected commander of the Red forces remarked, "Our throwers spent so much time looking for rocks and picking them up, that they were unable to concentrate on the mission."

On hearing this, the commander of the Blue Army revealed one of the most closely guarded secrets of the war. "In the Spring of 298,039 B.C.," he confided, "we adopted the Rock System Concept." He explained how the rock system was divided into three basic functional areas. Rock employment (the throwers), rock direct mission support (the sling loaders), and rock logistics (the rock finders). He told of the obstacles he had overcome in winning the whole-hearted support of his own staff, all of whom had been well indoctrinated

in the Find-your-own-rock concept. He told of the difficulties encountered. Of the discipline which had to be enforced to curb the mutinous attitude of certain rock-finders who resented and envied the rock throwers and their hazardous duty pay. Of having lost many highly proficient sling loaders to industry with its forty-hour-week and fringe benefits. But all these problems were resolved, and the First Rock System Battery was organized and thrown into battle. Their tremendous success and the quick victory they scored are now history.

Since the Hundred-Thousand Years War, 300,000 years ago, the Rock System Concept has remained basically unchanged. Certain refinements have crept in over the centuries, and one of the most interesting of these is the Rock Safety Program. It was established in 288,038 B.C., just 10,000 years after the close of the Hundred-Thousand Years War. In the course of these

10,000 years an uneasy peace had prevailed. The Reds were suspected of having adopted the Blue-invented Rock System Concept. Information obtained from disaffected Reds indicated that huge rockpiles were being accumulated in Red territory. The Blues stationed along the frontier became more and more jumpy, and the situation became tense.

The Blue high command recognized the potential danger, and studied ways to prevent inadvertent throwing of rocks. However, before the studies could be completed and Rock Safety Rules published an incident occurred at the frontier. Rockman Basic Melvin Souci, a washed-out rock-finder and assigned to a unit stationed at the Rubble Curtain, had somehow obtained and repaired a Class 26 sling, and carried it concealed in his Rockman's Guide. Melvin was restless one night and went for a walk along the Rubble Curtain. His thoughts were on the glory

of being a rock-thrower. Suddenly, a shooting star fell from the heavens and narrowly missed him. Like a flash, Melvin found a rock, loaded his sling, and threw it across the Rubble Curtain! A high Red official, who happened to be on an inspection tour of the frontier, was hit on his gouty foot. The war was on!

As a result of this incident, stringent Rock Safety Rules were quickly published, but could not be enforced since the war continued for some 20,000 years. However, these basic rules, revised to eliminate such obsolete terms as "sling," are still with us today.

In the 270,000 years since Melvin's War, great strides have been made in the art of the rock throwing. The first major discovery was that tear-shaped rocks could be thrown more accurately than jagged rocks. This led to the replacement of the old rock-finder with the rock-shaper, and necessitated

and had to be loaded point-down.

The next important development was the invention of the Gatling Sling. Early models of these held four to six rocks, but with the frenzy over massive retaliation, the sling capacity was increased to twenty, thirty, and finally forty rocks. Only the biggest and strongest rock-throwers could qualify to handle the forty rock sling.

The smaller rock-throwers spoke of a continuing need for limited rock-throwing, but they were ignored.

The invention of the strategic sling generated a need for several loaders per sling, and the loading crew was born. At about this same time, difficulty was found during mass-loading operations. Rocks were found installed point-up, and in some instances throwers attempted to twirl over-loaded slings, and strained their throwing arms. As a result the first Rock Data

1. Check sling decal for total rock load.

2. Rocks installed points down.

Skipping over the centuries which have passed since the publication of the first Rock Data, and the first Rock Safety Rules, we turn to the present and examine their modern counterparts.

Tactical Air Command has devoted much time and effort to adequate munitions loading technical data. Working with USAFE, PACAF, AFLC, and AFSC, procedures for safe, reliable and fast loading of many of the weapons in our inventories have been established. Handbooks and check lists for the others are being developed. Safety precautions are observed by incorporating them into the loading procedure, and then assuring undeviating check list discipline.

To assure loading capability, Loading Standardization Crews will operate directly out of Tactical Air Command Headquarters. The members of these crews are being selected on the basis of their past outstanding performance, and will be without equal, anywhere in the world.

