

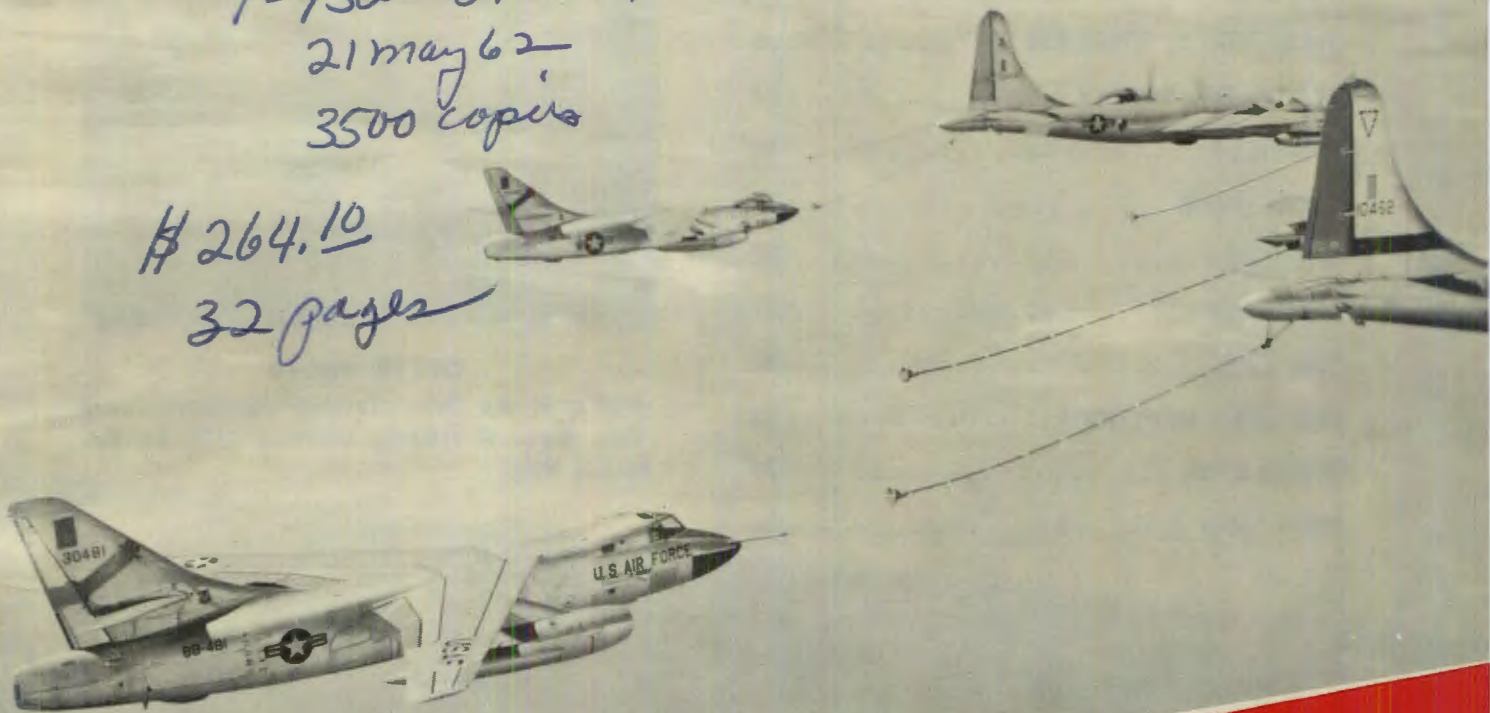
JUNE 1962

# TAC ATTACK

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# TAC ATTACK



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### COVER PHOTO

B-66's of the 363rd Tactical Reconnaissance Wing pause to refresh, courtesy 4505 Air Refueling Wing

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USAF Recurring Publication 62-12

*"Safety is an individual matter that involves everyone connected with an operation."*

# General Sweeney on Safety



When you get right down to it, accident prevention is a personal matter. A personal matter that starts with the engineers who conceive one of our weapon systems and carries through with the men who build, maintain, support and fly it. Let any one of these individuals fail to do his job correctly, and the potential for an accident has been created. Add several of these failures together and an accident rapidly becomes inevitable.

Much of our safety effort is expended toward locating and correcting these errors, while the rest of it is used to create an atmosphere that will reduce the possibility for error.

From this, it is evident that it only takes a few individuals to spoil a good safety record. Conversely, it is impossible for a few individuals, no matter how dedicated, to create a good safety record without obtaining the support and cooperation of everyone. The field is too large, the operation too complex.

If you cling to the 'kick the tire, light the fire' concept, follow established standards only when your supervisors watch you, or during evaluation checks, if you approach your job with anything other than a professional attitude, the accident prevention program isn't reaching you and eventually you will help add to the pile of aluminum in the salvage yard.

If you are in this category and are a supervisor or in a position where others will follow your example, you may not be directly involved in the accident. However, you will be just as responsible as the pilot at the controls or the mechanic who tightened the bolt without using a torque wrench.

There is only one safe course of action . . . the course that has been charted for us by technical orders, regulations, and other standards. For this command to be completely effective, everyone must follow the charted course.

# moment of deci



**T**HE LEG WORK was completed--all but climbing the stairs to the control tower. The crews had been briefed and the practice

runs indicated that all aircraft should have enough fuel provided some unforeseeable emergency didn't occur.

As they rounded the

umpteenth flight of stairs leading to the tower, the Capt said, "Well, Sir, (puff-puff) it looks like (puff) it's all over (puff-puff) but the shouting."

# sion

"Not exactly young man," said the Col, "We've still got a few (puff) problems to consider. Incidentally you sound as though you're not up to par on your 5BX."

"I'm afraid not," replied the Capt as they entered the control tower, "and that promotion party at the club last night didn't (puff, puff, puff) help any either. But tell me Sir, what other problems are you thinking about?"

With a sweeping motion from left to right the Col gestured toward the airfield and said, "Check the lay of that jet runway. Then check the wind direction and velocity. Off hand it looks like a 90 degree crosswind which means the wind velocity will automatically give us the crosswind component. At present it's holding steady at 20 Knots . . . but unless that forecaster is wrong, it'll be gusting 28-30 Knots from the same direction by the time all these aircraft return. The B-66's and 104's are restricted to a 20K crosswind component, and the

tires on the 104's are getting a little thin. They didn't bring any spares either. None of the fighters will have any fuel to spare . . . and check those patches of blowing dust. Now, do you think that we're thru making decisions?"

"Er-uh--er--No Sir, not exactly," replied the Capt, "but if there's likely to be trouble why don't we just play it real cool and suggest they call the whole show off?"

With a no-wonder-you're-still-a-Captain inflection in his voice, the Col replied, "Frankly, the mission was laid on by THE Headquarters. It has an international flavor and unless the weather goes below minimums, certain people will never buy a no-show. The mission must go and safely at that."

The order called for two fly-by's at 1200 feet indicated...one at 300 KIAS and one, 35-minutes later, at 500 KIAS. The line up called for two RB-66's, two F-100's, two RF-101's, two F-104's, two F-105's, two F-110's and one KC-135, with 2000-foot spacing between elements. Timing requirements for each pass were critical. The lead element could not be one second early and no more than twenty-seconds late. Time had to be precise from start to finish. High level people were on the horn a couple of times a day asking for detailed briefings. The spot light was really on.

During the first practice, D-day minus two, one element of fighters had to scoot for home

with bingo fuel before making their second pass. A little closer planning trimmed 16-minutes from the mission and provided the fuel for a second pass.

D-day arrived, the KC-135 was circling until the others got airborne. He had plenty of fuel---about 15,000 pounds to spare. He also had a drogue installed. This gave an ace in the hole for use in an emergency.

Five-minutes before start engine time the forecaster still insisted that the winds would get up to 30 Knots directly across the runway, but the present velocity made his forecast look doubtful. This doubt raised hope. The 66's were in the lead and were responsible for timing.

Engines were started. The Capt watched the Col for some indication of a decision. The phone was silent. Apparently Headquarters was leaving the final decision to the Col. Good thinking . . . he was capable and was closest to the problem.

As the aircraft started taxiing, the Col's attention darted back and forth from the wind indicator in the tower to the aircraft. The Capt knew the decision was made by the determined look on the Col's face—it was GO.

They all had wheels in the well in less than two minutes; circled the field for join-up, then turned on course.

The Col picked up the phone and called the project C.P. "They're pointed at you," he

said, "and if the wind doesn't get any worse, we'll recover them back here."

After the lead aircraft called for a channel change to tactical frequency nothing was left for those in the tower but a cup of coffee and anxious waiting.

The phone rang and the Col grabbed it off the hook. A smile lit his face as he said, "Wonderbar! Now all we have to sweat is fuel for a thirty-five minute loiter and the winds at landing time. Be sure to call me immediately after the last pass." He placed the phone on the hook and turned to the Capt, "The first pass was perfect—both timing and position."

It looked like a perfect mission, then Base Ops called . . . The primary alternate had issued a severe weather warning effective immediately and forecast to last four hours. It called for winds up to 35 Knots, at least 40 degrees off the runway heading.

Command Post at the site called and said the second pass (high speed) looked real good and that all aircraft were headed back to the staging base.

A dust cloud northwest of the field started moving in and wind velocity started bumping 28 Knots, still 90 degrees to the runway. As the flights checked in on tower frequency one called "Bingo".

Surface vis, which had been more than ten miles all day, began to decrease rapidly. By the time the first element called for landing the visibility was less than three miles. The wind

began to shift rapidly, a change not covered in the forecast.

