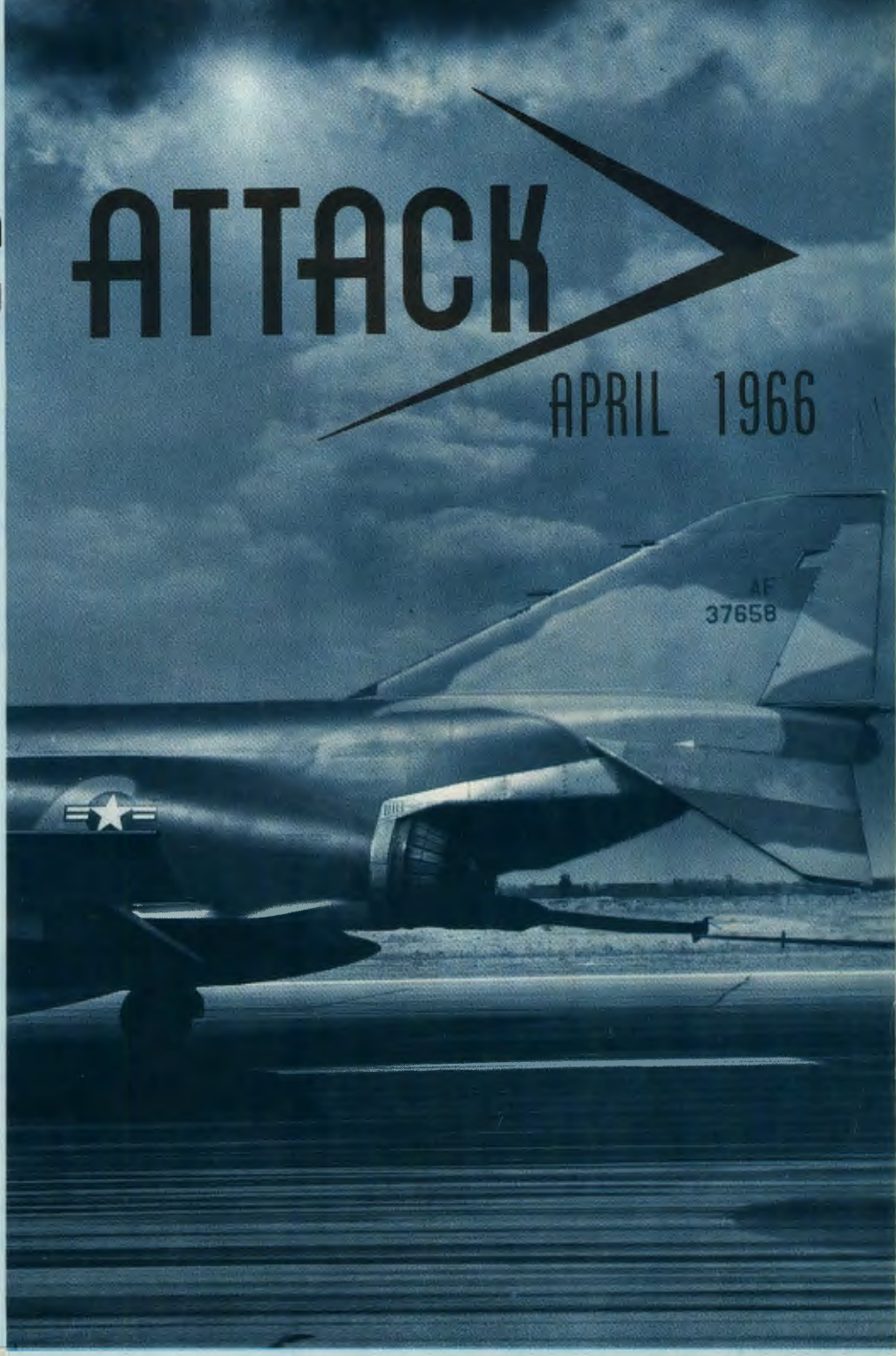
# TAC ATTACK

APRIL 1966




approach end arrestment
.....page 4

for efficient tactical air power

VOL. 6 NO. 4

# TAC ATTACK

APRIL 1966



*HQ TAC Field Printing Plant*
*Langley AFB, Va.*

## current interest



## departments



THE COVER

F-4C
makes an arrested landing.

See pg 4

*TACRP 127-1*

# Angle of ATTACK

During a recent aircraft accident investigation the board learned that the pilot accepted a fighter aircraft for flight with no oxygen aboard. He reasoned that because he did not plan to exceed 10,000 feet altitude during the scheduled gunnery range mission, he would not need oxygen. He took off with his oxygen hose disconnected. While still in afterburner he smelled noxious fumes and felt unusual vibrations. As might be expected, just when he needed oxygen it wasn't there.

It is difficult to say that the lack of oxygen actually caused or contributed to this accident . . . there were many other factors involved. However, it's also difficult to say that it did not affect the outcome of the pilot's emergency situation. His decisions immediately prior to ejection were to some extent affected by the fumes in the cockpit and his knowledge that he could not escape them while he remained in the aircraft.

This pilot knowingly violated directives when he took an aircraft without oxygen, a red cross condition.

Although this appears to be an extreme case, it vividly illustrates the folly of ignoring established rules and procedures in an attempt to avoid an abort. It also points out the results of misguided enthusiasm when too much importance is placed on the schedule and not enough emphasis on judgment, integrity, and leadership.

Doctor Kenneth Andrews of Harvard once said, "Other than acts of God, any accident, no matter how minor, is a failure of organization." I wonder how many failures helped this pilot.

Gust Askounis

GUST ASKOUNIS, Colonel, USAF
Chief of Safety

Col Gust Askounis, second from right, discusses F-100 gear problems with Col H. G. Shook, Maj C. R. Hasbrook, and Lt. D. N. Welch at England AFB.

*The changed appearance of TAC ATTACK this month reflects the constant change, updating, and improvement that have characterized the aerospace business since 1903. To achieve our stated purpose of promoting efficient tactical air power we must, above all, think as current as tomorrow. That's sometimes difficult to do at the controls of a particularly low-Mach desk. And the appearance of TAC ATTACK alone will not prevent accidents . . . we hope that what we put inside this package does help lower our needless losses. We will put anything inside that you want us to . . . you, in the field are in real-time contact with the procedures, problems, and growing pains we are concerned with. Please tell us about them . . .*

*- Ed*

# Approach End Arrestment

By Major Andrew L. Patten

While our brethren in the dark blue suits have been lazing about the world for decades in great floating BXs, happily bouncing their airplanes down on little wooden or steel platforms; we, the true fliers of the nation, have had another problem. How do you mine enough concrete to lay 10,000 foot strips of it everywhere you want to work century series fighters?

When the Phantom II came to us from the other side, the presence of collapsible wings and a bloody great hook-like thing at the back end created a certain amount of skepticism in some circles. The collapsible wing problem was swiftly alleviated by not allowing the pilot access to the collapser lever. However, getting the big hook off the back would have posed an almost insurmountable CG problem, and there was no way to turn it into a forward shooting gun . . . so they left it there. Ungainly as it was, it was at least out of the way.

At about the same time that the Air Force F-4C purchase was getting underway, or a little before, the boys in ADC . . . specifically German-based Deuce drivers . . . started thinking about ways to prevent that long slide down the runway to the far end barrier when things like brakes, nose-wheel steering, tires, etc, were not in showroom condition. A pilot at Bitburg finally proved all the theories when he successfully landed into the BAK-9 on the approach end after blowing a main wheel tire on takeoff. Since landing the F-102 with a blown tire is apparently no picnic, this engagement was credited as a probable save and a new era of emergency recoveries was born (if you will ignore the salty sniggering from out on the water).

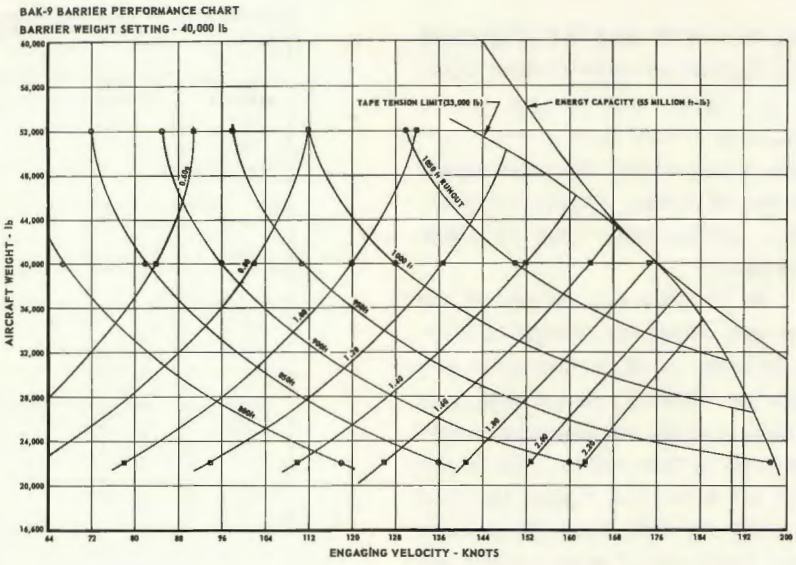
In ensuing months and years a research program was started at Wright-Patterson AFB and Edwards AFB to explore this type of recovery with all existing hook-

equipped fighters.

At this writing, according to the Systems Engineering Division, Edwards Flight Test Center, testing has been completed on the F-100, F-101, F-102, and the F-104. Although rather meager data was developed on the F-101, tests determined that all of those aircraft, subject to the approach speed/gross weight limitations of the arresting gear (See chart), did have good approach-end arrestment capabilities. Tests are programmed in the undefined future for the F-106 and the F-105. There is, at the moment, an understandable shortage of Thunderchiefs for use in a test program. Somebody did suggest that a program be developed for the F-4C but the Flight Test people laughed him out of the office.

The tests determined that nothing particularly unusual was required in the approach to touchdown, although it was recommended that the F-102 be flown about 10 knots faster than a normal approach to provide for better forward visibility and more control over the touchdown point. The key points were:

● Get people notified and have the usual emergency equipment standing by including maintenance types to clear the bird off the runway as rapidly as possible.




● Remove the MA-1A barrier. Although most of the chain has now been removed from these barriers and the modification which ties them into the BAK-9 has been installed, it is operable in only one direction and will not engage from the approach end. The possibility also exists that even in the down position the webbing will foul the hook and prevent a BAK-9 engagement.

● Deploy the hook in flight.

● Fly a normal on-speed approach (except for the F-102), planning a touchdown as early as is safely possible in front of the barrier. The F-4C Flight Manual recommends 300-500 feet before the barrier. The exception to this would be when landing with a main gear up, or unlocked, in which case touchdown should be as close as possible to the wire.

● Engage the cable with the nose wheel on the runway, although you should avoid shoving the stick forward at the moment of engagement. It will increase the stress on the nose wheel.

● In the F-4C, since it's tough to exceed the barrier limitations at even heavy weight approach speeds, drag chute deployment is neither required nor recommended. It's one more movement in the cockpit that will detract from your immediate goal of planting the airplane in the middle of the wire. Further, in

case of a hook skip the drag chute will degrade your go-around capability. With the instant power available from two J-79s, go-around may easily be your wisest course of action. This is not, however, necessarily true of other airplanes.