It is a long step from the Hundred-Thousand Years War and the Rock System Concept, to today's weapons system concept, so you can be certain that when the next major conceptual break-through comes, Tactical Air Command will implement it with appropriate standard procedures.



further training of the sling loader. The tear-shaped rocks had an "up" and "down" side,

was developed and published. The first rock-loading check list consisted of but two steps:



Chock Talk

HASTE MAKES WASTE

John Heywood said it in the 15th century. Chaucer said it in the 14th while Plutarch and a guy named Publius Syrus said it even before then. In one way or another, people have been saying it ever since.

A Case in Point: After a record time engine change and further hurry to meet a tight schedule, a small tool box was inadvertently left in the engine inlet and caused foreign object damage to the compressor blades during the trimming operation.

Result: One damaged jet engine, another engine-change and at least two delayed flights.

This is not a sermon against speed and dispatch in our operations . . . far from it. But as the above incident illustrates, one moment of thoughtless haste can have disastrous consequences.

Schedules are not maintained by rushing into accidents. Very often, The hurrier you go, the behinder you get.

F-100 IRAN

Historical records on aircraft coming into the IRAN production line do not always agree with installed replacement schedule items. For example, some aircraft arrive without a replacement schedule time. In addition, serial number or replacement schedule items do not agree with serial numbers listed on AFTO Forms 781E or

100 and replacement schedule items are sometimes overdue for replacement.

The IRAN facility is not set up to replace time change items and quite often doesn't have parts on hand. The result is that you have a longer than necessary wait for the aircraft.

To get the most out of the IRAN program, and to avoid delays, keep your aircraft historical records accurate, replace time change items on time and before sending your bird to IRAN, or send 'em along with it. TAC message DMEMWOO-05-1966, 14 May 62, gives specific corrections for this problem.

Since proper record keeping must begin on the flight line with the documentation of replacement items, a training program could do much to raise the level of accuracy.

SERVICE TIP

Phillips head, Reed Prince or slotted screws can often be very hard to remove. An airline mechanic says that a small amount of valve grinding compound applied to the screwdriver tip provides amazing gripping power and helps you loosen the tightest screws. The compound also works well on pneumatic screwdriver tips. Be careful though, because grinding compound can cause serious trouble if it finds its way into engines, pumps, actuators, etc.

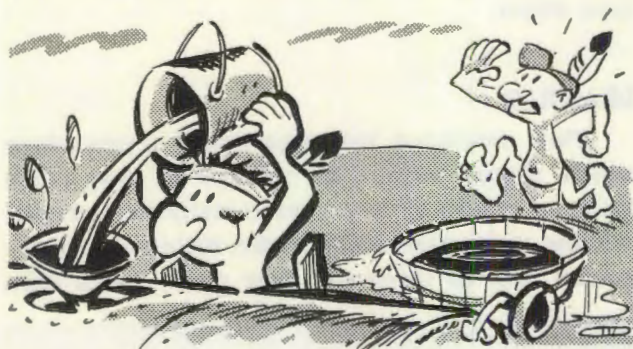
—FSF Aviation Mechanic's Bulletin

ALCOHOL POISONING

Just as the pilot lifted the T-33 into the air its engine lost power. He landed on the remaining runway and took the barrier. Everything clicked and the engagement was a success. The power loss was caused by aluminum hydroxide corrosion in anti-icing lines, air adapter screens, fuel nozzle screens and the fuel nozzles.

This is a well recognized problem that can be easily overcome by preventative maintenance. For this reason, there is no excuse for recurrences. In this case no one was hurt and the aircraft was not damaged. Next time we might not be so lucky.

Incidentally, the March Aerospace Accident and Maintenance Review has an excellent article on this subject called, "Back Where We Started" it should be mandatory reading for everyone who services and maintains T-33 fuel and alcohol systems.



LACK OF SUPERVISION

Recently, on a non-TAC base, a man from a visiting squadron drove a refueling tanker under the fill pipe and proceeded to open the tanker cover and place the fill pipe in the tanker to fill it with fuel. The Fire Chief intercepted the man and learned some startling facts:

The man had no previous instruction in the operation.

He had driven the tanker into a hazard area before receiving a safety check or authorization from the Supply Fuel Supervisor.

The tanker had not been grounded with a static ground.

TAC ATTACK

He was operating yellow equipment without a driver's permit for such equipment.