Blowing dust had never been a problem in this area yet there was no doubt that a dust storm was moving in. The Electro-Writer in the tower was working overtime recording the latest observations. The observer was really on the ball too; coming through with new observations every two minutes. The latest showed -X, two miles in blowing dust, wind 20 plus 28.

The Capt watched the Col and saw a frown crease his brow. This was the moment of decision.

The Col stood tall as he quickly reviewed the entire situation. In clear, crisp tones he began to give orders. "Change traffic to runway 04. Notify the fire department to change the barrier. Rotate GCA for 04 and advise them to stand-by. Advise Rapcon that we've got six flights of two coming in. Broadcast the visibility, winds, altimeter setting, and the runway change in the blind on guard. Tell them to call GCA immediately if they lose sight of the field. Advise the KC-135 to circle above the dust level until released." He methodically continued to give the instructions necessary to complete his plan of action.

The Capt was amazed. He had been around a few years and had seen frantic panic cause some bad decisions. Such was not the case this time. The expression on his face changed from curious anticipation to that of admiration.

By this time the first air-

craft had landed and the pilot reported that he had no trouble keeping the runway in sight and that the wind was straight down the runway.

The dust storm moved away from the field as the last aircraft landed. The Col cleared the KC-135 to proceed to its home base, thanked the tower personnel for their cooperation and started down the steps.

"Beg your pardon, Sir," said the Capt, "But I really admire the cool way you handled the situation. I've seen some people who would have really clanked up under all that pressure. Would you mind revealing your key?"

"Not at all," replied the Col, "I'm always happy to pass on the benefit of my experience to junior officers." He leaned on the rail of the stairs and continued, "After more than 20 years in fighter operations I've learned to turn all my attention to the problems at hand. I don't worry about what will happen to me if I call the shots wrong. Instead, I use that time to evaluate all the facts.

By doing this I find the decisions in most cases become obvious. Well, I've got a plane to catch." With that he disappeared down the steps.

"Sound advice I'm sure," mused the Capt, "but I don't have my 20 years in yet."

As he started down the steps he thought about how he had puffed his way up and mumbled, "If I don't get with the 5BX program I'll probably never make that 20 either."

# OLD TAT



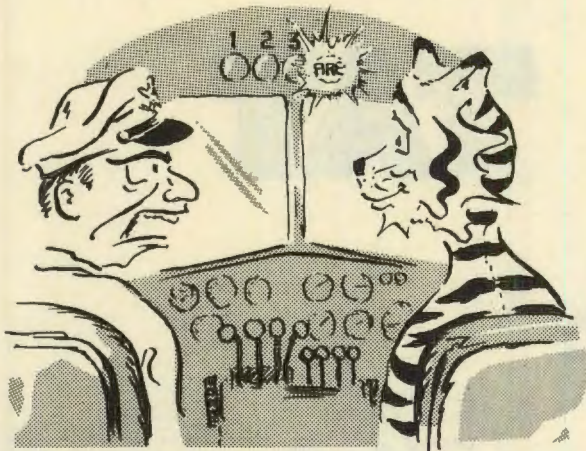
NOW THAT MAY has left with a flick of her skirts and June arrived in her short shorts 'tis once again time to remind you happy birdmen that TAT's law still holds true. TAT's law, for the benefit of recent graduates is, "The hotter the weather the shorter the shorts and the shorter the shorts the longer the takeoff roll." We might add that from a pilots' point of view the effect of this law becomes more pronounced the higher you get. We mean cow pasture height.

A message from the head Bird Watchers tells us that already so far, one T-birdman got cold feet on a hot May Day at one of the higher altitude bases. Didn't think his bird was making the grade and dented it calling off the take-off. Reminds us of a take-off we made at Wendover AFB one summer day back in the early fifties. We didn't compute our take-off distance because no one required it and because we didn't think that it would be critical—we were even more stupid in those days than we are now. Anyway, that blessed runway was about 8000 feet long. We massaged blame near every foot of it and tickled sage brush for a good distance before nursing up flaps and starting a climb. It took a lot of will power to leave that stick alone during the last one or two thousand short feet, but with between 105 and 110, we'd have never hacked it had we tried to yank

the bird off early. Needless to say, the first thing we did when we landed at our next stop was to dig out the book and figger out the roll . . . thinking we had a sick bird. The bird wasn't sick . . . and right then and there we started figgering take-off rolls anytime we operated from the hotter or higher airfields. Incidentally, TAT's system of leaving the machine alone until it has flying speed is the only way to get airborne when things are marginal. A good smooth technique goes a long way towards getting a bird to verify the numbers in the handbook.

Oh yeah, when flying T-birds, 84's and other machinery without nose gear steering—get off brakes and use rudder as soon as it gets effective in your efforts to stay lined up with the launching pad.

THE AVERAGE FIGHTER pilot visualizes multi-engine operation to be somewhat less demanding than his own. He figures with two, three or more troops to handle the work load and a similar number of engines to keep the whole works airborne, that most emergencies can be handled without bothering to set down coffee-cup or turn off Charlie, George or whatever-his-name is that always seems to do all the flying on 'em.



**WHAT DO YOU MEAN, "TELL  
NUMBER FOUR TO EJECT!"?? —  
- FEATHER IT!!**

Frankly, your old TAT has been kicking the little ones into the blue too long not to subscribe to some of this . . . but the truth is that a big bird emergency can get every bit as hairy and require just as much, or more, rapid reaction as a panic in a fighter cockpit. Biggest difference is that with fan vans there are always witnesses and that the principal people involved have less chance to dress up the details into an exciting story.

However, every now and then one comes in that doesn't need dressing up. Take a recent C-119 flight. Just after getting the wheels up on takeoff an intense fire broke out in the junction box on A deck, right behind the pilots. The crew took one quick look at the fire, a second one at the remaining runway and put the gear handle back down. As soon as the gear indicated safe, power was chopped and the aircraft landed. Maximum braking and reverse thrust brought 'em to a safe halt. Cutting electrical power soon brought the fire under control, but not before causing a couple thousand bucks worth of damage. Consider how much more it would have cost had these troops decided to get their burning bolt bucket around the pattern or set it down before the gear locked . . . A tip of our old hard hat to the crew involved . . . You done good!

ANOTHER ITEM from TAT's Expedited Exit Department . . .

As the F slid down the runway, the troop in the

aft cockpit called the front seat pilot several times but didn't get an answer. He figured the guy was unconscious, so he unfastened his seat belt and tried to reach the canopy unlock handle in the front cockpit.

The pilot up front got busy about then and unlocked the thing. The aft troop wasted no time. He opened the canopy electrically and scrambled out with his 'chute on but with the chest strap unfastened. The chute slipped off his shoulders and caught fire when he ran through a pool of burning fuel.

Meanwhile, up front the other pilot very methodically lowered his visor, unfastened his lap belt, harness and equipment leads . . . calling each step over the intercom for the benefit of his departed companion. Clear of everything, he got out in time to help an air policeman get the burning chute and survival equipment off the other lad. It wasn't easy, the leg straps were tight and the snaps balky. The aft seat pilot got some pretty nasty burns before they got it off.

TAT has continually favored getting out of a crashed bird without chute and survival equipment. However, we've been careful to qualify this . . . advising you working troops to give both systems a try. No! No! Not in an actual smash! Give 'em a go in your egress training drills... Find out which system works best FOR YOU. Then stick with that system and practice it.

One word of caution. Everyone who gets into serious trouble scrambling out of a scrambled aircraft seems to do so because they undo PART of their equipment and not ALL of it. If you suspect that you'll be anything but cool and calm during one of these mix-ups, seriously consider departing with full gear attached. In short, either go whole hawg or none.

Meanwhile, we'll continue to hope that you don't have to put your planning and training into practice.

THE FLIGHT WAS to terminate at a mid-western airbase. The pilot checked notams before filing and found only one minor one, so he launched. Five minutes from destination the center called and said, "...base ops advises no food, no transient quarters, and unlimited fuel



## LEFT FIELD BASE OPERATIONS



... LET'S RECOMMEND 'EM TO DUNCAN-HEINZ delay." Or, as the pilot put it, "Go away!"

He checked and we checked ... neither the in-flight supplement nor the NOTAMS had anything to say about limited facilities. It would have served this bunch right if this pilot had gone ahead and landed just for the privilege of punching some of these unfriendly people in the nose.

From this you can see that altho the NOTAM system has improved quite a bit, it still isn't foolproof. Reminds us, another pilot was complaining because he launched for a TAC base which uses another base's omni station as a recovery fix. When he arrived he found the omni down. When he called this to the attention of the Ops people at the TAC base, they shrugged it off saying that it was being carried on a NOTAM by the other base . . . It would appear to this old tiger that this bunch was losing sight of the true purpose of the NOTAM system . . . the warning of inbound pilots on what to expect. A warning isn't much good if it's half hidden in the shuffle . . . and we'd bet a bent nickle that the Ops people would be highly indignant if they filed for point X and had to check NOTAMS for point Z to get an accurate picture of conditions at X.

AIRSPPEED WAS LOW but in tolerance at the line speed check, so the B-66 pilot continued to press on. Just beyond the second line speed check the bird lurched and speed didn't build up as rapidly as usual. Lift off was doggone near 2000 feet beyond the computed distance.