● Try for the center of the barrier. However, forget it after touchdown. It is far better to engage the wire off center than it is to take it at an angle while steering over to the center. Due to the way the BAK-9 is rigged the bird is going straight down the runway from the point of engagement, and you need to be grossly off the center line to be in much trouble.

● Finally... leave your feet off the brakes. With a blown tire a skidding rim may cut or damage the cable as you go across and braking will not measurably change the stopping distance.

The great thing about the approach-end business is that even if you miss it (other than landing in the weeds 2000 feet short), you're in the same shape you would have been if you hadn't tried it... on the runway with all of it ahead of you. The only problem on your mind is keeping the machine on the runway until you get to the barrier on the far end. Or you can go around and try again.

Of course, deciding that an approach-end landing is a sane, safe, reasonable approach to a given emergency is one thing. Getting the system into operation as a routine function is another. There are problems associated with it. The major difficulty, of course, is that the arresting gear must be located in a position that allows the wrong-way lander to touch down on a hard surface which will support his airplane, about 500 feet in front of the barrier. This boils down to one of two things... the arresting gear must be on the runway, 1000 feet or more in from the end, or there must be a hard surface overrun without a lip on it. If neither of these conditions exist on any of the available runways, the only course of action is to program the required construction and plan on using somebody else's runway until the work is completed.

There are other problems. It only takes about three minutes to reset the BAK-9 cable. But average delay in returning the runway to use has been from 20 to 30 minutes because of the actions required to get the disabled aircraft under tow and off the runway. On fighter bases with only one runway this will influence the kind of emergency for which AEAs are directed. At dual-runway bases (George AFB is typical) it may be possible to de-rig the MA-1A on the inactive, making it instantly available for AEAs, without closing the active runway.

PLANNED APPROACH END BARRIER ENGAGEMENTS BY TYPE AIRCRAFT

| Type A/C | Total | No Damage | Minor Damage | Major Damage | Remarks |
|---|---|---|---|---|---|
| **1963** | | | | | |
| F-102 | 4 | 2 | 1** | 1* | *Landed with nose wheel locked up |
| F-106 | 1 | 0 | 1** | 0 | **Nose wheel airborne at time of arrestment |
| Total | 5 | 2 | 2 | 1 | |
| **1964** | | | | | |
| F-102 | 3 | 0 | 3 | 0 | |
| YRF-4C | 1 | 1 | 0 | 0 | |
| Total | 4 | 1 | 3 | 0 | |
| **1965** | | | | | |
| F-102 | 2 | 1 | 1 | 0 | *Fifteen in SEA - Two w/battle damage |
| F-4C | 26* | 26 | 0 | 0 | |
| Total | 28 | 27 | 1 | 0 | |
| **1966 (Through mid-February)** | | | | | |
| F-4C | 13* | 13 | 0 | 0 | *Eight in SEA |
| F-101B | 1 | 0 | 0 | 1** | **Landing attempted with nose wheel and left main up and locked. Engaged at 205K. Cable parted, crew ejected successfully after go-around. |
| Total | 14 | 13 | 0 | 1 | |
| Grand Total | 51 | 43 | 6 | 2 | |

Not the least of the problems is the psychological one. At Pensacola, the Navy fledgling is trained to think in terms of short landing rolls . . . very short. No such philosophy rears its head in Air Force training. In fact, landing in the overrun is considered to be very bad form indeed! Until it can be shown . . . and a demonstration works wonders . . . that the operation is really a piece of cake, the average Air Force fighter pilot tends to be a bit skeptical about it.

The pilot is not the only one who needs to be convinced. The base operations officer and the civil engineer are concerned with the possibility of damage to their facilities. There is even a case on record where the Civil Engineer at a western base categorically declared that the BAK-9, as installed at his base, would not go both ways. The BAK-9, of course, is equipped with dual sheaves on each side of the runway controlling tape runout, and the arresting engine doesn't have a clue about which way the tape is being pulled.

Aside from test data, the only significant use of the approach end arrestment concept so far, as can be seen from the accompanying table, has been by the F-102, which pioneered the effort, and the F-4C. The figures were compiled from statistical data on file at the Directorate of Aerospace Safety, Norton AFB, California. The two major accidents shown on the chart can hardly be credited to the engagement. The first, an F-102, tried it with his nose wheel up and locked. Although no experience was available at the time, it has since been definitely proven that this is the one emergency that should not be considered good AEA potential. The second, an F-101B, attempted it with a nose wheel and one main gear up and locked, taking the arresting gear at 205 knots. In this case, the cable parted and a go-around was successfully made followed by crew ejection. Of the remaining 49 reported incidents, minor damage was sustained in six arrestments and no damage from the remaining 43.

**It is significant to note that from May 1965 through mid-February 1966, the F-4C completed 39 approach-end-arrestments with no damage whatsoever to either the airplane or the arresting gear.**

All of this is obviously just the beginning of a new tactical concept. The U.S. Marine Corps already has a Short Arrestment and Takeoff System (SATS) in operation which can be tactically deployed to a beach or bare piece of ground. It is capable of supporting tactical fighter operations 36 hours later. Studies of this system by Tactical Air Command have been underway for some time. From the point of view of emergency arrestments, it is a worthwhile system. Although a great percentage of those 39 F-4C AEAs were simple utility failures, and although the F-4C has a good emergency braking system, the same files from which these statistics were culled contain stories of other tactical fighters, also with good emergency braking systems, who did not make it to the barrier at the other end. It is reasonable to assume that a few of those Phantoms would not have made it either.

Besides, if you do it, the E. W. Bliss Company, which makes all this gear, gives you the prettiest Tape Dragon plaque since Republic quit giving out F-105 models.

## The Author

*Major Andy Patten's varied and interesting career since he graduated from flying school at Laredo in October 1954, includes F-86s in Japan, F-100s in the UK, and a stint by the beach called Myrtle. He is exceptionally well qualified to talk about arrested landings, having been both day and night carrier qualified in the F-8 during a two-year exchange tour with the US Marine Corps.*

*Andy went the Davis-Monthan route to the F-4C in August 1964 and has recently been expounding his theories on flying, landing, and many other things as Chief of the Academic Branch in the F-4 RTU at George AFB. Somewhere along the way this young man in a hurry squeezed in 63 combat missions in SEA astride a Phantom.*

*When we last talked to him on the phone he was making arrangements to move to Australia, where he was born and raised. But he is going home as a USAF exchange officer with the RAAF . . . to fly the Mirage III!*

# A 2ND LOOK

The pilot ejected at an unknown airspeed passing 16,000 feet. He could not find his survival kit deployment handle so he didn't deploy the kit. And he could not locate his parachute quick releases so he unfastened his chest strap on the way down and unhooked his leg straps after landing to avoid being dragged.

• As the aircraft descended thru 2000 feet, the pilot raised the armrests and jettisoned the canopy. He squeezed what he believed to be the ejection triggers. Nothing happened so he squeezed again. When the seat still refused to eject, he started to roll inverted for a manual bailout. As he looked down to release his seat belt, he saw the ejection trigger and realized he had been squeezing the armrest releases. He put his feet back in the stirrups and ejected.

• The pilot assumed an ejection position prior to raising the handles. The ejection system worked as designed. He had attended jump school and completed six jumps. That training paid off and enabled him to slip his chute to avoid landing in a ravine. However, he didn't let go of the handles until the seat-man separator forced him out of the seat. He also forgot to deploy his survival kit.

• The pilot had difficulty locating the ejection triggers ... after the third try, he looked down to find them. He ejected with his head down but only suffered a stiff neck. His visor was up and chin strap unfastened ... his helmet came off.

• The ailing fighter was descending thru 300 - 400 feet when the flight leader told the pilot to eject. His lanyard was disconnected because they had been in the gunnery pattern. The seat-man separator reminded him to release the seat. He reached for the parachute arming lanyard instead of the D-Ring but couldn't find it before his chute opened.

These were all successful ejections ... because the pilots involved survived, but the second look doesn't have to be very deep to discover the appalling lack of training and apparent unconcern that brought these "successful" ejections so close to disaster. It is difficult to get realistic training for an event

you can not actually perform. Therefore, training devices must be ingenious and programs must be continuous. And false training must be carefully avoided. In one case where the pilot held onto the seat after ejection investigators learned that the training device his unit used required him to hold the triggers in order to fully simulate ejection. Happily, the only recorded failure of a seat-man separator occurred in another unit!

We will never know how many men did not survive because of their own errors or oversight when correct procedures would have saved them. We do not know how many practiced reaching for the handles, how many knew where the trigger would be and what it felt like. We do not know how many had actually learned for themselves where the quick releases would be when they were suspended in a harness. But we do know that until all of us take our personal survival in dead earnest some of our number will continue to survive in spite of our training ... not because of it.

Others will not survive!

As he started a turn at FL 330, the F-100 pilot advanced the throttle to stay with his leader. He felt three mild thumps and a loss of thrust. An immediate restart attempt met with no success; and as he turned toward home base, he noticed his fuel flow was zero, his rpm zero, and EGT was 80 degrees. He descended at 220 knots as his flight leader read him the check list. At 8000 feet, after six unsuccessful airstart attempts, the pilot turned his dead bird away from town and ejected.

Investigators found signs of oil starvation on all the engine bearings, but the oil system appeared to be in good condition ... until they got to the main oil tank. There they found a spectrometric oil sample bottle next to the standpipe. The bottle could neatly cover the standpipe opening and block oil flow thru the system. Consequently, the board concluded that the bottle became lodged in the standpipe and shut off the oil supply to the engine. Without oil the bearings failed, the rotor shifted, the main accessory drive gear disengaged, and the ailing bird flamed out.

The investigation board suggested suspension of all oil sampling on aircraft where the procedure requires the sample bottle be in the "vicinity of the oil filler neck." Their report also indicated the board is working on a fix that will incorporate a spike protruding thru the oil outlet standpipe to prevent blockage by FOD.

A second look at this accident brings to mind a statement that appeared some months ago, on the back cover of APPROACH, the Navy's safety magazine ... "A professional pilot lives by his knowledge, skill, alertness, and the integrity of his ground support personnel." Fortunately, the pilot of this bottle-laden F-100 lived, but without thanks to the integrity of the maintenance man who dropped the sample bottle into the oil tank and failed to report it.

Many excuses might be offered for the bottle being dropped in the tank. Improper sampling procedures, lack of training and supervision, and poor working conditions are but a few; however, there are no alibis for the lack of moral responsibility displayed by the man who lost the bottle in the oil tank. The fact that he did not have the backbone to admit his error, regardless of the consequences, and therefore unnecessarily jeopardized a pilot's life is difficult to forgive and cannot be explained away.

Character building starts long before a flight chief gets the supervisory responsibility for an airman on the flight line. Too often, and once is too often, a pilot has not lived despite his skill and cunning, because a nut, bolt, tool, or foreign object was lost during maintenance and the loser lacked the integrity to report the loss. To us, the pangs of conscience are far less for a person who admits his error than for a person who does not and tries to reconcile the loss of a pilot's life.