This is a case where the entire base and its personnel were endangered because of an extreme lack of supervision.



MISGUIDED MISSILES

A cargo hauler blew a tire on the landing roll and during the inevitable investigation the safety people found that the cargo was not adequately secured even though additional tie-down straps were available. Serious damage to the aircraft or loss of life could have occurred if the cargo had broken loose when the tire failed. Loose items in an aircraft can be deadly missiles, consequently, proper cargo tie-down should be re-emphasized to responsible personnel.

TIRE TRIP TIP

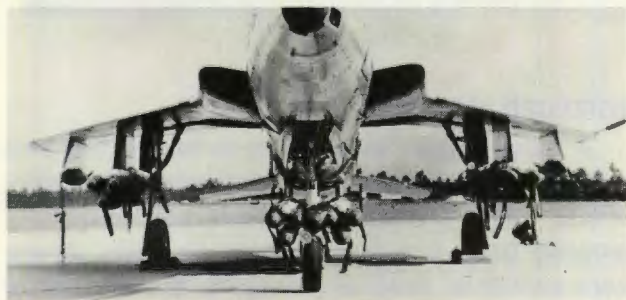
Caution should be used when transporting built-up aircraft wheels and tires by air in pressurized aircraft. The tires normally carry considerable pressure and a sudden loss of cabin pressurization could cause an instantaneous stress sufficient to cause wheel and tire failure. To prevent this, tires should be deflated to approximately 20 pounds pressure prior to shipment by air. This pressure is enough to keep the tire properly mated to the wheel. As a double check before flight, crew members can kick or strike the tire . . . the resultant tone or ring will give a good indication of tire pressure.

DID YOU KNOW

If you wash your aircraft without making certain that the wheel bearings are properly protected you are required to remove the bearings, clean, dry and repack them. T.O. 44B-1-3 requires this. It has quite a bit of additional information on the care and handling of bearings and races. It's in the book, take a look!

INADVERTENT RELEASE BRIEFS

Periodically the TAC armament section is going to highlight some of the critical spots in our complex armament release systems. They will do this by sending out a brief on the more pertinent inadvertent release incidents. Each brief will be a letter which summarizes an incident, gives the cause and tells what action you should take to



prevent a similar one.

Be on the lookout for these letters and make certain everyone who deals with the armament release system gets a chance to read them.

LOST IN TRANSIT

Investigators are still wondering what caused an engine to fail and induce a recent aircraft accident. They shipped several suspected components to the AMA for TDR... but unfortunately the parts got lost en route.

Page 23 of AFR 127-4 gives the procedure to follow when shipping items such as these. Accident board members, particularly maintenance members, should read and heed this paragraph. More important, they should make certain that these instructions are followed when the accident aircraft parts are sent for evaluation.

C-123 WHEELS

Five C-123 main gear wheels have failed due to corrosion and metal fatigue since the last of April of this year. As a result, all TAC C-123



units must perform Zyglo or dye checks of each wheel prior to building up wheel and tire assemblies.

OOAMA will be publishing a TCTO on this and the tech order will remain in effect until current main gear wheels are replaced with a new split type wheel.

DRAG RAG

This command has established a procedure which should reduce the number of drag chute failures caused by improper installation and misrouting of the pilot chute bridle. Maintenance personnel are to leave the drag chute doors open



after they have installed the drag chute. The pilot, during his pre-flight check, will inspect drag chute installation and watch the crew chief close the doors. Any comments?

Well Done

well done



PILOT OF DISTINCTION

CAPTAIN LEONARD S. CZARNECKI of the 4520th Combat Crew Training Squadron, Nellis Air Force Base, Nevada, has been selected as the Tactical Air Command Pilot of Distinction. During a TACAN approach in an F-100C, Captain Czarnecki heard a loud whining noise and noticed that the utility hydraulic pressure was zero. On the downwind leg he put the gear handle down and pulled the emergency extension lanyard. Both main gears indicated safe but the nose gear came only part way down. As the Mobile Control Officer read emergency procedures to him, Captain Czarnecki tried them without success. While the runway was being foamed, he climbed to 8000 feet and tried getting the gear down by pulling G's. In a final effort, he flew a steep final approach and bounced the aircraft on the runway. The nose gear locked into place and Captain Czarnecki completed a successful landing. The nose gear malfunctioned because of a faulty accumulator. Thanks to Captain Czarnecki's skill, a serious accident was averted.