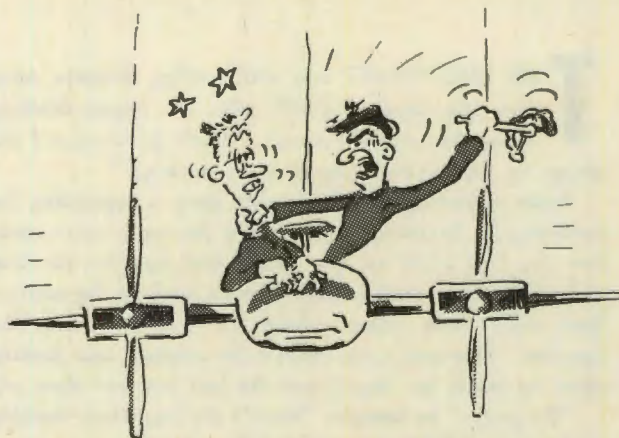
Airborne, but concerned, the pilot rechecked the cockpit two or three times before locating the trouble . . . the parking brake! It hadn't fully released.

## TAC ATTACK

Another pilot checked the bird over from the air and couldn't find anything amiss and eventually, the mission was terminated no sweat.

Overheat apparently caused brake expansion and brake drag then increased as the take off progressed. Cause of trouble was most simple. The system hadn't been properly lubricated. Nuff said?

TWO WELL EXPERIENCED pilots from another command were flying a U-3 on a VFR flight plan between point Able and point Sugar. About midway, while cruising at 3000 feet, the visibility dropped and they decided to make a 180. As they turned, number two engine dropped 10 or 20 RPM then started fluctuating. This was accompanied by complete loss of oil pressure. Almost immediately the engine froze. To compound the situation, the prop stuck in flat pitch and would not feather. Then, to confound the whole deal, the copilot feathered number one and down came one U-bird. Before the pilots could nurse number one back to life, they were sliding to a halt with their aircraft a total loss. Both



were shaken up, one receiving a wrenched back.

An old, old problem that keeps coming up from time to time. Too quick to react. Better to be slow and sure than quick and wrong. TAT admits that it isn't easy to stay calm and analytical when things are going wrong . . . but if you know your aircraft and are thoroughly familiar with the emergency procedures, you will find yourself less apt to get into this kind of scrape. The difference is confidence.

—TAT—

## 12AF TAKES A LOOK AT F-100 TIRE PROBLEMS AS SUMMER APPROACHES

Capt Darlington writes with first hand knowledge of the tire failure problem. He was at takeoff speed in the F-100 in this photo when he heard a loud pop and saw chunks of tire flying in front of him. Observers were of the opinion that he was too frightened to do anything but hang on, hence made a successful takeoff. Darlington attributed it to impeccable airmanship. Slip-stick artists calculate a section of tire struck the wing with a force of 1805 pounds 2-1/2 ounces . . . poking a hole and knocking out the #1 flight control system.



**T**HE LIEUTENANT was still making distance away from the burning F-100 when he began thinking about the accident board. "Don't know what I did wrong, but sure as hell they'll find something."

While a burning F-100 doesn't have a reputation for exploding in Technicolor, he took a few more steps away from the bird when he saw smoke boil up from the drop tanks which lay several hundred yards back up the runway. Must have been about where he went off onto the shoulder. This was some relief—the airplane was joshing about so much, he wasn't sure he had punched them off.

"By golly," he thought, "there's the drag chute hanging on the bird. I didn't forget that dude either."

He could see the Old Man's staff car now, churning up the parallel and about to pass the Safety Officer's orange and white jeep.

"Dammit! They've got weeks to work me over and I've got a half minute to get my story straight about an emergency that lasted seconds."

He was pretty certain that the trouble started when a tire blew as he rotated the nose for takeoff, but things got so shaky he couldn't tell whether it was a nose or main tire. Now, the bird was sitting on its belly, burning in the grass beside the overrun, so he still couldn't figure which one.

# TIRE IRED IRELESS

CAPT R. E. DARLINGTON

*He'd get a few moments to kick his story around, maybe more if the Doc carted him off to the hospital . . . but the Old Man was already passing the meat wagon.*

The crew chief gave the tires a thorough inspection that morning. They could take one more heavyweight takeoff before they would be changed at 40 points. They had taken seven previous takeoffs with full 450-gallon tanks and had a total of 35 points. All tires were serviced to the correct pressure, the proper low-pressure air source was used, and the tire pressure gage was color-coded to show current testing by the PME Lab.

Both the pilot and flight leader carefully computed takeoff performance since neither of them had ever been overjoyed with the way the bird staggers off on a summer day at 37,000 pounds gross. Nose lift-off was figured to be 160 knots at 4200 feet with takeoff at 175 knots and 5000 feet.

They taxied about two miles to get to the runway but took it easy and avoided rough spots. No sweat from debris on the real estate—this was checked every morning by no less than the wing commander himself.

The lieutenant released brakes fifteen seconds after the leader rolled. Just as he applied back pressure for nose lift-off, the right main tire blew. The nose of the aircraft immediately veered to the right and all hell broke loose. Airspeed was above 150 knots when he started feeding in the back pressure, so he tried to continue the takeoff. At this point the aircraft was shaking so badly he

couldn't possibly read the instruments.

The lieutenant had his hands full just hanging on and trying to establish directional control. Still, he punched like mad at the panic button to clean off his bathtubs and get airborne. Suddenly he realized this was a real sporty exercise—he was now in the awkward position of having his left leg fully extended, right hand holding aft stick, while trying to lean forward and punch a blurred panic button with his left hand.

He was finally able to steady his hand against the panel and work his thumb into the button recess, but never heard the squibs blow. The lieutenant wasn't sure that he attempted to use nose wheel steering but it really didn't matter, since he had been trying primarily to get the nose off in case the tanks had blown.

He had punched them some seven seconds after tire failure—as the bird went off the right side of the runway, so this was too late to help. The aircraft bounded through the grass and seemed to quit accelerating. He couldn't get the nose up, so he stopcocked, pulled the drag chute and rode it to a halt, shearing a few odd landing gear in the process. He was uninjured.

This slightly dramatized true story had a happy ending for the lieutenant. However, it wasn't a happy ending for Twelfth Air Force.

This was one of three 12th Air Force F-100 major accidents resulting from tire failure during the first half of 1960. Three more occurred in 1959, with one in 1958. This, obviously is progress in the wrong direction.

These seven accidents killed two pilots, destroyed one F-100F, five F-100D's and sent one F-100D to the depot for a big repair job. Significantly, all failures occurred at or slightly before the aircraft reached the lift off zone during takeoff roll.

*The investigating board did kick the accident around for a matter of weeks and when they finished, the Lieutenant was handed a little surprise. They said, "The pilot was well versed on his emergency procedures and displayed outstanding knowledge of all phases of operation pertaining to the F-100.*

*"Primary cause, Materiel failure of the right main tire under normal operating conditions while the aircraft was on takeoff roll. Reason for failure is undetermined."*

During the first half of '60, three other TAC pilots barely hacked tire failures on takeoff. One completed takeoff, mainly because he was able to clean the tanks off on his first punch. Another completed takeoff because he was clean to start with, while the third was fortunate enough to roll off the side of the runway without collapsing the gear . . . (He did clean the tanks on his second pass at the button but only after the bird was headed off the runway.)

As the size of the problem became apparent, 12th Air Force took action to correct specific cause factors and established a program to:

- \* Require tire gage calibration every 30 days. Gages were color-coded to indicate compliance and additional gages issued so everyone who needed one would have it.

- \* Direct maintenance people to use low pressure air for servicing tires.

*The high pressure compressor on the MA-2 is NOT a proper source. Tires cannot be serviced accurately with it and can be damaged or EXPLODED!*

- \* Place considerable emphasis on keeping hangar areas, ramps, taxistrips and runways clean to prevent tire damage.



- \* Initiate the tire replacement point system and require a Form 781 entry giving inflation pressure and take-off points for each tire.

*F-100 tires are operated at the upper limit of their design load capacity. Takeoff tire failures are caused primarily by heat damage to the nylon cord body. Damaging heat is caused by flexing at high speed on heavyweight takeoffs and this heat damage is accumulative. There is no satisfactory way to inspect for this cumulative heat damage. Heat-sensitive, temperature-indicating materials were tried, but didn't pan out.*

*Hence, the decision to replace tires at a predetermined*

number of points based on the number of takeoffs and the gross weight at takeoff. The system is established by T.O. 1F-100-777. At Nellis and Myrtle a test project is now under way to see if point limits can be raised on 22-ply rated tires and wire-impregnated ice tires.

\* Direct close attention to keeping tires properly inflated AT ALL TIMES.

Abuses of this requirement can occur when aircraft remain idle for extended periods. For instance, an F-100 may sit for an extended time during a periodic inspection. If the wheels are not turned every 24 hours and tire inflation checked every 48 hours, flat spots develop and



pressure is lost at a rate of about 5% per day (max allowable for tubeless tires). If the aircraft is towed to and from the trim pad before the tires are reserviced, the damage could result in failure on a subsequent takeoff.

\* Get a better tire. In July 1960, a joint TAC-AFLC-12AF conference started the ball rolling on the 21,000-pound, 22-ply rated tire.

\* Limit inner tubes to one time use only.

Consumption records clearly indicated tubes were being reused.

\* Require all crew chiefs and tire shop workers to read T.O. 4T-1-2 and 4T-1-3, the old and new testaments on aircraft tires.

\* Have commanders at all levels personally emphasize to pilots the need for using proper taxi speeds and aircraft ground maneuvering techniques.

\* To make it easier to maintain directional control during a tire failure abort, T.O. 1F-100-738 was authorized to be complied with at wing base level.

This T.O. refined early model aircraft, so nosewheel would engage anytime the steering button was depressed. Pilots could now be certain that they engaged it.