**you should spend some time thinking ....**

# ABOUT ABORTS

It was drizzling lightly as the three fighters took their places in echelon for single ship takeoffs; but there were no puddles on the runway, and visibility was good. One and Two rolled with 15 seconds spacing between them; Three released his brakes 15 seconds after Two. Three's burner light was good and the engine instruments checked as the bird passed its first line check at 120 knots which was five knots above computed. The engine appeared to be producing as advertised as it pushed the aircraft and its two 335 gallon tanks, rocket launcher, and bomb rack past two more line checks on schedule. As the pilot began to raise the nose, he noticed the airspeed seemed to be holding around 155 knots. The bird didn't feel like it was accelerating. The pilot let the nose wheels back down on the runway; and when the airspeed indicator showed no increase, he started abort procedures with about 3700 feet of runway remaining...

Another day, another place...

The weather was good, the runway dry, and the engine instruments had checked okay as Lead signaled for brake release. Two said he had to make a small power change right at the start of takeoff roll to stay in position, but everything looked good. Shortly after the first line speed check, with 7000 feet of runway remaining, the lead pilot called aborting. His airspeed indicator was reading 80-90 knots; the no-go airspeed was 106 knots. Number two continued takeoff as his flight leader started accomplishing the abort procedures...

Both these takeoff aborts were unsuccessful and ended as major aircraft accidents. Altho a malfunctioning airspeed indicator triggered the pilots to abort in both cases, it can hardly be blamed for either accident. However, there is a cause that is common to both... neither pilot was properly educated or prepared to cope with a takeoff abort situation.

The pilot who made the high speed abort elected to keep his external tanks even tho the abort was initiated with around 3700 feet of runway left, and the indicated airspeed was in the neighborhood of 150 knots. At approximately 1500 feet from the end of the runway a barrier engagement became obvious, and the pilot dropped the tail hook. The rabbit catcher that had been converted to snare a tail hook couldn't hack the heavy bird travelling at 120 knots, and the 7/8 inch gear cable broke after pulling about 250 feet of chain. The careening fighter with speed brakes down, tanks, bomb rack, and rocket launcher attached continued out into the toolies. Investigation indicated the pilot's decision to abort was based solely upon reference to the airspeed indicator.

The chap who aborted after his first line speed, with 7000 feet ahead of him, should have had little trouble getting stopped. The flight manual for his type aircraft indi-

cated a stopping distance of a little over 4000 feet for a refusal speed of 135 knots. Yet he engaged the arresting barrier at an estimated 40 knots, an external tank ruptured, caught fire, and destroyed the bird. The pilot mistakenly pulled the emergency brake handle thinking it was the drag chute. Altho the airspeed indicator was malfunctioning it doesn't change the fact that there was sufficient runway available to stop without engaging the barrier.

Would you risk a high speed abort without confirming an actual acceleration loss? Do you know exactly where each switch or handle listed in the abort procedure is located? Would you punch off the tanks? If you haven't an immediate answer for these questions or haven't considered all the options and consequences of an abort, you might very well find yourself trying to figure out the answers when it is too late.

A high speed abort is an extremely critical maneuver; and if it is to be successful, the abort procedures must be thoroughly understood and precisely executed. When you abort a century series fighter at, or after, nose wheel lift-off, you are saying the aircraft cannot be safely flown; and the consequences of an abort are less dangerous than those of continuing takeoff. A flight manual cannot possibly cover all the problems you may encounter on takeoff, nor can absolute procedures be established that will guarantee a successful abort.

You, the pilot, must consider the runway length and condition, the wind, the aircraft configuration and gross weight, the type barrier available, the temperature and pressure altitude, how difficult it is to get maximum braking even under ideal conditions, and then formulate a plan before you ever start the takeoff roll. However, once you make the decision to abort, the procedure outlined in the aircraft flight manual offers you the best chance of success...provided you perform the procedure without error or hesitation.

# UNIT ACHIEVEMENT AWARDS

The following units have been awarded the TAC Unit Achievement Award for:

**12 MONTHS ACCIDENT FREE FLYING**

**104 Tactical Fighter Group, Barnes Airport, Westfield, Massachusetts**

**354 Tactical Fighter Wing, Myrtle Beach AFB, South Carolina**

**431 Tactical Fighter Squadron, George AFB, California**

**903 Troop Carrier Group, McGuire AFB, New Jersey**

**930 Troop Carrier Group, Bakalar AFB, Indiana**

**931 Troop Carrier Group, Bakalar AFB, Indiana**

**932 Troop Carrier Group, Scott AFB, Illinois**

**4442 Combat Crew Training Wing, Sewart AFB, Tennessee**

# the fatal current

Strange as it may seem, most fatal electric shocks happen to people who should know better. Here are some facts that should make you think twice before taking that last chance.

### It's Current That Kills

Off hand it would seem that a shock of 10,000 volts would be more deadly than 100 volts. But this is not so! People have been electrocuted by appliances using ordinary 110-volt house current and by electrical apparatus in industry using as little as 42 volts direct current. The real measure of shock's intensity lies in the amount of current, "amperes" forced through the body and not the voltage. Any electrical device used on a house wiring circuit can, under certain conditions, transmit a fatal current.

While any amount of current over 10 milliamps (0.01 amp) is capable of producing painful to severe shock, currents between 100 and 200mA (0.1 to 0.2 amp) are lethal. Currents above 200 milliamp (0.2 amp), altho they produce severe burns and unconsciousness, do not usually cause death if the victim is given immediate attention. Resuscitation, consisting of artificial respiration, will usually revive the victim.

From a practical viewpoint, after a person is knocked out by an electrical shock it is impossible to tell how much current passed through the vital organs of his body. Artificial respiration must be applied immediately if breathing has stopped.

### Physiological Effects

Chart 1 shows the physiological effect of various current densities. Note that voltage is not a consideration. Altho it takes voltage to make the current flow, the amount of shock-current will vary depending on the body resistance between the points of contact.

As shown in the chart, shock is relatively more severe as the current rises. At values as low as 20 milliamps, breathing becomes labored, finally ceasing completely even at values below 75 milliamps.

As the current approaches 100 milliamps, ventricular fibrillation of the heart occurs . . . an uncoordinated twitching of the walls of the heart's ventricles.

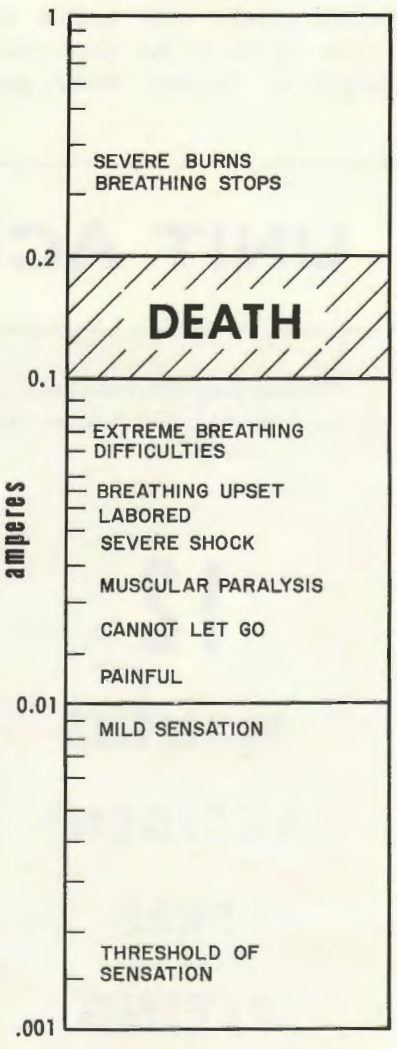
Above 200 milliamps, the muscular contractions are so severe that the heart is forcibly clamped during the shock. This clamping protects the heart from going into ventricular fibrillation, and the victim's chances for survival are good.

### Danger . . . Low Voltage!

It is common knowledge that victims of high-voltage shock usually respond to artificial respiration more readily than the victims of low-voltage shock. The reason may be the merciful clamping of

*adapted from*
*TEKTRONIX SERVICE SCOPE*

**Chart 1**




**Physiological Effects of Electric Currents**

the heart owing to the high current densities associated with high voltages. However, lest these details be misinterpreted, the only reasonable conclusion that can be drawn is that 75 volts are just as lethal as 750 volts.

The actual resistance of the body varies depending upon the points of contact and the skin condition . . . moist or dry. Between the ears, for example, the internal resistance . . . less than skin resistance . . . is only 100 ohms, while from hand to foot it is closer to 500 ohms. Skin resistance may vary from 1000 ohms for wet skin to over 500,000 ohms for dry skin.

When working around electrical equipment, move slowly. Make sure your feet are firmly placed for good balance. Don't lunge after falling tools. Kill all power, and ground all high-voltage points before you touch wiring. Make sure that power cannot be accidentally restored. Do not work on ungrounded equipment. Don't examine live equipment when you're mentally or physically fatigued. Keep one hand in a pocket while you investigate live electrical equipment. Do not handle electrical equipment when your clothes or shoes are wet or when your skin is damp. Do not work alone!

Above all, do not touch electrical equipment while you're standing on a metal floor, damp concrete, or other well grounded surfaces. Remember, the more you know about electrical equipment, the more heedless you're apt to become. Don't take unnecessary risks.

### What To Do For Victims

Cut voltage and remove the victim from contact as quickly as possible . . . but don't endanger your own safety. Use a length of dry wood, rope, blanket, or other non-conductor to pry or pull the victim loose. Don't waste valuable time looking for the power switch. The resistance of the victim's contact decreases with time. The fatal 100 to 200 milliampere level may be reached if action is delayed.

If the victim is unconscious and has stopped breathing, start artificial respiration at once. DO NOT STOP RESUSCITATION UNTIL MEDICAL AUTHORITY PRONOUNCES THE VICTIM BEYOND HELP. It may take as long as eight hours to revive the patient. There may be no pulse and a condition similar to rigor mortis may be present; however, these are the manifestations of shock and are not always an indication the victim has succumbed.

## The PEASHOOTERS

**BOEING**

# PW-9

**The XPW-9 was the first Boeing-designed fighter and the first of a long line of one place open cockpit Boeing pursuit ships which were to bring fame to the Boeing name.**

**The "PW" designation stood for Pursuit Watercooled.**

**Deliveries of the production model began in 1925, and the PW-9 went into immediate service with our pursuit squadrons. Over the next few years, the PW-9 design underwent several modifications, culminating in the PW-9D, but retaining the maneuverability and ease of handling for which this type was noted.**

*Gross Weight . . . . 3,234 pounds*
*Wing Span . . . . . 32'*
*Top Speed . . . . . 155 mph*
*Cruising Speed . . . 124 mph*
*Landing Speed . . . 63 mph*
*Range . . . . . 360 miles*
*Armament . . . . . Two .30 cal mach guns*
*Engine . . . . . Curtiss D-12 440 HP*

# CHOCK TALK

## close call

The engine technician was checking the C-135's engines for air leaks and direct oil pressure. He was standing outboard of number two and about three feet back from the inlet when he felt a tug at the collar of his field jacket. He ducked instinctively, but his headset was sucked into the engine and caused serious damage to the compressor. This troop was wearing his headset over a hat, which may have helped the headset to break loose. Of course, had he stayed a respectful distance from the intake it wouldn't have been a problem.