From time to time we hear of people doing a really exceptional job. Capt C. Armstrong, Jr., from the 4520 CCTW, was the latest to fall in this category. He was Mobile Control Officer when a student pilot in an F-105D taxied onto the runway to take-off for his first unsupervised transition mission. As the aircraft started to roll, Capt Armstrong noticed that left aileron and the leading edge of the stabilizer were deflected full down. He immediately advised the pilot of this unsafe control configuration and the pilot aborted the mission. Investigation revealed that the pilot had inadvertently engaged the auto-pilot switch. Capt Armstrong's attention to duty and his decisive action probably prevented an aircraft accident.

We are proud to recognize and commend three Safety Officers from TAC for their outstanding achievements while attending class 62-4 of the USAF Flight Safety Officers course at the University of Southern California. Captain Jerry L. McQuitty, 4500 Air Base Wing, Langley AFB, Virginia; Captain Robert G. Young, 4505 Air Refueling Wing, Langley Air Force Base, Virginia; and Captain James A. Neher, 401 Tactical Fighter Wing, England Air Force Base, Louisiana, all received straight A averages for their class work. Captain Neher also attained the added distinction of being the top man in the class.

CREW CHIEF OF THE MONTH

For his excellent performance as an RB-66C Crew Chief, STAFF SERGEANT JOHN A. EVANS of the 363d Tactical Reconnaissance Wing, Shaw Air Force Base, South Carolina, has been selected as the Tactical Air Command Crew Chief of the Month. Sergeant Evans maintains his aircraft in an extremely efficient manner, keeping it always clean and ready for scheduled missions. During a recent 15-day period, his aircraft flew nearly 19 hours in six flights even though it was grounded for a double engine change during the period. The engine changes were required for T.O.C. Sgt Evans is very cooperative and often helps others in his flight maintain high in-commission rates on their aircraft.



RECOGNITION

MAINTENANCE MAN OF THE MONTH

TECHNICAL SERGEANT EMERSON L. STARKEY of the 4520th Combat Crew Training Wing, Nellis Air Force Base, Nevada, has been selected as Tactical Air Command Maintenance Man of the Month for his excellent performance as a Weapons Maintenance Supervisor. Sergeant Starkey is thoroughly familiar with special weapons loading procedures and is well qualified to trouble-shoot all F-100 weapons systems. He is careful to insure that all maintenance performed under his supervision is accomplished in a superior manner. He is an extremely capable individual. Recently he was recognized for the training and valuable assistance in special weapons loading of F-100D and F-105D aircraft he gave to an Air Training Command Instructor Training Team.



TAC TALLY

A COMPARISON OF TACTICAL AIR COMMAND ORGANIZATIONS

JUNE TALLY GUARD AND RESERVE

UNIT	MAJOR	MINOR

MAJOR ACCIDENT RATE 1 JAN - 30 JUNE

TYPE	1962	1961
ALL	13.9	15.0
F-105	42.4	18.3
F-104	11.8	83.0
F-101	26.2	11.2
F-100	18.4	16.1
F-86	84.0	23.5
F-84	16.8	61.1
B-66	0	34.6
T-33	2.9	5.1
KB-50	18.6	10.8
C-123	16.6	6.7
C-124	0	0
C-130	0	9.8

JUNE TALLY

ACTIVE UNITS

UNIT	ACDNTS*	INCDTS
831 AD		16
832 AD	2	10
4 TFW		1
31 TFW		7
108 TFW		3
113 TFW	2	26
117 TRW	2	1
121 TFW	1	4
122 TFW		2
131 TFW	1	1
401 TFW		11
354 TFW	1	1
4510 CCTW	1	37
4520 CCTW	5	27
837 AD		5
839 AD		1
64 TCW		
435 TCW		1
442 TCW		
464 TCW		2
4505 ARW		1
1 ACG		

*MAJOR AND MINOR

ACCIDENT FREE

(MAJOR & MINOR)

JET			
ACTIVE	MONTHS		ANG
31 TFW	8	43	123 TRW
401 TFW	8	11	107 TFW
CONVENTIONAL			
ACTIVE			RESERVE
4430 ATG	43	67	434 TCW
314 TCW	35	56	94 TCW