\* Change the F-100 flight handbook emergency procedure to require jettisoning stores should a tire fail on take-off.

In spite of the brush fires that were put out along the way, it remained apparent after the third accident in 1960, that the corrective effort was not keeping pace with F-100 heavyweight takeoff operations. While solutions had been applied to specific problems, as yet nothing had coped with tire failures under "normal operating conditions." The 22-ply tire, which was to increase operating tolerances, was still months away.

Then we enjoyed a minor breakthrough.

Of the seven accidents, six of the blowouts occurred in the zone between nose liftoff and computed takeoff. The one exception involved a tire known to be underinflated. Movies of takeoffs showed that maximum strut compression and tire deflection occurred just as the nose was rotated. Obviously, the rearward C.G. shift wasn't being compensated for by the increased angle of attack. This caused max deflection at just about the highest rotational speed. Tire design deflection limit of 32% was exceeded. Small wonder they blew!

This was when partial flaps for take-off were made SOP throughout Twelfth and TAC. It wasn't a new idea. NAA had tried to sell an ECP for 3-position flaps at least a year earlier, but no one had money for F-100 mods at that time. We had been using partial flaps for inflight refueling because they improved the low-speed lift/drag ratio. NAA had stated that partial flaps would also reduce takeoff speed 10 knots and the roll some 10%. Two TAC units had been experimenting with partial flaps and verified the improvement in takeoff performance.

This sounded good, so we took pictures of a tire and strut on a partial flap, heavyweight take-off. The result? Less squat on rotation.

Operation with partial flaps wasn't all beer and skittles, but was a calculated risk well worth taking. Pilots were required to almost break their arm (and neck) reaching back to poke in a circuit breaker to retract flaps after takeoff. Some enter-

prising troops at England AFB installed a flap interrupter switch near the throttle quadrant as a temporary fix. The 3-position flap mod has since been purchased and is now being installed.

The study of takeoff films nailed one other sale . . . 12AF Maintenance had been trying to justify higher tire pressures in order to decrease deflection on takeoff. The tire inflation chart in the dash six now reflects these higher pressures and eliminates the confusing, gross-weight sliding scale. Now, only two or three standard pressures are required for virtually all TAC F-100 configurations.

Bragging about success in this business flirts with disaster, so let's make a point.

Since September 1960, when we started using flaps for takeoff, higher tire pressures and all other actions, we haven't had one single reported tire failure on takeoff. This includes the summer of 1961 when we were often operating with 450-gallon tanks and 20-ply tires.

From this, we must conclude that: F-100 tire blowouts on takeoff are not being caused by material failure under present operating conditions. The obvious pitch is that the present tire conservation attitudes, shared by each crew chief, pilot and supervisor at all echelons, will have to be maintained or we start crumpling birds again.

In regard to the right attitude . . . much credit for this success story must go to each crew chief and pilot who took extra steps to baby a set of tires. For instance, the point system doesn't consider added heat damage incurred in an unplanned, no-drag-chute landing. The crew chief who changed a low-point tire after a real smoker undoubtedly made money. Most taxpayers would prefer to spend 266 bucks for an extra set of rollers than pay off on a \$10,000 life insurance policy. The pilot who taxies like an old lady, religiously avoiding premature nose lift-off, and caressing the brakes on landing, helps himself, the crew chief and the USAF.

Speaking of old ladies, I get kind of fluttery about heavyweight formation takeoffs when the computed roll gets into the 6000-foot ball-park. When conditions permit, I suggest that pilots exercise their prerogative and make single ship

takeoffs on the hotter afternoons, even though SOP doesn't require them.

For those cynics who would like to be ready for a tire failure in spite of this whole pitch, here's what you can expect:

\* If the nosewheel is off the runway when a main gear tire fails, the nose will probably drop back to the runway.

\* Directional control will be critical until stores are jettisoned or nosewheel steering is engaged.

\* Aircraft vibration will be so severe you will have trouble punching the panic button. If you are short, you will have even more trouble reaching the button and maintaining control.

\* With the nosewheel on the ground, directional control will depend on your ability to engage nosewheel steering. If the nose is off and stores have been jettisoned, the airplane will probably fly.

\* Nosewheel steering may be difficult to engage since you may be using considerable rudder in an attempt to keep straight. You will have to slack off in order to match the position of the nosewheel.



If your airplane has the earliest or the latest nosewheel steering system, hold the button down and don't try to chase the holding relay. If you have the intermediate holding relay system, bug your maintenance officer and get it changed—if you don't tear up the airplane first.

If you get the bird airborne, leave the gear down and follow the dash one procedure for landing with a blown tire. Compared to what you've just been thru, it's a piece of cake.

BY MAJ PAUL L. SMITH  
Director of Safety  
839 Air Division  
Sewart AFB



# Recipe for SAFETY

**S**INCE THE 314TH Troop Carrier Wing has been awarded two consecutive Air Force Flying Safety Plaques, it has been suggested that we at Sewart AFB, explain "what's cooking" for the benefit of other organizations who wish to follow in our footsteps. A simple explanation might be to:

Take 4 squadrons of aircraft;

Add a like number of tactical aircrews;

Sprinkle generously with maintenance and supply personnel;

Blend with an Air Base Group Support facility;

Add a generous portion of experience;

A cup of safety;

A pinch of luck;

Spoon in plenty of standardization;

And top with good supervision.

It sounds simple, doesn't it?

However, considering each of these ingredients, the picture becomes more complex. For instance, take four squadrons of aircraft. In the past two years, these have included C-123's, C-130A's, B's and D's, with a continuing transition from one to the other. The problems imposed on maintenance, supply, operations, training and safety have been multiple. It is slightly short of a miracle that they have been able to continue this full mission during the entire two years.

Adding a like amount of aircrews is pretty difficult too. Weeks of Field Training Detachment classroom work, flights in the simulator and cracking the books eventually gets one into the actual seat position in flight. From there, under the eagle eye of an instructor, the real training begins. Weeks later, people who have been instructors in

previous assignments are allowed to become copilots—provided they can pass the written and flight checks. Much later—the length of time is determined by experience and ability—one becomes an aircraft commander—again if the written and flight checks are satisfactory. At some date far in the future after long hours in troop and equipment drops and day and night formation—and more examinations—a tactical aircrew member is born.

Sprinkling generously with maintenance and supply personnel has been an increasingly difficult thing to do. The experience level of maintenance personnel seems to continue to drop until today the 314th manning can best be described as, considerable overages of three levels and heavy shortages of seven and nine level supervisors. The situation becomes complicated even more when you consider that the supervisors must spend a great deal of their time providing OJT for the three levels. A big gaggle going out during the week and returning on Friday results in the supervisors working on week-ends, but it is extremely difficult to give them compensatory time off because of the requirements for training the student maintenance types during the week.

The part about blending with an Air Base Group Support facility has been one of the easier ingredients. The Tactical Hospital, Aerial Port, Security, Supply, Personnel Services, etc., have been in

existence right along and have provided excellent support for the aircrews and aircraft.

The generous portion of experience comes from years of flying C-119's, C-46's, 123's, and even the old "Gooney Bird". We have been fortunate in having people with experience like this in supervisory positions and as aircraft commanders. Of course, a continental flavor is added each time that a 'Lebanon' or 'Congo' or other world crisis arises. Experience comes the hard way, since on any given day there may be an aircrew in South America, the Pacific, Alaska, the South Pole, or even on a routine drop at Fort Benning, Georgia.

The cup of safety has been adequately prepared by Captain Bill Bailey, who has been the Flying Safety Officer since January 1961. His wide experience in troop carrier work and as a C-130 instructor pilot have made him a most effective flying safety officer. Of course, it



takes more than just experience, and here, his ambition and ability to meet and talk with people have added greatly to the effective program that has been established. The efforts of

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Major Lloyd Elmore during 1960 were equally beneficial in preparing the 314th program. Major Elmore is currently assigned to 9th Air Force.

A pinch of luck is something we all need. I doubt that there is a pilot alive today that hasn't goofed several times during his career. Probably at least one of these goofs has been a basic cause factor in somebody else's accident. However, most people make their own luck through skill and knowledge of their aircraft, their mission, and being aware of their own limitations. You will find this in the 314th Wing.

Spooning in Standardization has become a more and more important item in every operation in all Air Force organizations. With the increasing shortage of personnel available to the C-130 units, time and time again we find staff pilots flying on support missions, or when they meet minimum qualifications, on tactical missions. The fact that each of these people has gone through the same program with the same standards makes it much easier to provide integrity of procedures.

The item which undoubtedly has had the most to do with the record of the 314th for the past two years is topping with good supervision. The Commander, Colonel DeLacey, has provided outstanding support to safety throughout this period. He and his staff have spent long hours and much hard work to establish and maintain an effective and safe program. Their record of

world wide operations involving 62,198 flying hours in this period is exceptional. There were 24,226 sorties, carrying 103,546,054 pounds of cargo and 204,774 passengers.



This flying has been on unprepared strips, in areas where navigational aids are limited or nonexistent, under extremes of weather and extended periods away from the home base. Crew rest has been extended in a good many cases in order to complete a mission, and of course living and working conditions in the field have often been poor. However, the supervision,



experience and willingness to work have done this job safely. Coupled with the built-in safety of the C-130, this team has compiled an enviable record.



# SPLOVILLE

BY CAPT A. B. YOUNG



In both safety and life you only get what you pay for. In this case you may profit by exchanging a few words for your life. In short, incident reporting for purposes of accident prevention is a-- Two Way Street!

**L**ESS THAN two weeks apart two naval aircraft of the same model mysteriously flew into the water after they apparently made normal catapult launches from the carrier.