*SSgt Kenneth L. Millette*
*Shaw AFB, S.C.*

## ground 'em

An eager crew was pulling minor maintenance on the U-3A, in spite of a slight drizzle and considerable thunder and lightning in the area. The engine mechanic, up to his ears in cowling, asked his erstwhile assistant for a wrench, reached back for same, when a bolt of lightning struck the tail of the aircraft. He and others in the immediate vicinity were promptly knocked to the wet ramp, with hair standing straight and a fine high voltage tingle throughout. Taking shelter, the crew justifiably refused to accomplish any more work until the squall had run its course.

Examination of the aircraft found it thoroughly and properly grounded with not a circuit breaker open nor a fuse fused. Grounding, in this case, paid off handsomely, with no fire, no damage to the bird, and only a shook crew, who are now believers in the advantages of keeping a clear path of small resistance for static.

## the unkindest cut

That sub-conscious fear that haunts four-motor types ... two out on one side ... became a reality for a C-130 pilot. In cruise number two engine was shut down due to an indication of uncontrollable overheat. No real problem as yet ... just a 50 per cent reduction in his safety margin. Entering a GCA pattern, number one engine fire warning light came on. Engine fire procedures went smoothly enough and normal and reserve fire extinguisher bottles were discharged. Now matters became a little terse and that large safety factor had shrunk to zero. Fortunately, the pilot was close in and the landing was successfully terminated before either the pilot or number three engine surrendered.

Now the painful part ... number two's uncontrollable overheat indication was caused by a defective overheat thermostat. To add insult to injury ... number one's fire warning light was due to a defective fire eye. And, the unkindest cut of all ... the normal and reserve fire extinguisher bottles did not fire because of a loose power lead to the fire control panel. The actually overheated pilot muttered something resembling, "who needs enemies."

## real chock talk

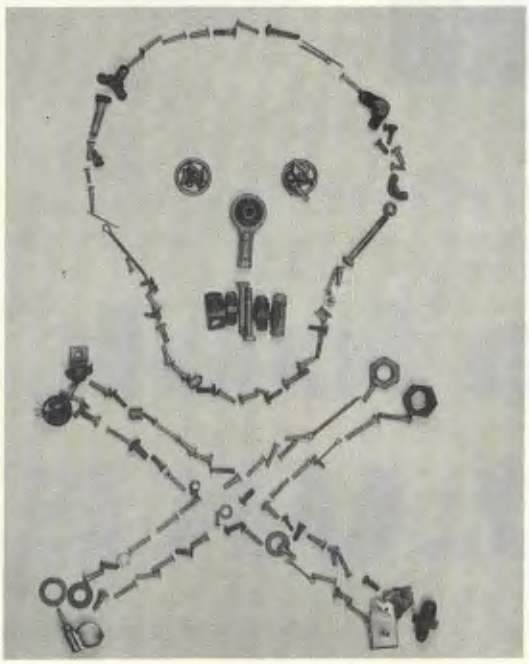
The following is a natural for a column titled Chock Talk. Now you can amaze your friends with your detailed knowledge and satisfy your own doubts about the adequacy of the aircraft wheel chocks on your bird. SAAMA conducted an Air Force-wide study and service test of aircraft wheel chocks and forwarded consolidated recommendations to SSMs on up-

dating T/As and ground handling TOs to reflect use of chocks as follows:

All chocks share the same designation: 42D6594

- -1: Twenty inches long by eight inches wide by six inches high for medium and large cargo/bomber aircraft such as the C-119 and B-66 through the KC-135 and B-52 size and weight range.
- -2: Fourteen inches long by six inches wide by four inches high for helicopters, trainers, and century series aircraft.
- -3: Fifty-six inches long by eight inches wide by six inches high for SAC Alert status B-52 and KC-135 aircraft.

Except for a situation where the parking area is ice or snow-covered there seems to be no requirement for using more than two chocks per main landing gear.



## grim reminder

Airman David E. Jewell of England AFB sent in this unusual photo treatment of FOD and the accompanying story: The mechanic was hurrying to an urgent job when his tool box slipped to the ground and spilled this FOD all over the taxiway. He scooped up some of it, closed his tool box, and pressed on about his business. Happily, someone else came along and cleaned up the taxiway before the spilled nuts and bolts caused serious trouble. However, the hazard wasn't eliminated . . . he's still on the loose and willing to bet someone else's life that people will keep cleaning up after him.

## lemme out !

*Capt Vincent Hughes*
*Hq TAC (OSF)*

While making the circuit of C-130 troop carrier bases we've found the darndest collection of methods to prevent inadvertent inflight jettisoning of crew entrance doors. The emergency release handle located overhead in the crew compartment can be accidentally pulled by anyone standing in the cockpit while trying to maintain his balance, or while just swatting flies. So a locally designed cover was installed with an easily removable pin to prevent creating this gaping hole in the side of the aircraft when you least wanted it. The cover and pin were fairly standardized for a while, but lately it looks like there may be a few shade tree type modifications being made to it. For instance, one unit was using three different methods to secure the cover. Another unit had one fastened so securely that it took about two minutes of prying to finally get the cover off, which is not too pure if you should ever have to jettison the door. We suggest a quick look by all units to make sure that safety covers are standardized throughout their fleet, and that the proper quick pulling pip pin is used in securing it. Incidentally, a Class I modification (TAC) number C 0506025 covers the proper method of securing this handle.

## check the checklist

An F-105 load crew was checking out the AGM-12B jettison system when the right outboard universal pylon was jettisoned. The left inboard station was the only station that had an AGM-12B pylon installed. The load crew, which was later decertified, had not followed the procedures outlined in the check list for aircraft preparation. They had not dearmed ALL the pylons.

## an inspection ???

A T-39 pilot was making a military climb when the number two engine oil pressure began fluctuating between 15 and 45 psi, and the oil pressure low level light blinked on and off. He shut down the right engine and landed without any problem.

When the maintenance types started poking around the right motor, they found a couple of embarrassing gross errors. The oil filter O-ring seal was crimped and leaking, and two heli-coils that fasten the main oil strainer cover to the oil filter housing were loose and partially stripped. The improperly installed cover was also leaking oil. Oh yes! The bird had just come out of a phase inspection the day before!


**39,550 F-100 hrs accident free !**

# a look at LUKE

a look at luke

Colonel Augustus M. Hendry, Jr., Commander of 4510CCTW, injects his drive for safety and efficiency into every phase of the operation.

The ramp at Luke . . . a very busy one!

Mobile control at Luke is no longer a "wheels watch" alone, but controls traffic while supervising all flying. Here, Major Ed Gund, typical of squadron operations officers and commanders who regularly pull mobile, is assisted by Lt Salome, an instructor, and a student pilot recorder.

Final check before takeoff assures F-100 is in top shape. Dubbed "The Maintenance Trap" by pilots, maintenance inspection team mobilized in a special bus proved its effectiveness by a notable decrease of inflight emergencies.

Mission briefings start two hours before scheduled takeoff, allow time for detailed briefing and thorough preflight. Instructors, like Major John Westphal here, have accepted much of the responsibility for insuring Luke's accident-free operation.

When a unit teaching pilots the rudiments of tactical fighter flying reduces its accident rate . . . that's news.

When the F-100 training unit at Luke Air Force Base completed 1965 without an aircraft accident . . . it was big news! In over fourteen months the 4510th Combat Crew Training Wing's F-100s racked up 39,550 hours and 28,338 accident-free sorties.

The F-100 training mission at Luke is such that accident exposure is extremely high. Historically, accident rates have soared in training programs that put student pilots thru the paces of air-to-ground weapons employment, air combat tactics, formation, air refueling, and low level navi-


Mr. Thurmon Brown believes only way to reduce FOD damage is to clean the ramp, not merely sweep it. FOD incidents at Luke dropped 80 per cent from 1964 to 1965.

Daily stand-up briefing uncovers specific difficulties encountered during day's operation. Here Vice Commander Colonel Merle M. Coons is briefed by squadron commanders. Staff officers are on hand to discuss difficulties in scheduling, operations, maintenance, or supply and recommend solutions on the spot.

gation. However, thru strong and determined leadership, careful organizational planning, and dedication by all concerned, the Luke unit proved that it can be done safely and efficiently. With more than enough aircraft to fill two tactical fighter wings, over 1500 maintenance personnel, and 101 instructor pilots, the wing trained an average of 130 student F-100 pilots at a time under less than ideal conditions.

High density jet traffic adjacent to a busy civil air terminal created constant problems. Luke generated approximately 230 fighter sorties each day in a training area that is jointly used by two other major Air Force training bases and a Marine fighter unit. Exposure to mid-air collision was exceptionally high.

The training mission dictated short missions with an abnormally high number of takeoffs and landings. Touch and go landings were practiced on F-100 initial checkouts.

Air-to-air and air-to-ground gunnery sorties, many of them initial checkouts, presented a high exposure to accidents. Luke pilots delivered a total of 32,340 tons of munitions and fired 278 AIM-9B missiles in 12,800 F-100 weapons delivery sorties. Most of these munitions were delivered by students, and in almost every case the missile firings were initial qualifications.

Air combat tactics, low level navigation, and inflight refueling are high hazard areas. The low experience level of most student pilots coupled with the fact that this constituted initial checkout in these events magnified the problem.

During 1965 the student training program increased and an entire tactical fighter wing's aircraft, support personnel, and


Instructor, student, and maintenance men . . . the people who fly safe at Luke.

These signs at arming and dearming points greatly simplify communication between ground crew and pilot.

A great deal of the accident prevention program must emanate from the Chief of Maintenance Office. Here Lt Col J. F. Peterson and CMS R. L. Tudor discuss a safety problem with the personal interest and enthusiasm that greatly contributed to Luke's successful operation.

pilots were transferred to Luke. Line pilots were upgraded to instructors in a minimum of time. They were then integrated into the three existing F-100 squadrons and immediately assigned students to train. Simultaneously, support personnel and aircraft were integrated into the two maintenance organizations.

While this was taking place, several experienced instructor pilots and highly trained support personnel were transferred to Viet Nam, affecting the professional level of personnel within the unit.

The predominately desert terrain and exceptionally high temperatures associated with the Arizona climate presented problems. Ramp temperatures went to 115 degrees and higher in the summer months, reducing the stamina and efficiency of the troops on the flight line. High temperatures increased the possibility of tire and brake failures and barrier engagements during longer takeoff and landing rolls.

The fall season presented the hazard of fast-developing thunderstorms. Gusty surface winds, turbulence, reduced visibility in rain, hail, and dust, occur quite frequently. The storms usually build up rapidly and present a serious recovery and diversion problem to the students.

Despite all the problems and potential hazards that surround them, Colonel Hendry and the 4510th Combat Crew Training Wing have set a new standard for safe, efficient, and effective F-100 operation that other training or tactical fighter units will be hard pressed to meet.

Well done, Luke... TAC is proud of you!


Luke's busy maintenance people averaged an operational ready rate of over 78 percent, consistently produced more aircraft sorties than were scheduled.

when your life depends on it don't be .....

# caught short

Someone is stealing your chances for survival! They may be doing it unintentionally as a result of inadequate inspections and procedures, or they may be doing it deliberately as a criminal act of stealing. Regardless of why and how, you are the one that is being short changed. And you are the one that may have to survive without equipment you assumed would be available.

What exactly are we talking about . . . aircraft survival kits. More precisely, survival seat kits that are packed in ejection seat equipped aircraft. Here are a few examples of the problem:

After completing an ocean crossing, a much surprised F-105 pilot found he had made the flight with a survival kit that didn't contain a radio or life raft. The AF Form 516 (Survival Kit Inspection Check List) was stowed inside of the kit rather than in the pocket provided in the seat cushion. Consequently, the pilot could not verify what was in the kit without unpacking it. So he assumed everything was in the kit and launched.

Recently, two pilots in one of our newer fighters departed a northern base where the bird was being modified. When they arrived at their home airpatch after flying over some below-freezing and wild terrain in the middle of winter, they found that both survival kits were short many of the mandatory items listed in TACR 60-6, Survival Equipment. As a matter of fact, their kits contained only three flares, a survival manual, and a whistle. Entries in the Form 781 indicated that each kit was properly packed. The inventory card on the front seat kit had no entry to show that it was short items, and the rear seat survival pack was written up as having minimum equipment.

In addition, a couple of single seat fighters also returned home without survival kits after a trip through a Mod Inspection. In place of the kits that accompanied the birds to the inspection base were padded boxes that looked similar to survival seat packs.

Fortunately, none of these pilots had to use their missing survival equipment; however, if they had needed it, they would have been very disappointed. This problem of survival kits and their contents being misplaced is not a new one. Nevertheless, the problem appears to be still unsolved and growing in magnitude. If it continues unchecked, someone will eventually become a fatality, if he hasn't already, because he did not have the necessary survival equipment. Closer supervision and more stringent and frequent inspections by both aircrews and support personnel certainly would be a step in the right direction. In the meantime, pilots may find it beneficial and necessary to make survival kits a special check list item when they are picking up aircraft at a depot or preparing for a deployment. That is not to say it shouldn't be part of the every day preflight check . . . the object being to not get caught short.

# SUPERVISOR !

# SUPERVISOR !

## wherefore art thou, supervisor ?

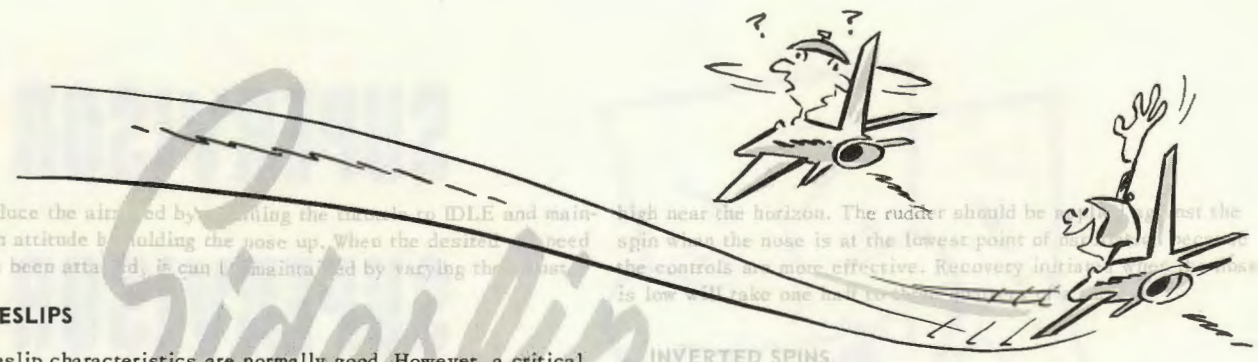
With apologies to the Bard of Avon... this type of near-tragic comedy of errors (supervisory, that is) occurred in medieval times and sadly enough continues to date. The stage is set for this performance in a TAC inspection dock. It is a familiar plot and you will predict the ending before too much of the play unfolds, but the epilogue has a small twist.

This is the first (and only) scene: An F-104 is in the dock undergoing a periodic inspection with electrical power applied to the aircraft. In the cast of characters we find at least three supervisors. First, the dock chief who is performing chief-type duties offstage in the office labeled Periodic Maintenance; second, the assistant dock chief who is actively supervising the action onstage, but apparently not talking to the third supervisor, the aircraft chief inspector, who is actively supervising also and shares the reluctance of the assistant dock chief to communicate... with each other.

Entering the scene from the left, a flight control specialist checks with the aircraft chief inspector and prepares to apply hydraulic power with the hydraulic specialist on the scene. Coming on scene right, an electrician checks in with the assistant dock chief and begins to clear aircraft electrical discrepancies. The assistant dock chief now leaves the stage... still not talking to the aircraft chief inspector... having been summoned by an authoritative voice heard off-stage. Our supervisors have now been reduced in amount by two-thirds.

The hard-working electrician completes one task and proceeds to the right wheel well to safety a cannon plug. While the electrician is enroute to the right wheel well, the hydraulic specialist makes a quick check beneath the aircraft and sees that it is clear and turns back to his hydraulic mule and begins to pressurize the aircraft system. At 2200 psi the hydraulic specialist hears a scream, realizes that it cannot be the mule, and immediately reduces hydraulic system pressure. The hydraulic specialist and the flight control system specialist rush to the right wheel well, overpower the wheel well door, and remove the crushed electrician to off-stage. The aircraft chief inspector does not participate in the rescue having exited the stage un-noticed sometime earlier.

This tragic play has an epilogue, and it is just as sad as the rest of the presentation. In the performance, jury struts... door locks... were not used to prevent the wheel well doors from closing inadvertently because our supply personnel could not locate several old, long-unused sets that were hidden in a corner. So it was easier to order new ones; and unfortunately, the new jury struts did not get here in time! 'Course, after the performance we tried a little harder and did manage to uncover the three old sets. But then, if we had found the old jury struts earlier... and used them ...how would we have found out that our supervisors had walked off stage during the first act?



**SIDESLIPS**

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

# Wingman Failed To . . .

It was a blustery day, but the sudden change from the cold of winter was welcome. Sideslip had felt a tingle of excitement when he got out of bed . . . it just felt like a good day for flying.

The drive to work only whetted his appetite. Traffic had been neither light nor heavy . . . but enough to challenge his skill and ingenuity to stay on the speed limit and make his check points on time. This was a game that he played every day both going and coming from work. He rolled his watch up on his wrist where he could see it easily and kept very close track of his progress for the twelve to fifteen minutes that it took him to get to and from the hangar. Today was one of those good days that he was able to stay within thirty seconds of his ideal flight plan. But it took work . . . careful assessment of all the traffic in front as well as behind, gauging his speed to take maximum advantage of each traffic light change, trying to predict the actions . . . almost the personalities . . . of the drivers around him.

It was one of those days that Sideslip wanted to put on his G-suit as soon as the morning meeting was over. The only natural thing on a day like this was to get in an airplane and fly. He found himself on the schedule for a morning instrument mission. In the afternoon, he was to chase a low-level nav checkout.

The Ops Officer caught Sideslip right after lunch and drew him aside from the coffee pot. "I put you with Major Shorthead this afternoon, Slipper, because we need to show that he flew with an IP. It's his first real low level since he came back to this business . . . let him handle it however he wants." The Ops Officer sounded almost apologetic. "He has four thousand hours and most of it in fighters. Why they make such a fuss about retreading these guys that caught a bad assignment for a while . . . "

"OK, Boss," Sideslip acknowledged. He was glad he had been selected for what could be a bit of a challenge . . . supervising this old head without letting on that he was doing it.

The exhilaration started to return as they walked over to PE after the briefing. Greg Shorthead had presented a very commendable briefing . . . he would practice a wing takeoff, and then take the lead for the nav leg. The kind of briefing you expect from an old head. He had mentioned all the proper precautions and procedural reviews that should be included. There was no question

in Sideslip's mind that his student knew what he was about... this wouldn't be the chore of careful tact and quiet prompting that Sideslip had feared. It was good to be going flying!

With a haphazard wave of his hand that was supposed to be something like a start signal, Sideslip pushed the start switch, then the ignition, and finally nudged the throttle around the horn. As the burners rumbled under him, he let his gaze wander from the gauges to the sky above. He registered the increase in low, fluffy clouds and returned to the business at hand... fuel flow, temp, oil pressure starting to move... back to the tailpipe temp ...right on the money as it peaked and dropped back where it should be.

On the way to the runway Major Shorthead followed the signals as he had briefed them. The tower gave them four thousand scattered, fifteen miles visibility just before they rolled. Sideslip measured the clouds quickly. They were approaching broken to his practiced eye, he thought, and they were marching smartly across the runway too. Be a bit bumpy, he told himself before he nodded his brake release; and they were on their way...

Out of burner after the gear had bumped up and the flaps were started, Sideslip flattened his climb, resisting the temptation to stand his steed on its tail and feel the thrill of its thrust. His wingman hadn't settled down since they raised the gear. The clouds were only five hundred feet above them when Sideslip saw Greg's head nod as he settled into good position.

Sideslip eased back gently and flicked the trim once or twice as he shook himself down to his serious gauges position. No telling how deep these innocent little clouds were. Funny, he smiled... the little habits you get yourself into.

As they flashed into the clouds, Sideslip sensed Major Shorthead was bouncing around on his wing. Was he working awfully hard, or was it just the turbulence? It was plenty bumpy... worse than he had expected! But these clouds don't go very high, he told himself. We'll be on top in short order... then on to the checkpoint and letdown into the low-level route.

Sideslip had established his bank and made the small correction that it took to hold his airspeed in the climb when he felt it.

There was no question in his mind about what it was... Greg Shorthead had hit him!!

Sideslip carefully studied the engine instruments to be sure that they were still in the green. Then he satisfied himself that his flight instruments were showing a steady climbing turn as the panic started to rise in his temples.

Finally he allowed himself a long look out each side of the canopy...

"I... I'm climbing straight ahead, Slipper." It was Shorthead's voice on the radio. "You OK? You under control?"

Sideslip's mouth was dry. "Yeah... OK," he rasped.

"I... I think I..."

"I'm OK, Two... how about you?" Sideslip was glad he had found his voice as the throbbing in his temples slowed down.

"On top now... VFR on top," relief flowed over the radio. "This is Two... I think I hit you! I saw some pieces fly off your bird... right in my canopy..."

"Ah, this is Sideslip Lead... I'm turning back toward the TACAN and the field." Get control of the situation... fast! Sideslip told himself. "Two... meet me over the field. You're OK, aren't you... any control problems?"

"No... ah, neg... I'm turning back." Major Shorthead's voice was beginning to rise.

"You should roll out behind me, Two... I'm reading seven miles from the station." Sideslip decided that the best thing was to keep Shorthead busy. "See if you can spot me as I cross the field. Catch up with me and we'll look each other over before we try anything else."

"Rog... uh, rog... Sideslip." The major was still pretty shaken. "I've got about... uh... about eight miles now, but I've got to turn some more."

"Well, pull your head out of the cockpit, Two!!" Sideslip realized that his anxiety had gone over the radio as he swung his head to look back on each side. "Look, I'm going to eight thousand until you find me... you stay about seven... OK??"