Down Alabama way at the Army's aviation accident research organization two undetermined helicopter crashes at different locations were reviewed routinely until a common pattern became evident.

Out West where the smog bogs traffic, USAF

types at Norton pondered a rash of unexplained fighter bomber accidents.

In all three services, investigation disclosed that each accident was caused by a relatively simple failure which, if left uncorrected, could eventually cause loss of control or materiel failure of a more important component. In every one of the situations some squadrons flying the birds involved knew of this possibility but others didn't. Why? Because according to the records no one had submitted an incident or hazard report! Over the years literally hundreds of accidents could have been prevented thru conscientious reporting and follow-up actions. In fact, professional safety people consider incidents far more revealing and productive areas for investigation than accidents.

Far be it from us to suggest more paperwork. In fact, we haven't. You probably have noted by now that altho AFR 127-4, (and TAC Supplement 1) increases the number of things reported on, it also considerably reduces the amount and number of formal investigations.





Overall, there will be a major saving in volume of words despite the requirement to report all sorts of miscellaneous incidents. We think you'll actually like the requirement once you see its potential.

For as we've already indicated, items which seem insignificant at squadron level, become valuable accident prevention intelligence when combined with other reports and trends in a good safety research shop.

What sort of incidents are wanted? We can (and will) list a lot of them . . . but basically, USAF and TAC wants anything reported which could cause damage to an aircraft or injury to a crew member. Report items (usual or unusual) that could possibly create a potential accident situation of any kind. Be sure to tell us what happened, what caused it, what you did about it. If you don't have all the answers within 5 days after the mishap, state that a supplemental report will follow.

*The following extract from AFR 127-4, as supplemented, will give you a clue as to what should be reported.*

- \* *Damage to an engine that results in its replacement.*
- \* *Less than minor aircraft damage.*
- \* *Anything falling out of or off of an aircraft when there is intent for flight . . . (provided no one is hurt bad, property damage is less than \$10,000 and aircraft damage is less than minor.)*

- \* *Fire or explosion with intent for flight and less than minor damage.*
- \* *Flameout or engine shut down, including successful forced landings and successful airstarts.*
- \* *Mid-air collisions with less than minor damage.*
- \* *Physiological reactions.*
- \* *Drag chute, brake and tire failures.*
- \* *False fire warning lights.*
- \* *Flight control malfunction.*
- \* *Loss of oil pressure, runaway prop, gear malfunctions . . . ANY UNUSUAL OCCURENCE OR NEAR ACCIDENT THAT GIVES US KNOWLEDGE TO PREVENT ACCIDENTS.*

Now comes the 64-dollar question. What will TAC do with these reports? We are well aware that the success of an incident reporting system lies in proper corrective and follow-up action! And here in TAC we do not intend to fall into the typical bureau trap. How? First, each report is personally reviewed by the Chief of Safety. Frequently he forwards comments or questions to the System Project Officer (SPO), for that particular aircraft. There are six of these talented gentlemen, each of whom is as much at home in the cockpit as his is with the hundred or so brush fire projects on his desk. Their six desks are aligned in two tight echelon formations, head on to each other because that's the way they tackle your problems. The area is called "Spoville" and some days "Grimsville".

The office system requires routing of reports to the appropriate deputy in TAC. This often triggers off a series of phone calls or a personal looksee at the line, factory, or depot. The SPO logs mishaps by aircraft model and by system. He has a blank check to investigate any areas that look worthwhile and often does so, including requesting machine runs on data collected thru maintenance systems, or at Norton. Each quarter he wraps up the summary of experiences and action to date. This summary is distributed to you as well as to agencies such as Norton, AFLC, AFSC, ASD, and manufacturers of airframes and components.

In between the quarterly reports, which are sent to your safety officer, you can keep up on the number of reports per unit by watching TAC TALLY monthly in TAC ATTACK magazine.

Incidentally, we suspect people with a low number of reports to be guilty of lax reporting procedures.

Let's review a few examples to see what the system has accomplished so far. There are no miracles, as yet, since neither people nor machines are infallible.

F-100 utility hydraulic system failures continue to occur at a steady rate with eighteen during the last quarter of 1961. So far, we haven't been able to get a trend except that loose fittings from improper torque during installation seem to be partly to blame. The age of present plumbing and fittings has possibly contributed.

We recommend increased emphasis on proper maintenance procedures to keep the system failure rate under control.

Three mishaps have occurred involving the F/RF-84F canopy rear quarter panels. All happened between 32,000 and 36,000 feet, and the hazards of explosive decompression are obvious. MOAMA investigation found that this was caused by improper ventilation and uneven heating and cooling of the glass. This, in turn, was caused by storing things in the aft part of the canopy.

Corrective action: Find some place else for your shaving kit.

Another incident report, and related material actions, brought about recent inspections of F/RF-84F Aileron Control Rods, and may have saved TAC an aircraft and a pilot. Hats off to the 113th TFS, this is what incident reporting is for.

A C-130B aircraft experienced an inadvertent life raft release during flight. The aircraft had made the second enroute stop on a scheduled airlift mission, when preflight inspection disclosed the left outboard raft compartment door was unlocked and the raft was missing. The center portion of the door was bowed slightly outward; however, no further damage was found. This incident has particular significance. The ejected raft was the first recovered of 13 previous incidents. Specific cause factors have not been established but indications are that the life raft expanded within the compartment. This applied pressure to the center portion of the door, released the latches and permitted the raft to

separate.

WRAMA has established two improvement projects in an effort to resolve the life raft separation problem. Installation procedures which will afford a more compact raft package have also been recommended. The revised procedures increase the clearance between a stowed raft and the compartment door, reducing the possibility of the raft chafing against compartment internal mechanisms.

"Well," as one of the SPO's put it, "My job is to know everything that is happening to the 84, and help find ways to make drawing hazardous duty pay less of a hazard. All accident, incident, and EUR information on the 84 comes through me, and with input from USAF as well as TAC, I can get a good look at any trend as it develops. The preceding incident summary indicates some failure and malfunction trends.

"We believe prompt incident reporting, followed by accurate analysis and aggressive action, is an important step toward safer flying operations. Accurate evaluation of problem areas depends on realistic reporting, and every mishap must be reported. There are many mishaps for which a report is not specifically required, but whenever anything occurs that might effect any other unit, send in the word as soon as possible. To encourage incident reporting, TAC does not require anything formal, except in unusual cases. The number of incidents do not reflect unfavorably on any unit. Conversely, ample reports indicate an alert, professional approach to the Air Force mission. Even in incidents involving human error, timely and accurate information can be the ounce of prevention needed to identify training or design weaknesses.

"Accident prevention through incident reporting requires 'Full Circle' communication--from the individual pilot or maintenance men through channels to the action agency, and back to the individual. Everyone must realize his report is important, and will not be lost or forgotten. This system will work, but as a SPO I depend on you, and the people of your organization for all my information."

How about it, fellas?



### F-105 DRAG CHUTE

A recent study of drag chute performance shows that the system on the F-105 is 99.6% effective. Out of 23,114 deployments there were 103 malfunctions. Twenty-four were due to chute components, ten to the mechanical system, and 69 to personnel error. Personnel error was a factor in one out of every 335 deployments.

Although drag chute reliability is almost as perfect as a certain soap is pure, material improvement projects will continue to correct deficiencies. Commanders are urged to stress quality maintenance, since a 100% effective system is the goal.

### OLD FLYING BIRDS

After a couple of F86F's came apart in flight a short while back, we found that the center section bolting bar needs inspecting. This is the first time this area has given trouble. It's hard to get at, too, and a new improved inspection technique had to be developed. A fluorescent penetrant is used with the improved technique. Altho the new system is superior to the dye check method, it takes a highly competent man to detect cracks with it.

These old proven aircraft are tired and are weakening. A MAAG F86 recently broke in an even different area. Unfortunately, we must resign ourselves to the fact that we can no longer replace our tactical weapons every five or six years. Further, the general trend is to increase the

hours between scheduled inspections on all air vehicles.

Therefore, the importance of the dash six becomes more pronounced. Inspections can't be limited to the mandatory items listed in the dash six. We should give all critical high stress areas a very close look, using the best inspection techniques and facilities available . . . This must be done on some of century series too, since they too are no longer Spring Chickens.

### PROJECT HIGH WIRE

Current programming of F-100 aircraft dictates a continued heavy maintenance requirement through FY 63 and beyond. This headquarters has negotiated with USAF, AFLC and SMAMA to process as many F-100's as possible through AFLC and contractor facilities in order to relieve units of some of this workload.

Altho the FY 63 IRAN/Mod program included some of the heavy maintenance features, it did not provide for a thorough searching inspection throughout the airframe. This is planned for the 63 program. Airframes will be disassembled, checked and repaired as necessary. A thorough inspection of flight controls, drag chute, anti-skid and heat vent systems will be accomplished along with inspection and replacement of fuselage fuel cells. Integral wing fuel cells will be inspected and resealed. The nose gear will be reworked and the aircraft rewired throughout. All F-100D/F

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aircraft not already modified will be equipped with a tailhook, GAM-83, cartridge starter and MM-3 attitude indicating system during this program. In addition, miscellaneous outstanding airframe and engine TCTO's will be accomplished as TOC kits become available. Included among these TOC's are installation of the rocket seat and tailhook guard and light.

The complete program will take approximately 3200 man-hours each for F-100C's, 4800 for D's and 4800 for F's. Work is scheduled to start 1 July 1962 and be completed 18 months later.

Altho these aircraft are going to be processed through AFLC and contractor facilities for extensive rework, using activities must still comply with TCTO's on a timely basis and insure that each aircraft is maintained to optimum.