"THERE you are!" Relief gushed thru the headset. "I gotcha ...I gotcha!"

"OK, Two... now settle down ...I'll hold what I've got at about seven-five... you join." Sideslip leveled and eased back to hold his airspeed.

It wasn't really a join-up. It was a mutual, unspoken agreement, after the major had passed him three times, that Sideslip would follow his wingman and try to look him over.

"You look undamaged, from here, Two." Sideslip decided to affect a business-as-usual tone of voice. "Hold still and I'll see what you look like up front... don't try to look me over until I say GO."

As he came up abreast of Greg's airplane he could see that

there was a bad skin tear on the forward camera door, but nothing else seemed to be damaged. "I'll pull ahead just a little bit, Two. You have nothing missing... just a coupla bruises on the camera door."

"I think I hit you around the drag chute, Slipper ..." Greg started to slide into position with more assurance than he had shown since the takeoff that seemed such a long time ago. "Yeah... your right drag chute door's sprung open and... looks like the tail skid's missing. It is!"

Sideslip waited apprehensively while his wingman completed the inspection under him. Finally Greg Shorthead appeared on the right side and moved into a comfortable formation position.

"That's all I see, Slipper... Look, I'm awful..."

"You lead..." Sideslip interrupted. "You lead back to the field. It's right down there at three-thirty in the turn."

"You've got the lead, let's go home!" Sideslip snatched back on the throttle and then brought it back in as he established his position on Shorthead's left wing.

It had taken quite a while and a lot of words, but the Ops Officer finally stopped shaking his head. "Amazing... just an incident," he said for the twentieth time. "That phone call was Maintenance. Said they estimate two man-hours to repair your bird, Slipper... and about eight on you, Greg." His expression changed to one of serious business from the amazement that had dominated his face since he met them after they parked. "Now! Let's figure out this report... I've a copy of your narrative, Slipper. And the weather I'll get from the weather man. What're we gonna put in the part about Cause Factor? Do we say something about... wingman failed to..."

"Well ..." Major Shorthead leaned forward intently, "there were a number of factors involved. And it would be difficult to pin down one specific."

He had their attention now and relaxed as he went on, "I was surprised at the turbulence just after we got the birds cleaned up ... pretty rough ... and then just as we were settling down we went into the clouds. I glanced away from you for a moment, Sideslip, and when I looked back you were gone... didn't expect those clouds to be that thick. Well, I continued the turn ... but I may have shallowed my bank. Anyway next thing I knew, you were all over the windshield!"

"Let's say dense clouds and turbulence caused it." The Ops Officer sounded relieved.

Sideslip suddenly felt sick... no mention of lost wingman procedures. He didn't stop by the club. It had truly ruined his whole day.

He didn't even look at his watch on the way home.

*When she started on this kick, we told her she was just being defensive. But she insists it's all in the interest of defensive driving. So listen while . . .*

# *Phyllis* talks... about women drivers

No one, not even people in the safety business, can say that women have more car accidents than men. There just aren't any statistics to prove this. However, the fact does remain that women do get involved in numerous skirmishes that are rather hard to explain. This doesn't necessarily mean that they are bad drivers . . . just different.

Two things contribute to this slight inadequacy on the part of the woman driver. You, dear male reader, can remedy both. Promise never to tell another joke about women drivers, and I'll tell you how.

First of all, most women were never properly taught to drive. Male family members seem to go all to pieces when they are assigned the job of teaching the girl in the family to drive. See, it's all your fault after all. Driver education classes are fine but until recently, they were few in number and concentrated more on the boys who were known to be worse drivers at that age. Consequently, most women managed to come through with only the most basic information about the operation of a car. So find out if the woman in your life really knows all she should about operating a car.

Throw in a little information on safe driving practices and defensive driving. Explain escape hatches, playing detective on the road, what to do when a collision is imminent, tailgating and what to do about it, and special weather conditions.

The second problem that gives women difficulty in driving, and undoubtedly the one that causes the most accidents, is driving distractions. How good a driver do you think you'd be if you were also trying to put on lipstick, adjust a girdle, keep the grocery sack from upsetting, and last, but worst of all, keep the kids from falling out of the car or killing each other? Maybe you can't do much about some of the distractions but you can and should settle one . . . the kids. In my opinion, it is the responsibility of the man in the house to set up rules of behavior for the little funsters when they're in the car and then see that the rules are carried out. As long as each one has a seat belt, and no long weapons, there is really no problem. Children are real quick to catch on to the safety business, and with a little motivation they soon take the responsibility of seeing that each person is safely strapped in before the car gets in motion. One word of caution . . . don't carry this motivation bit too far or they will drive you out of your ever lovin' mind repeating those tired old safety cliches over and over again.

Now, have we managed to reduce havoc on the highway? Not at all. It is a known fact that nothing confuses a man more than a woman driver in front of him doing everything perfectly.

# TAC TIPS

## SOMTHING WRONG ?

From an incident report of utility hydraulic system failure . . . "Emergency gear system worked good. Emergency brakes worked as advertised." . . . like, how were they advertised?

## ALMOST ROUTINE

Shortly after the flight of two entered the clouds after takeoff, the lead pilot noticed an overheat warning light. He honked back on the throttle but the light didn't go out. He declared an emergency and was immediately cleared to turn back toward the field and descend below the 1200 foot overcast. He went to tower frequency, received clearance to drop his tanks in the drop area on downwind, and found the runway ready for him as he turned final. The landing was almost routine.

All this didn't occur by accident... the departure controller had a plan in advance, the tower operator was monitoring departure frequency and promptly cleared the runway, the drop zone location had been planned with just such a short-fused situation in mind.

## EMERGENCY

It was hard to believe, but the OHR was very real... and the description of the hazard was vivid:

Blank 123, a C-47, was heard to broadcast on 243.0, UHF guard channel, for 20 to 30 minutes to Somewhere Tower. The conversation concerned a weather report, some telephone numbers, and other unnecessary chatter. The transmissions were heard more than 200 miles away.

Investigation disclosed that the ground station involved had no other UHF frequency available... but that doesn't make much of an excuse, does it?

## BROKEN BRAKES

It was a normal approach and smooth touchdown about 800 feet down the runway. After he lowered the nose and raised the flaps, the pilot engaged nose wheel steering and rode comfortably down the runway. He didn't use brakes because a stiff headwind and a good drag chute slowed him very effectively. He was down to about 40 knots and ready to turn into the taxiway when he learned that his brakes wouldn't work. Since he didn't have time to turn off the anti-skid, he elected to roll ahead into the barrier instead of attempting the turn. Oh well, it sure is nice to have a barrier around when all else fails. Like both anti-skid detectors and the pilot... who forgot the rather elementary procedure of checking brakes sometime before it's too late.

## AW C'MON GUY !

On the rollout after landing the '105 driver pulled on the drag chute handle but couldn't get it to budge. He rolled over the BAK-9 and engaged the webbing barrier, damaging the left main gear fairing door.

When he was asked why he failed to drop his tail hook for a BAK-9 engagement, he said he had thought he could stop his chariot with brakes.

## BUMP & JUMP

The instructor in the rear seat was giving the front seat pilot a requalification ride in the T-bird. After flying in the local area while the student pilot regained his feel of the controls, they headed for an airfield to practice landings. Six touch-and-go landings brought the feel of the bird back nicely. The pressure was off. Both pilots relaxed. The seventh touch felt different... the gear was up! It didn't go.

## UPSETTING ONSET

Two instructors leaped off early in the morning on a cross-country T-bird trip. The back-seat troop held the pole until they leveled at FL 350, when the front-seater took over. Shortly thereafter, Back Seat said he was going to remove his mask to blow his nose. A few minutes later, Front Seat realized his cohort was not responding to conversation. When he looked, he found Back Seat slumped over in his shoulder harness. Front Seat declared an emergency and headed for denser air...Back Seat regained consciousness as they passed 17,000 feet and re-attached his mask.

Although the report didn't say what the cabin altimeter read, the two troops involved now have a lot of respect for the rapid onset of hypoxia at high altitude.

## MAID-AYE ?

About three years ago pilots flying around the southeast US were startled to hear an aircraft using a call sign that sounded like MAYDAY-2. A little research disclosed that the call sign was spelled MAID-82...but it's the sound that counts. An Operational Hazard Report to the responsible people corrected the error at that time.

Now, three years later, we find the old MAID has reared its ugly head again...on another base but just as thoughtless. Let's hope that by the time this comes off the presses, MAID-82 will be no more!

## WHAD'JA EXPECT ... CHIMES ?

One part of the FCF card called for the pilot to shut down and re-start the engines of his Tiny Airliner one at a time. As he zinged along at 150 knots, he shut down the left. He attempted to re-start it, but the rpm hung up at 18 per cent, EGT went to 325 degrees, and the fire warning light illuminated. When he pulled the T-handle the light went out.

Minimum airspeed for airstart in the T-39 book is 160 knots.

## THANX BUDDY !

The pilot was herding his 'Hundred along as number three in a flight of four. When the flight leveled at 3000 feet he felt a thump similar to a bird strike or a bit of jet wash. Number four slid across to look him over and found the left main gear fairing door missing. Because he hadn't exceeded gear limit speed with the gear down on this flight all hands concluded that someone else had on a previous flight...


## $R_X$ FOR ROCKETS

The F-100 was on a routine air-to-ground mission with three rockets loaded on the left outboard station. The pilot fired the outboard rocket . . . made no attempt to fire the rockets in the center and inboard tubes. He turned all armament switches off and pulled the rocket fire circuit breaker. The center rocket fired when the nose gear touched down. Investigators determined that internal failure of the rocket fire intervalometer caused the trouble. When the nose wheel touched down, a ground lock relay energized permitting 28-volt DC to reset the intervalometer. Due to the internal failure, power continued out to the launcher and fired the number two rocket. Troubleshooters duplicated this malfunction during a ground check. To avoid hosing rockets around the airfield on landing, the best move appears to be to activate the intervalometer reset button while you're still on the range. If the intervalometer is malfunctioning, the rocket will fire when you reset instead of when the nose gear touches down. Incidentally, pulling the rocket fire circuit breaker will not isolate power from the rockets when this type of intervalometer failure occurs.

## PROBE & DROGUE

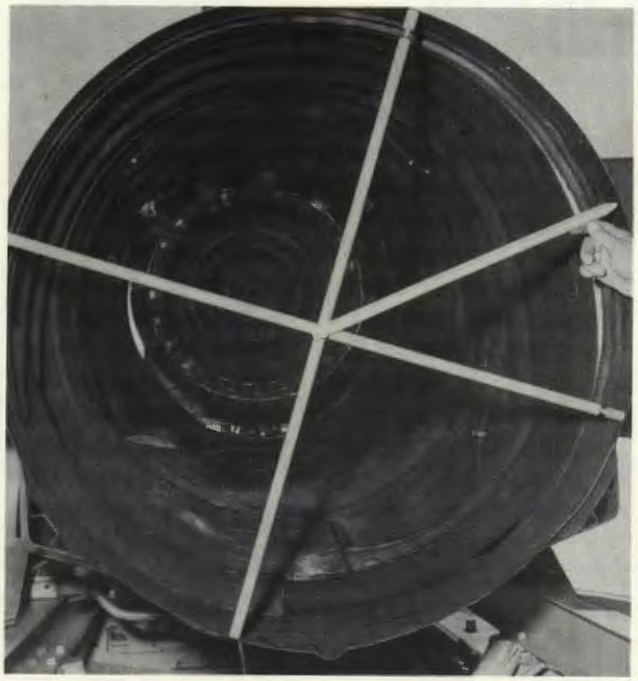
The Hundred Herder had successfully taken 2000 pounds of fuel from the tanker. He disconnected and repositioned for a second contact. It went smoothly, but a disconnect occurred when he dropped back from lack of power. After the third contact he moved in too close and allowed too much slack in the hose. The drogue oscillated, appeared to stabilize, then whipped up and down violently when fuel transfer started. After six oscillations, the fighter's probe broke off.

# BETTER MOUSETRAP DEPARTMENT

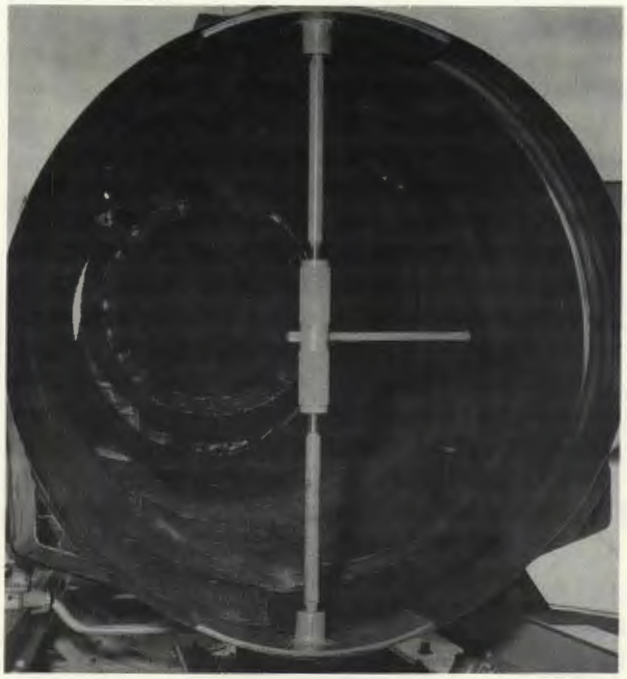
Staff Sergeant Robert L. Blackburn of the 31st Field Maintenance Squadron, Homestead AFB, Florida, has come up with a simple and accurate means of determining whether an F-100 aspirator is out of round. In addition, he has developed a tool for straightening deformed aspirators. The aspirator measuring and straightening tools are primarily made out of 3/4 inch steel rods. Both tools can be produced locally at nominal cost and minimum man-hours.

The measuring tool is easily installed, and the aspirator can be checked each time the aircraft's aft section is pulled. If it is found to be out of round, Sgt Blackburn's straightening tool can be used to correct the problem. No more hydraulic jack and blocks of wood to fall and crush toes.

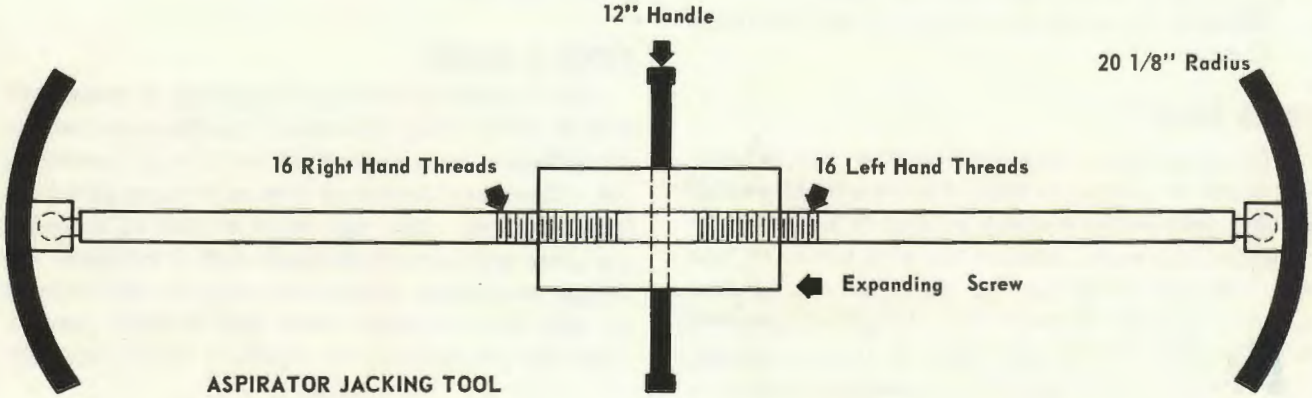
Thanx, Sgt Blackburn. People in other F-100 units will be beating a path to your door for more info on your aspirator tools.



ASPIRATOR MEASURING TOOL



ASPIRATOR JACKING TOOL




ASPIRATOR JACKING TOOL

# Recognition

## MAINTENANCE MAN OF THE MONTH

Staff Sergeant Fredric C. McCoy of the 23d Tactical Fighter Wing, McConnell Air Force Base, Kansas, has been selected as a Tactical Air Command Maintenance Man of the Month. Sergeant McCoy will receive a letter of appreciation from the Commander of Tactical Air Command and an engraved award.

## CREW CHIEF OF THE MONTH

Staff Sergeant Rafael E. Flores of the 4510th Combat Crew Training Wing, Luke Air Force Base, Arizona, has been selected as a Tactical Air Command Crew Chief of the Month. Sergeant Flores will receive a letter of appreciation from the Commander of Tactical Air Command and an engraved award.

## PILOT OF DISTINCTION

Captain Robert E. Watkins, 435th Tactical Fighter Squadron, George Air Force Base, California, has been selected as a Tactical Air Command Pilot of Distinction.

Captain Watkins was number six in an F-104 cell deploying to Southeast Asia. During his fourth air refueling the drogue assembly failed damaging the probe head and sliding down the probe. The drogue disturbed left wing air flow and caused a pronounced left yaw, airframe buffet, and near-stall operation of the engine. Repeated attempts to onload fuel from a divorted tanker were unsuccessful. The abnormally high fuel flow would not permit Captain Watkins to reach an alternate, and he prepared to bail out over an ocean station vessel. At minimum fuel, just prior to ejection, Captain Watkins made contact on the opposite side of the boom with the boom base over the canopy. The damaged probe head accepted fuel slowly; and in spite of heavy cockpit fuel fumes, the transfer was completed permitting safe landing.

Captain Watkins' superior airmanship and ability to adapt to a critical situation readily qualify him as a Tactical Air Command Pilot of Distinction.

# letters....

To the Editor

I would like to comment on an article that appeared in the December issue of TAC ATTACK, Checking the Martin Baker Seat. The article covered Pilot and RSO preflight procedures very well; however, I disagree with one paragraph, pertaining to the drogue gun trip rod.

The trip rod is attached to the drogue gun sear pin at the top, and the ejection gun bracket at the bottom, not to the airframe as stated in the article.

If the trip rod should happen to be overlooked and not attached, your automatic features will not be cancelled. The time release mechanism will release the integrated harness through the survival kit restraint strap lugs, also the upper harness yoke by releasing the loop strap, in turn releasing the wedge pack strap rings, leg restraint cords are also released.

The only thing holding the occupant to his seat are the sticker clips which break away at 25 to 40 pounds pull and the personal parachute withdrawal line.

During normal ejection sequence, the seat will tumble until the stabilizer drogue deploys; however, in this instance the drogue gun, through faulty maintenance, did not extract the drogue chutes.

Do your editors honestly believe the aircrewman could think fast enough (1 3/4 seconds) under these conditions (approximately 15 Gs) to reach for his guillotine handle before the wind stream separates him from his seat? In this circumstance, the personal parachute withdrawal line would extract from the chute and deploy the chute; however, the seat would still be attached to the personal parachute. The seat would fold the chute when upon deployment and the result is the loss of the aircrew member.

CONCLUSION: Check the trip rod.

J. G. Baltz, AME-3, USN
VF-33, FPO New York

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To the Editor

Reference your telephone call and the letter by AME-3 Baltz, USN, concerning my article entitled "Checking the Martin-Baker Seat" in the December 65 issue of TAC ATTACK. This Navy type apparently knows the seat pretty well, but I can still shoot him full of holes.

Reference paragraph 2 of his letter. He's right about the trip rod being attached at the bottom to the ejection gun bracket, but since the ejection gun bracket remains with the aircraft during ejection, I consider it part of the airframe. This is a technicality not worth further discussion.

Reference paragraph 3 of his letter. He states, "if the trip rod happens to be overlooked and not attached, your automatic features will not be cancelled." He's right in part, but you still won't be automatically separated from the seat, and that was what I was concerned about. The time release mechanism will still be activated at 10,000 feet or below. However, this will not do the ejectee much good as he will not be automatically separated from the seat, since the drogue chute did not deploy. Violent tumbling may overcome the sticker clips and separate him from the seat, but the withdrawal line for the personal chute would still be attached to the scissors shackel and in turn to the drogue gun sear pin. The seat then, would still be attached to the ejectee by the withdrawal line. As AME-3 Baltz states in his last paragraph, the seat would most probably foul the chute and the result would be a loss of the crewmember. The only way you can get rid of the seat, in this case, is to activate the emergency release handle which would sever the personal parachute withdrawal line. So even though certain automatic features are still operational, (if the drogue gun trip rod is detached) seat separation is not automatic.

Reference his last paragraph. I don't know about you Editors, but if I should eject (above 10,000 feet) and find I don't get stabilized by the drogue chute after a couple 'a tumbles, I'll know darn well it ain't going to work and that I'll have to separate manually. If below 10,000 feet, I doubt if anyone not prepared could actuate the emergency harness release handle fast enough to beat the time release mechanism (1 3/4 secs). But so what? We both agreed that the seat would most likely foul the chute, so why not pull up on the emergency release handle and fire the guillotine to cut the withdrawal line? Who knows, the seat may untangle and separate, leaving you unencumbered? You've nothing to lose, and plenty to gain by trying.

I realize this is a real head scratcher for people unfamiliar with the MB seat, as there are so many new gadgets and devices incorporated into it. In fact, after re-reading this it sounds something like that old minstrel about "the knee-bone connected to the shin-bone and the shin-bone connected to the ankle-bone, etc." Maybe you Editors could set this to music! Anyway this kind of thing does stimulate interest and the little knowledge derived therefrom can be most beneficial.

Maj Hugh P. Ruhsam
Director of Safety
4453 CCTW
Davis Monthan AFB

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To The Editor

Reference is made to the article on page 24 of the February TAC ATTACK entitled, "Surprise."

The incident as presented in the magazine is similar to one that we had here in the 363d Wing; however, if it is our incident, the facts are erroneous.

If it is not our incident, there are other units, obviously, which have neglected to fully comply with T.O. 1T-33A-615D which requires installation of a guard for the canopy jettison handle of the T-33 aircraft.

Maj Alvar B. Wallin
363TRW, Shaw AFB, S.C.