### TIRE TROUBLE

Century series birds aren't the only ones plagued with tire trouble. Word comes from an overseas command concerning an increase in C-130 tire changes. Investigators found that little care was being given to proper tire inflation. Therefore, all crew chiefs were issued tire gauges. Now it's a simple matter to insure that proper tire pressures are maintained, especially when the aircraft are away from the home station. Tire changes have dropped sharply since starting this program.

### C-123B MISSION CAPABILITY

A modification will soon be made on one prototype C-123B to increase its mission capability . . . making it able to carry a 20,000-pound payload 500 nautical miles, land on a 1000-foot unimproved runway, off-load, take-off over a 50-foot obstacle and return with standard fuel reserves. To do this, two J-85/CJ610-1 jet engines (without reverse thrust) will be installed on wing pylons at Station 310. A 50-foot drag chute will also be utilized.

This improved capability is required to permit the bird to better fulfill assault missions into forward area sites. The prototype will give flight test evaluation and operational data needed to determine further retrofit actions.

### KB-50 FUEL CELL REPLACEMENT

A program has been established by OCAMA to retrofit the KB-50 aircraft with new main wing fuel cells. The contract is being negotiated with Hayes International Corp at Birmingham, Ala.

The cells will be purchased from the U.S. Rubber Company, Mishawaka, Ind. This purchase contract is finalized and delivery of new cells will begin during August 1962.

Retrofit is scheduled to begin 1 September 1962, with estimated completion date in January 1963.

### RF-101 LANDING GEAR

The RF-101 has been a mighty reliable and a mighty forgiving bird, but, like the rest of us, she is beginning to show her age. Her skin has been vibrated, stretched, and twisted until it has grown tired of the whole thing and cracks from pure old fatigue. The same is happening to her legs. Too many hard landings and crosswinds have taken their toll and every once in a while she is prone to buckle at the knees. We are fixing to send her to the clinic (IRAN to you) for the cure and we expect her to emerge wide eyed,



bushy tailed and ready for another go. In the meantime be kind, take her pulse regularly, and watch out for those little signs of fatigue that spell impending disaster. Be especially attentive to adjustments so she doesn't develop a Charley horse in her hydraulic units or actuators. These, of course could cause inflammation and failure of associated structures and components. Treat her kindly and well—she deserves it!

## COLOR STABILITY OF AVGAS

Color is an important quality control check for aviation gasolines. A change in color usually indicates:

- the wrong grade of fuel,
- contamination with another product, or
- loss in fuel quality.

Color change has appeared for another reason since the introduction of the hydrant system.

Fuel trapped in dead ends or unused portions in the system has changed color without affecting any of the other properties of the product. The change in color is particularly true when the fuel contains more than one dye component.

For example, aviation gasoline 115/145 is purple, a mixture of red and blue dyes. A chemical aviation gasoline 100/130 is green, a mixture of yellow and blue dyes. A chemical reaction can take place and weaken the lighter dye component of the fuel. When this occurs, the blue dye component is not affected and blue dominates the color seen during visual checks.

There have been several instances where aviation gasoline 100/130 and 115/145 in hydrant systems appeared bluish, the color of aviation gasoline 91/98. The appearance of the fuel caused considerable concern and in one case an aircraft was defueled causing a delay. However, fuel of proper color appeared after the hydrant system was flushed into a tank truck for a few minutes. The fueling was then completed satisfactorily.

Therefore, when a color change appears during hydrant system operation, these steps are recommended:

Check the operating storage tank to be sure that the proper product is being delivered to the hydrant. This will indicate if the color change was caused by the above mentioned process.

Flush sufficient fuel from the hydrant system to obtain fuel that meets the right color specification before delivering it to an aircraft.

Return the off color fuel to a bulk storage tank. The volume of off color fuel will be small compared to that in the bulk storage tank and will have no effect on the over-all color.

Establish a schedule to circulate the fuel in the hydrant system monthly until sufficient

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experience indicates a longer time interval can be used. Of course, if there is any doubt regarding the fuel quality, it should be segregated and a complete laboratory inspection obtained.

—*ESSO Aviation Service*

## C-130A/D CRACKED PORK CHOPS

Recently, during a routine periodic inspection a sharp-eyed mechanic at Evereaux Air Base spotted a crack in the porkchop fitting where it attaches to the shelf bracket on both aft main landing gear tracks. This fitting is part of a structural member under the cargo floor at Station 577. Further inspection of the C-130A/D fleet revealed other aircraft with similar cracked fittings.

Lockheed has developed a fix which consists of a one-half-inch steel scab-plate to be mounted over each fitting. This fix is considered a permanent repair. Kit delivery should be within the next 45 days.



## MAINTENANCE EVALUATION PROGRAM

Sewart AFB has been selected to establish a TAC Maintenance Evaluation Program on Aerospace Ground Equipment. This program as outlined in AFR 66-8 is designed to obtain more effective and economical maintenance of Aerospace Ground Equipment. TAC will utilize this evaluation activity to the maximum extent possible to improve command wide maintenance. This project will be under the direct supervision of the 314th TCW Chief of Maintenance.

# 'O' RINGS



## MAJOR CECIL D. BAILEY AND MR. ROBERT D. SAUNDERS

**'O'**RINGS. What are they? We might define them as tori; solid revolutions of rubber or other elastomers with perfectly circular solid cross sections, molded to close tolerance for both inside or outside diameters; or more simply as seals shaped like small donuts. Since pictures speak better than words, look at the photo to see what we mean.

O rings were developed late in the 19th Century to serve as fluid seals, both static and dynamic, in fluid operating components. They operate by distortion . . . in other words, squeeze to create zero clearance in the areas where they are used.

Early O rings were manufactured from rubber. They had a limited number of uses because rubber isn't compatible

with most fluids and it changes too much with varying temperatures. This problem was solved by scientists when they developed the oil and chemical resistant elastomers used in modern O rings.

These new elastomers are compounded from different materials to be used with different fluids and under varying conditions, therefore, care must be exercised to insure that they are used in the proper place.

From a safety standpoint, proper selection of O rings cannot be overemphasized. Leakage and subsequent malfunction of equipment can result from using O rings of the wrong size or material. For example, an improper O ring in the control system can cause erratic operation or loss of

control and an improper O ring in the fuel system can cause engine surging and flame-out. Either of these malfunctions can easily result in the loss of an aircraft and crew.

But to get to the crux of the subject. O rings are fabricated in more than 200 standard sizes and an undetermined number of nonstandard sizes. In addition, they are made from many different materials which are effected in different degrees by heat and chemicals. You can see from this that maintenance personnel must take special care to insure that they receive proper O rings through supply channels.

This is where our interest was aroused. NASA maintenance personnel reported that they are receiving pockets of O rings that are not properly identified. A check with Air Force maintenance personnel indicated that they are encountering the same problem.

Referring to our photo again, we see that it shows an unopened packet of O rings as issued from supply. With contents of a similar packet on top. The AN and MS identifying marks are missing from the package. The rings removed from the packet don't have any identifying marks either.

O rings are used in the most vital aircraft systems and it is reasonable to assume that no properly trained mechanic would ever use one that he hasn't positively identified. But we must also realize that mechanics are only human and can make mistakes. It is our phi-

losophy, then, that we should reduce the probability for error whenever we can. The old saw might be appropriately stated here, "it's not the package, but what's in it that counts." Since all technical instructions refer to O rings by AN or MS numbers,

it is apparent that these O rings were not properly packaged. This is not an isolated case.

Generally supply personnel should be commended for their programs to simplify and reduce packaging costs, but a penny saved in the case of un-

identified parts can prove to be very costly in terms of lost equipment and personnel. Let's ease the burden for maintenance by properly packaging aircraft parts . . . put the jelly beans in a jelly bean bag and mark it so.



"A LOT OF GOOD this does," Lt Green said as he tossed the papers he had been reading into his out-basket.

"What's that?" asked the Old Sarge.

"This accident brief. The investigators dug into everything that could've caused a flame-out, but ended up by sending the fuel control for TDR. They concluded that they won't know what happened until they get the results of the TDR. I'll bet that we never hear any more from it. Meanwhile, we may have the same problem in our birds and don't know it."

The Old Sarge nodded agreement, tilted his chair back and reached for his pipe.

"We probably won't at that," he said as he carefully packed the bowl of his pipe with Old Barnsmell, "This business of TDR's has always been a problem with accident investigators. I like the way our Safety

Officer handled it when the 13th lost their bird last year . . . Remember? He had someone hand carry the aileron actuators to the depot and wait until they were torn down. Shucks, when the guy got back they had their answer right then and there."

Lt Green frowned, "I agree that he made certain that way, but really, he shouldn't have had to send someone. We have a system which is supposed to give parts like that priority and it doesn't always work. Take some of the exhibits we've sent out for priority TDR on UR's . . . sometimes we don't hear anything for over a month. These things shouldn't take that long and they shouldn't have to be hand carried."

"I couldn't agree with you more, sir." the Old Sarge paused to light his pipe, "However, we can't blame the Depot for all the trouble. Remember that cracked strut? We wrote

up a brief history on the thing and got all the paper work ready to go and that knothed in supply shipped it out without tagging it properly. We like to have never traced it down."

"You're right," said Lt Green, "It takes a community effort . . . and we don't always do our part. I guess we can't expect the Depot to come thru if we don't tag 'em right or don't furnish them with enough background information, but still . . ."

"I know," interrupted the Old Sarge, "they still goof . . . which is why I favor sending someone with the really important items."

"Me too," said Lt Green, "irregardless of what anyone says."

"Regardless," corrected the Old Sarge, "irregardless is irredundant."

# TAC TIPS

TAC-Tips

## GOOD EDGE, GOOD POINT

The Navy approach asks, "How about putting a knife sharpener in aircrews' readyrooms? Cost would only be between \$2.00 and \$4.00."

## SLOW STARTER

With the current emphasis on jump school, it was only natural for the young captain to notice the paratroop wings and ask "How many jumps you have?"

"One" the muscular owner of the wings replied.

"One? I thought you had to have five jumps to get the rating."



"Not exactly," corrected the muscular one, "they require five descents in a parachute. I jumped once and was kicked out of the bird 152 times."

## RAGGED CONTROL

During recovery from simulated strafe run, the pilot of an F-84F noticed that the throttle would not come back below 89%. He returned to the base, penetrated and landed safely. Investigators found a loose nut on the throttle friction lock and a rag under the left cockpit console. The rag was binding the throttle cable. The aircraft had flown once since the last periodic inspection. On this flight the pilot had noticed something slightly strange in the throttle system but thought that it was just a bit tight. Again let us point out the importance of proper maintenance and of writing up all discrepancies in the Form 781.

## COPILOT BLUES

A well-qualified, mature copilot is one of the best insurance policies a crew can have.

The copilot who finds himself slipping into the depths of low self-esteem should do some re-evaluating. He will find much in his job to justify pride, and he will find that he is not just a sand-bagger. He is number two in a big business, he is executive vice-president in charge of safety in a multi-million dollar organization. It is a big job. It requires an intelligent, capable, and responsible individual.

—FSF Bulletin

## HANDY HOOK

The tail-hook, coupled with the BAK-9 barrier, has reduced aircraft damage to nil during barrier engagements resulting from emergency situations. I deem the tail-hook of such importance that if any F-100 aircraft in this wing does not have a tail-hook installed, it will not fly.

—Commander, 20th Tac Ftr Wg



## SUMMERTIME

The 20th Tactical Fighter Wing Commander reports that, "each year the transition from winter weather flying to summer weather flying produces a significant number of accidents. Summer weather sometimes results in individual laxity and complacency in both procedures and good safety practices. All pilots and maintenance personnel must give emphasis and priority to the necessary planning and conscientiousness required for each flight to insure mandatory safety consideration. Continued cooperation and close supervision at all levels will make this an accident free summer season."

## ACCIDENT REPORTING

Film report #253 has been distributed to film libraries at major air commands, numbered Air Forces, Air Divisions, AMA's, and Tech Tng Centers. The film explains the purpose of AFR 127-4 and tells how it reduces duplicate reporting.


## DEAD RIGHT

There probably isn't a breed of flyer more aware of the air around him than the fighter pilot. From his first training mission, he is constantly warned to keep his head on a swivel. The crowding of air space today makes this awareness not only a combat necessity, but also an important part of the Air Force program to reduce near miss and mid-air collisions. Most of us in the fighter business suspect that pilots of commercial and larger military aircraft should spend a little more time looking out the window while George is flying. This may well be, but it does not solve the crowded airspace problem. We must protect our mission and ourselves by constant attention to air discipline, adherence to ARTC procedures, and clearing the area in which we fly. Being in the "right" in a mid-air smash seldom does anyone, especially the pilots involved, much good.

—FSO Kit

Missiles and Munitions

# Missiles *and* Munitions



## NEW MISSILE

The Department of Defense has given the go ahead on Air Force development of a second generation missile tailored to shorter range theater missions. This will be the MMRBM . . . Mobile Mid-Range Ballistic Missile . . . and it should be able to assume the chores now handled by the Intermediate Range Ballistic Missiles (IRBM) which are air breathing missiles or first generation liquid fuel rockets.

Actually, the change in names only indicates a refinement of the missile art. The MMRBM should have longer range than the IRBM but shorter than the ICBM.

At present, the new bird is still in the egg with USAF asking industry to take on development. Experts predict that it will be a solid-fuel, two

stage missile that can be carted around on the highway in a one package firing control and missile combination. If so, the bird should hatch pretty quick and spend little time in the nest, because it will be able to profit from lessons learned on the now cancelled Mobile Minuteman program which broke all records for speed in development to Ops status.

Current planning calls for the MMRBM to be flexible enough to permit it to be moved around without having to be redirected toward a fixed target that it has been pre-aimed at.

It's a little early for specifics, but experts believe that the new bird can be manned by personnel cross-trained from other missile programs. Another source would be from the Air Training Command.

## TAC ATTACK

When the new bird becomes operational, it will be phased into the Tactical Air Command inventory. It will also fill some sea borne requirements and for this reason, the Navy is working with the Air Force on its development.

### TM-76B TEST AND EVALUATION.

With the launching of its sixteenth missile in March 1962, the TM-76B Task Force at the Atlantic Missile Range completed the Mace System Operational Test and Evaluation (SOTE). The SOTE confirmed the ability of military technicians to operate and maintain tactically configured missiles and AGE. It also evaluated tactical hardware, technical orders, and system reliability. Presently, the TM-76B task force is in the process of deploying overseas.



### MISSILE SAFETY.

Missile accident prevention has some peculiarities not inherent with aircraft accident prevention. To begin with, a missile accident investigator must deal with a zero launch, unmanned air vehicle which is test flown on the ground and which is usually designed to fly only one flight.

In effect, it is an aircraft whose safety during flight depends largely on ground electronic equipment and operators, and careful preflight. These are made more difficult by rocket motors and other equipment which cannot be given operational

checks prior to flight.

From this it would seem that the missile commander has vastly different accident prevention problems to cope with, but this isn't the case . . . the same primary tools used in aircraft accident prevention are used in missile accident prevention. These are standardization, discipline and supervision.

Standardization is the act of reducing to, or comparing with, a standard.

Operating methods are established by sound engineering principles. These methods change as undesirable effects are discovered. From this a standard is evolved. Following this standard is the safest path to our goal.

A good standardization program serves as the commander's yardstick. With it he can evaluate his operation and be certain that the best known operating methods are being used. Standardization in missile operation is important because when the missile malfunctions, available data is quite meager. Often, the missile must be destroyed in flight making it extremely difficult to discover what part or system malfunctioned.

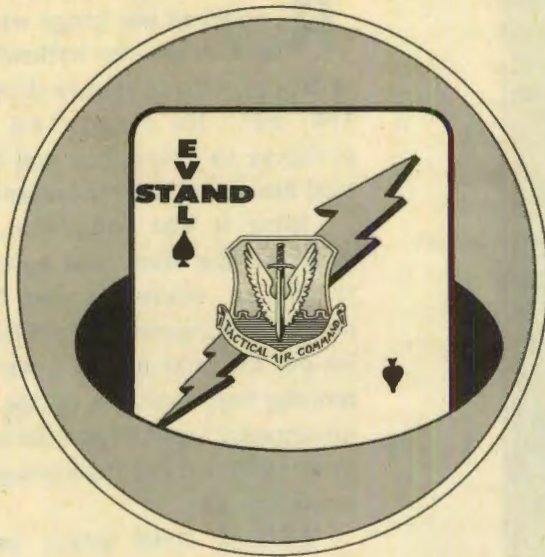
Discipline and supervision are closely related to standardization and since they are nearly synonymous, can be discussed together.

A well-disciplined organization instinctively conforms to authority and control and makes it easy for a commander to determine whether his tool of standardization is being used.

Discipline should be used to create an atmosphere which is compatible with safe and efficient mission accomplishment. No punishment will effectively deter a violation of safety regulations that arises from inattention, boredom or low moral.

Next to the commander the supervisor is the most vital link in the accident prevention program. The objective of all supervisors should be to create more efficient operation. Thus, accident prevention becomes an integral part of the supervisors daily activities.

By establishing a good standardization program and by using the right amount of discipline, a supervisor can build into his unit an effective accident prevention program.



**T**HE SECOND ANNUAL TAC Standardization/Evaluation Flying Symposium is well under way. You have probably wondered when and where the checkers get checked. Give your ulcer a rest. Through June and July it is Stand/Eval's turn in the barrel. The last three weeks of June and the first three weeks of July are set aside each year to accomplish the Standardization/Evaluation Group's flying symposium. The purpose of this symposium is to standardize the existing evaluation procedures and techniques, provide open panel discussions of the previous year's evaluation program, and give aircrew flight examiners the opportunity to compare evaluation techniques by flying validation rides. This is a polite way of saying they check each other.

In the ground phase, procedures, methods of collecting data during flight examinations, existing and proposed Stand/Eval publications are all reviewed. Aircraft accidents are discussed in detail. All which have occurred within TAC are reviewed for cause factors, and lessons learned. From this, flight examiners may be able to pass on tips to TAC aircrews. Similarly, incidents are discussed and analyzed in order to identify operating procedures which could contribute to possible accidents.

Throughout the year, all Standardization/

Evaluation checks conducted within TAC and Reserve forces are tabulated onto TAC Form 56's and AF Form 8b's. In Stand/Eval Group headquarters the results by area and item are reduced to punch card form and fed into the TAC data computer. Results are computed and data obtained and analyzed. Aircrew performance by area, item, type of aircraft and crew position is presented. This information gives Commanders, Operations Officers, and Aircrew Evaluators the areas which need more stress and identifies areas of crew performance which are above the norm. A summary of the preceding six month's results is presented at each of the symposiums so that evaluators may use the results to help them realign their grading volumes and areas of evaluation.