*--We sterilize our briefs because our intent is not to embarrass or incriminate anyone . . . and because we believe only the situation is important, not the people or location. In this case, tho, you have one on us. We got our facts scrambled to the extent that instead of a knee board that caught the emergency canopy handle, the culprit was an un-zippered flying suit pocket! There's hardly a bird in the inventory that doesn't have at least one piece of trouble sticking out of the walls just waiting for an open pocket to snag on it. We hope that by now all the T-bird canopy jettison handles are properly guarded . . . but then there'll be something else to snag a pocket on. Lesson . . . keep 'em zipped!*

AN ANALYSIS OF TAC ACCIDENT EXPERIENCE

# TAC TALLY

for february 1966

## ACCIDENT FREE

| ACTIVE | MONTHS | | ANG/RES |
|---|---|---|---|
| 354 TFW | 12 | 6 | 131 TFW |
| 363 TRW | 8 | 5 | 140 TFW |
| 31 TFW | 5 | 4 | 122 TFW<br>102 TFW |
| 4500 ABW | 56 | 111 | 434 TCW |
| 4442 CCTW | 39 | 72 | 435 TCW |
| 516 TCW | 18 | 67 | 349 TCW |

JET

PROP

F-84

MINOR - Lost control on formation landing roll. Ran off runway.

F-100

MAJOR - Oil press. dropped, engine seized on lo-level flight. Ejection successful.

MAJOR - Compressor stalls, loss of thrust, fumes in cockpit. Successful ejection at 1400' AGL.

MAJOR - Controls froze, acft on fire. Ejection successful.

MAJOR - Rough engine, rudder froze, fire light and smoke, rpm went to zero. Ejection successful.

F-86

MAJOR - Stick froze, acft entered violent roll. Ejection successful.

F-105

MAJOR - Aft section explosion in gunnery pattern. Ejection successful.

F-4C

2 FATAL - Disappeared from scope on low altitude intercepts over water.

## FEB TALLY

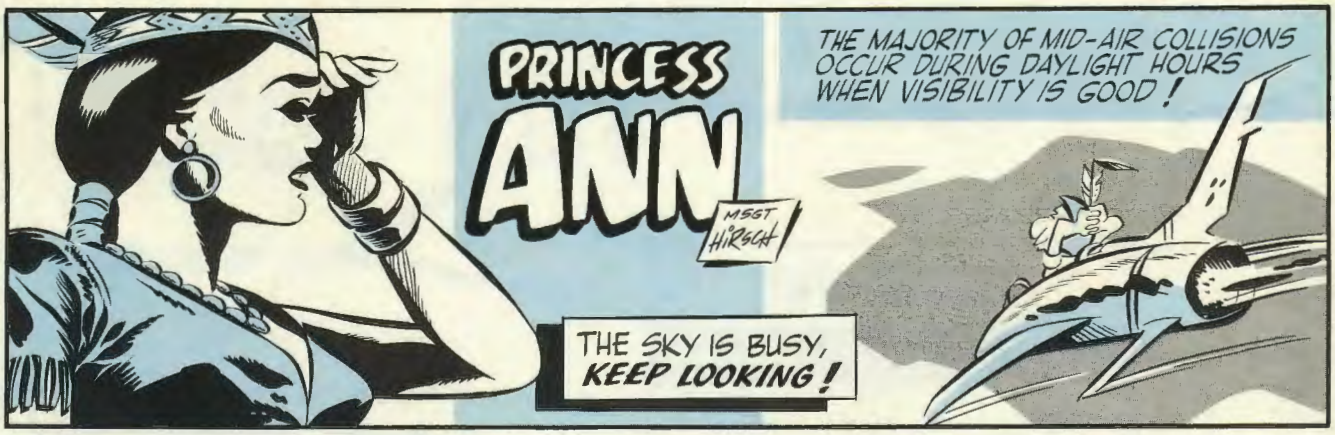
| UNIT | MAJOR | MINOR |
|---|---|---|
| 4 TFW | 1 | |
| 4520 CCTW | 1 | |
| 401 TFW | 2 | |
| 33 TFW | 1 | |
| 108 TFW | 1 | 1 |
| 121 TFW | 1 | |
| | | |
| | | |
| | | |
| | | |

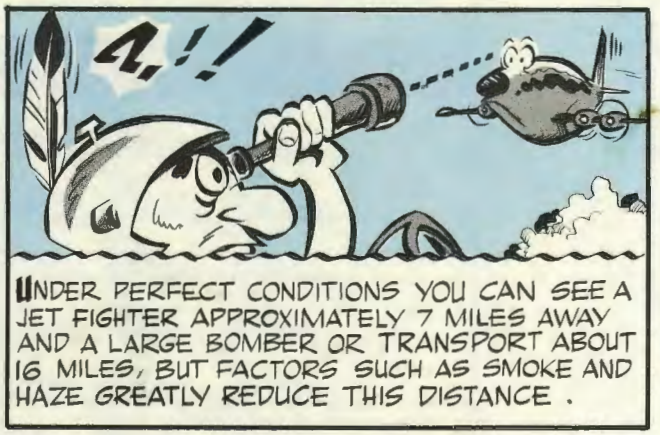
## MAJOR ACCIDENT RATE

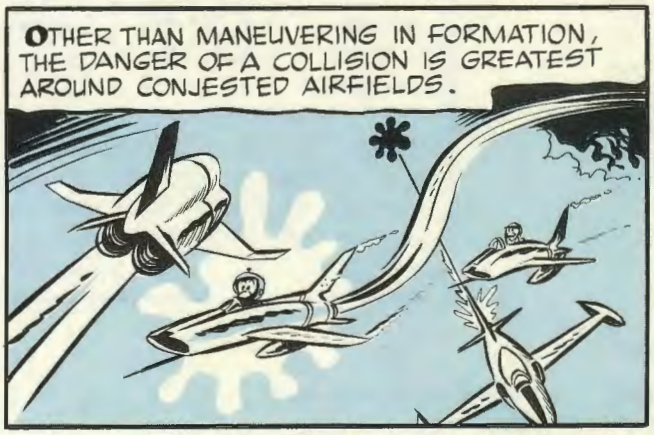
| TYPE | TAC | * ANG | AFRES |
|---|---|---|---|
| ALL | 6.8 / 8.9 | 14.8 / 13.2 | 11.2 / 1.7 |
| A-1 | 0 / 15.7 | | |
| F-84 | — / 0 | 12.3 / 15.8 | |
| F-86 | 237.0 / 121.6 | 0 / 31.1 | |
| F-100 | 11.3 / 14.4 | 35.0 / 17.0 | |
| F-101 | 0 / 0 | 146.0 / 0 | |
| F-104 | 18.7 / 23.3 | | |
| F-105 | 15.0 / 22.3 | 0 / 46.5 | |
| F-4 | 13.1 / 10.5 | | |
| B-57 | | 0 / 12.3 | |
| C-47 | 0 / 0 | 0 / 0 | 0 / 0 |
| C-97 | | 0 / 6.6 | |
| C-119 | | 0 / 0 | 11.6 / 1.3 |
| C-123 | 0 / 0 | | — / 11.0 |
| C-130 | 0 / 1.8 | | |
| T-29 | 0 / 0 | | |
| T-33 | 0 / 0 | 0 / 5.3 | |
| T-39 | 0 / 0 | | |
| | | | |

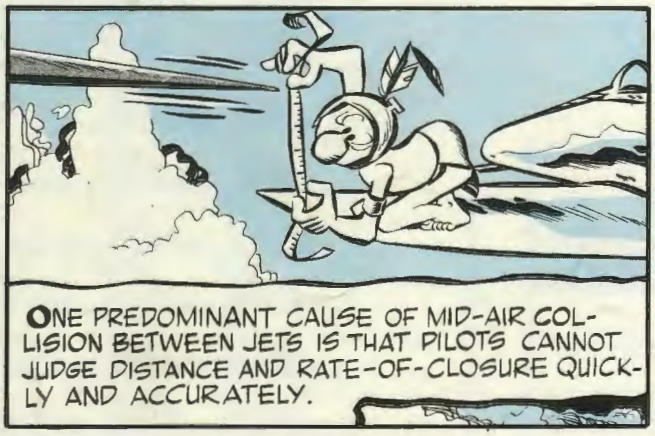
* estimated due to non-receipt of ANG rates at presstime.

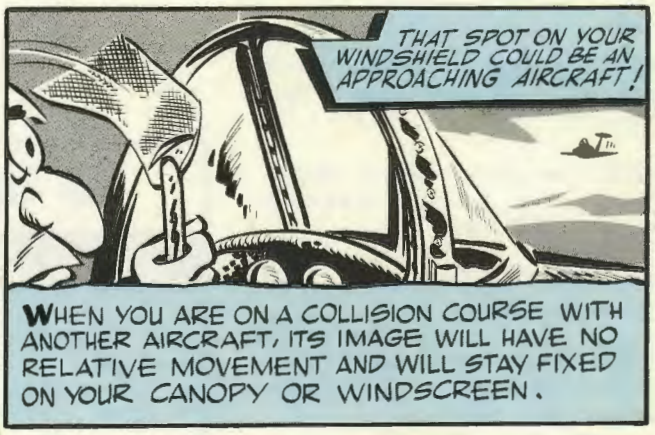
thru Feb 66 / 1965


PRINCESS ANN
MSGT HIRSCH
THE MAJORITY OF MID-AIR COLLISIONS OCCUR DURING DAYLIGHT HOURS WHEN VISIBILITY IS GOOD!
THE SKY IS BUSY, KEEP LOOKING!


A,!!
UNDER PERFECT CONDITIONS YOU CAN SEE A JET FIGHTER APPROXIMATELY 7 MILES AWAY AND A LARGE BOMBER OR TRANSPORT ABOUT 16 MILES, BUT FACTORS SUCH AS SMOKE AND HAZE GREATLY REDUCE THIS DISTANCE.


OTHER THAN MANEUVERING IN FORMATION, THE DANGER OF A COLLISION IS GREATEST AROUND CONJESTED AIRFIELDS.


ONE PREDOMINANT CAUSE OF MID-AIR COLLISION BETWEEN JETS IS THAT PILOTS CANNOT JUDGE DISTANCE AND RATE-OF-CLOSURE QUICKLY AND ACCURATELY.


THAT SPOT ON YOUR WINDSHIELD COULD BE AN APPROACHING AIRCRAFT!
WHEN YOU ARE ON A COLLISION COURSE WITH ANOTHER AIRCRAFT, ITS IMAGE WILL HAVE NO RELATIVE MOVEMENT AND WILL STAY FIXED ON YOUR CANOPY OR WINDSCREEN.


IN ADDITION TO LOOKING AROUND YOU MUST ALSO MOVE YOUR HEAD IN THE COCKPIT TO SEE BEHIND AREAS BLOCKED BY THE CANOPY BOW OR OTHER STRUCTURE.


AIR TRAFFIC CONTROL AND ANTI-COLLISION DEVICES HELP--BUT IT IS STILL UP TO THE PILOT TO LOOK FOR AND AVOID OTHER AIRCRAFT. KEEP LOOKING!
KEEP'UM CLEAR MOVING AIRCRAFT ME LIKE'UM FLY SAFE!