The flight phase of the symposium is to insure that each member of Stand/Eval Groups, Squadrons and Flights accomplishes the required proficiency flight checks, instrument checks and Stand/Eval flight examinations. In other words we evaluate each examiner's capability, methods and techniques. Existing flight check methods are also reviewed.

As you can imagine, this is not a little job. Reserve, Air National Guard, as well as the TAC regular forces are involved. Airspace, ranges, DZ requirements, ramp space, billeting, transportation, messing and aircraft maintenance support all enter into the program.

Locations and times for the various symposiums are Phelps-Collins ANG Base, Alpena, Michigan, 3-10 June with 28 T-33's; 10-16 June with 10 RF-84F's and 12 RB-57's; and 17-23 June with 13 F-84F's. Luke AFB, Arizona, 25-29 June with 12 F-100's. Langley AFB, Va., 4-8 June with 4 KB-50's. Charleston, W. Va., 12-16 June with 3 SA-16's. Pope AFB, N.C., 18-22 June with 20 C-119's and 25-29 June with 4 C-123's. Sewart AFB, Tenn., 9-13 July with 3 C-130's.

The overall objective is to provide TAC aircrews with an evaluation program that is standardized and objective.

# the Weak Link



**A**S AN F-100 pilot approached the range with a dart in tow, he noticed the utility system pressure drop to 190 PSI. He reported the problem to operations and they told him to continue the mission.

After it was completed, he dropped the dart and entered traffic. A chase aircraft flew his wing to report gear position. He put the gear handle down and nothing happened. He pulled the emergency lanyard and the nose gear extended but the main gear remained up.

Several tries later, using procedures recommended by tech reps and other specialists, the pilot managed to shake the left main gear down. The right one refused to budge.

With fuel down to 500 pounds he brought the crippled machine in, touching down on the left side of the runway. As the right wing started to drop he deployed the drag chute and applied full



left forward stick. Good plan, poor execution. When he applied stick he inadvertently jettisoned the chute.

The aircraft drifted off the runway where the nose gear sheared and the left main folded. The pilot scrambled out, noticed that the engine was still running, so went back and stopcocked it.

The utility hydraulic system was found contaminated with metal particles and water. In addition all filters on the aircraft were examined and found contaminated. A fairly large metal chip had found its way into the landing gear control valve, jamming it and allowing fluid to by-pass to the return side. This sent pressure to the closed side of the door actuating cylinders.

When the emergency system was actuated both gear unlocked and fell onto the main gear doors. The only reason the left gear door unlocked was

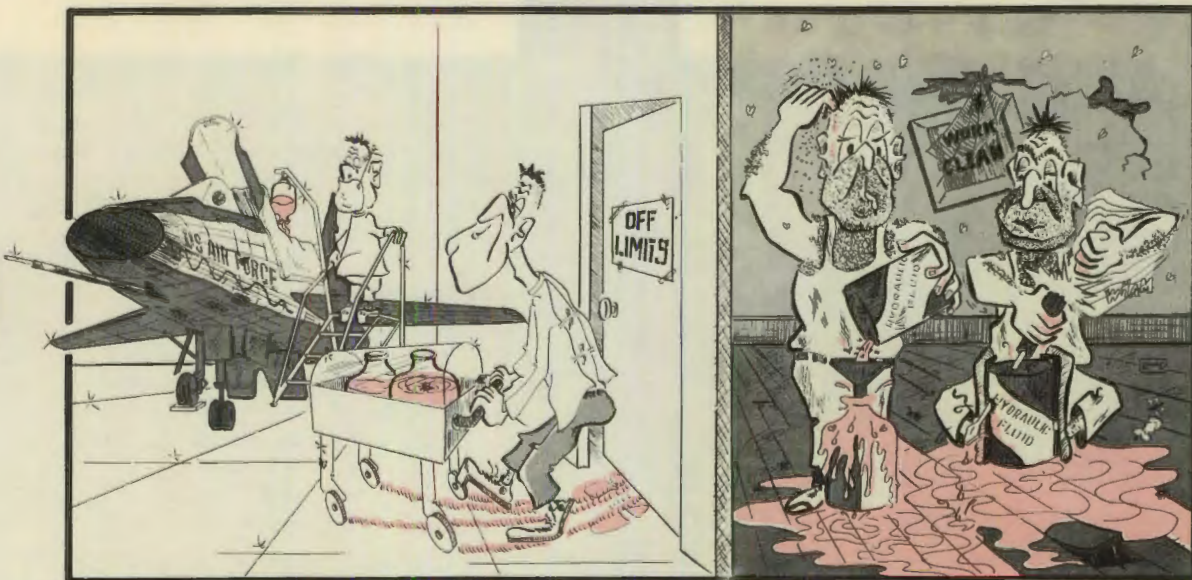
because the rear uplock was 1/4 inches out of adjustment.

All components of the hydraulic system were checked, but none had caused the metal contamination. All hydraulic test stands were inspected . . . none were contaminated. All assigned F-100's were inspected . . . six were found contaminated. All of the six had been thru a recent TCTO program. Apparently contamination resulted from sloppy procedures in the overhaul depot.

Fluid contamination in century series aircraft is a problem which requires constant attention. It can be compared to infection in human beings. A doctor performing an operation takes elaborate precautions to keep germs out of his patient. He washes his hands for an extended interval, uses tools that have been sterilized, a sterilized operating room, and

so on. Omit just one of these precautions and the whole procedure is compromised . . . and the patient gets an infection which he may or may not survive.

The same holds true for our aircraft. It isn't enough to have mechanics place clean caps on all lines as soon as they are parted. They have to do the same thing to connections on the hydraulic mule, hoses stored in the mule, engines in the engine shop, spare lines and hoses . . . every part that connects to every system. Leave one point unprotected and dirt enters the system. Perhaps the system can live with it for a while, but leave two or three connections unprotected two or three times and enough grit can get into the system to cause a pump to fail, an actuator to malfunction or a fuel control to go berserk. There are no short cuts.





**CREW CHIEF OF THE MONTH.**

TSgt Frank J. Arduine, 4520th Combat Crew Training Wing has been selected as the Tactical Air Command Crew Chief of the Month. He has distinguished himself in an exemplary manner by thoroughly applying his knowledge and experience to the care of his F-100C aircraft. During the period of nomination his aircraft was scheduled for 33 sorties, 23 of which were flown as scheduled and nine were canceled for weather or other operational reasons. Sgt Arduine's exceptional mechanical ability, and superior knowledge, together with his "can do" attitude, leadership by example and professional performance were key factors in his being selected for this recognition.

**RECOGNITION**



**MAINTENANCE MAN OF THE MONTH.**

For his commendable devotion to duty, capable performance and mental alertness, A1C Archie Wilson, 29th Tactical Reconnaissance Squadron, Shaw Air Force Base, S.C., has been selected as the Tactical Air Command Maintenance Man of the Month. During a Post Flight Inspection on an RF-101 he discovered a bolt that was about to fall out of the stabilator rod. This item had apparently been overlooked during a recent Quality Control Inspection. Airman Wilson's astute attention to detail undoubtedly saved an aircraft and possibly a pilot.



Presentation of the Kolligion Trophy to Captain Baker by General Frederick H. Smith, Vice Chief of Staff

Captain Paul R. Baker, 29th Tactical Reconnaissance Squadron, Shaw AFB, S.C. distinguished himself by extraordinary achievement and heroism while participating in aerial flight near Dublin, Georgia, 11 September 1981. He was on a low level, high speed reconnaissance mission when a large bird crashed through the windshield and into the cockpit with explosive force. Though temporarily deafened by windblast and blinded by flying debris, Captain Baker retained control of the aircraft. When partial vision returned, he determined the cause and extent of damage, applied pressure to stop profuse bleeding from severe injuries and landed safely at Shaw AFB, South Carolina.

# TAC TALLY

A COMPARISON OF TACTICAL AIR COMMAND ORGANIZATIONS

APRIL TALLY ACTIVE UNITS		
UNIT	ACDNTS*	INCDTS
831 AD		8
832 AD		14
4 TFW	1	2
108 TFW	1	4
113 TFW		8
117 TRW		
121 TFW	1	1
122 TFW	1	5
131 TFW	1	1
401 TFW		2
354 TFW		5
4510 CCTW	1	10
4520 CCTW	2	15
837 AD		13
839 AD		
64 TCW		1
435 TCW		
442 TCW		
464 TCW	1	4
4505 ARW		
1 ACG	1	1

APRIL TALLY GUARD AND RESERVE		
UNIT	MAJOR	MINOR
302 TCW		
446 TCW		
459 TCW		

MAJOR ACCIDENT RATE 1 JAN - 30 APR		
TYPE	1962	1961
ALL	13.6	12.6
F-105	25.2	0
F-104	18.6	27.5
F-101	41.4	0
F-100	13.5	17.8
F-86	93.7	0
F-84	21.7	67.7
B-66	0	50.9
T-33	0	3.8
KB-50	29.9	16.5
C-123	17.2	10.0
C-124	0	0
C-130	0	4.9

\*MAJOR AND MINOR

ACCIDENT FREE (MAJOR & MINOR)			
JET			
ACTIVE	MONTHS		ANG
474 TFW	13	41	123 TRW
CONVENTIONAL			
ACTIVE			RESERVE
4430 ATG	41	65	434 TCW
314 TCW	33	54	94 TCW



PROPER **TIRE INFLATION**  
IS PARTICULARLY IMPORTANT  
IN **HOT** WEATHER



*Your*  
**AIRCRAFT HANDBOOK**  
**GIVES CORRECT PRESSURES FOR**  
**DIFFERENT CONFIGURATIONS & WEIGHTS**