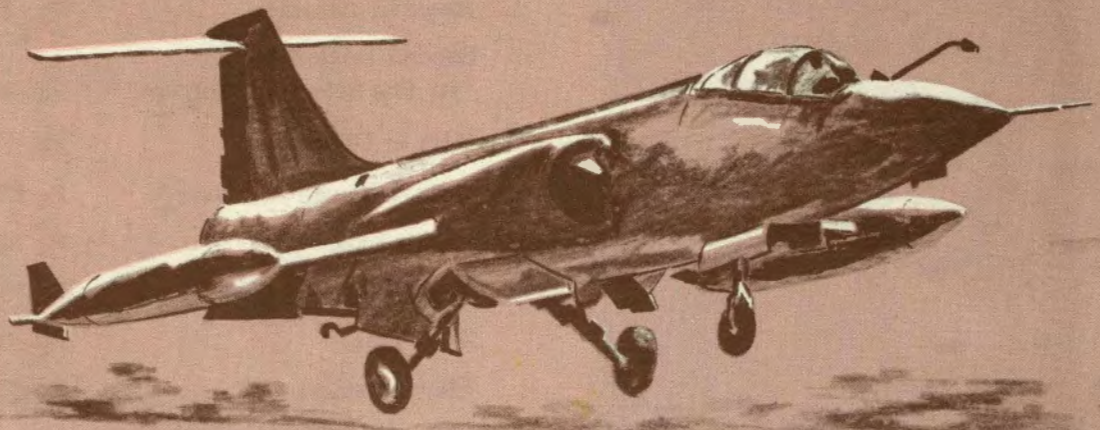
TAC ATTACK

Tac attack

JUNE 1970



HARRISON

STOPPING...Page 4

stopping.. Page 4

for efficient tactical air power

TAC ATTACK

JUNE 1970

VOL. 10 NO. 6

TACTICAL AIR COMMAND

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JAMIE SEZ;

"If things don't change, they'll stay as they are."

current interest

departments

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Angle of ATTACK

Judgment and Experience

TAC started 1970 strong with an all-time low level of accident experience as rates go . . . a total of five major accidents during the high-hazard winter months of January and February . . . but since then we seem to be weakening somewhat at the seams. March, April and the first two weeks of May have added 13 accidents to that total, plus three aircraft delivery mishaps not charged to TAC's overall rate.

At this mid-year point, no definite cause factor trends have been identified in the materiel failure area. However, the continuing problem of aircrew error (including supervisors!) is still very apparent and enters into the cause factor listing of the majority of our aircraft accidents. And the solution to one of our "people problem" trends relates directly to the individual aircrewman and his immediate supervisor. Both must fully understand that TAC's present training mission has no requirement whatsoever for aircrews launching into a dangerous situation, or with an aircraft that is not airworthy.

What I am saying is: if the air machine is not completely ready for the mission, fix it! If a squall line or thunderstorms are in your way and can't be avoided: the old classic, a 180-degree turn, is the sensible answer! If you find the weather at the range is below safe operating conditions, cancel that part of your mission! And obviously, if a range event or flight maneuvers haven't been briefed, don't attempt them!

I fully appreciate that the pride that goes with mission accomplishment is important and should be encouraged and supported. And that both aircrews and their supervisors have to work around less than ideal circumstances at times to get the job done. However, judgment and experience must enter into the determination of what is an acceptable level of risk in mission achievement. Throughout my Air Force career one important fact has come through loud and clear. A good NORS, abort, or OR status can be completely overshadowed by an adverse accident rate!

The approach is relatively simple. Aircrews, don't get over-committed and work your way into a box. Supervisors, weigh all the flight factors carefully before launching each and every sortie.

Virgil K. Meroney

VIRGIL K. MERONEY, Colonel, USAF
Chief of Safety

A Second Look at THE STOPPING PROBLEM

Every now and then we get lulled into thinking that this business of stopping airplanes during the landing phase will be learned by all and that we can forget it and press on to more urgent flying subjects. But then along comes a message describing a landing accident or incident that was avoidable, and it's back to the drawing board and the books.

We promise not to get technical and lay on four or five fancy formulas in order to trick you into thinking that this subject is difficult, or that you must be an aeronautical engineer to master it. We've long ago proved that both of these requirements are unnecessary.

To start off on the right foot let's define the problem by using an example. To keep you with us, we'll use a real one. It's 0400 hours, the night is clear, and the aircraft commander of this F-4 is letting his back-seater shoot the GCA. They are landing on runway 24 and the wind is 120 degrees at 3 knots. That's almost like no wind at all, but if it picks up it will be a tail wind. At any rate, the glide path was good until decision height was reached. At that point the aircraft went high. GCA advised that the aircraft was too high for a safe approach and if the runway was not in sight, "execute a missed approach." The aircraft commander then took control of the aircraft and attempted to salvage what was left. He landed long, thinking he could stop the bird. He stated later that he touched down on speed, about 2500 feet long. His bird's gross weight was 42,000 – the computed minimum landing roll for this weight is 3200 feet.

So, no problem, right? Wrong! The drag chute was deployed and the front-seater did his version of maximum braking. As the aircraft passed the BAK-12, a thousand feet from the end of the runway, he decided that he could not stop the aircraft on the concrete remaining and lowered the hook. The tail hook engaged the MA-1 and the aircraft stopped 220 feet into the overrun. They estimated that he engaged the barrier at about fifty knots. There's a lot missing in this incident report, but you get the gist of what happened. With touchdown at the 2500-foot point, on speed, this jock had about 7300 feet of runway to go. The drag chute worked, and the anti-skid checked out perfectly – so where does that leave us?

Let's go back to the stopping problem and state it sort of non-technically. We can say that the airplane pinioned to your posterior possesses a bunch of foot-pounds of kinetic energy at touchdown. And that this energy must be reduced to zero before you will be stopped. That's about it. Also, the foot-pounds of energy are a function of your weight and your velocity at touchdown. Since we don't normally begin shedding airplane pieces to reduce our weight until the bird is off the runway, our problem then is to reduce the velocity portion of the stopping equation.

So let's talk about the landing phase of flight. To get

things in the proper perspective, one basic fact must be recognized . . . THE AIR FORCE DOES NOT PROCURE AND PUT INTO SQUADRON SERVICE AIRCRAFT THAT ARE NOT CAPABLE OF BEING OPERATED SAFELY BY OUR PILOTS OFF EXISTING RUNWAYS. If you won't buy that, read no further – we'll be reading about you some day.

For those of you still with us, let's separate the landing phase into six basic parts and talk about each one. We'll use these:

Final Approach
Touchdown Distance
Aerodynamic Braking
Wheel Braking
Drag Chutes
Barriers and Arresting Gear

FINAL APPROACH

Here is the "bargaining place" where you can arrange to buy a landing accident, blown tires, or your barrier/A-gear engagement. And this is the crux of our landing problem: Only you, the pilot in command, can control your speed on final. The kinetic energy of your air machine as you cross the fence has been fixed by you and you alone. Furthermore, your minimum stopping distance for the wind and runway conditions in a given aircraft configuration, HAS BEEN DETERMINED BY YOU BEFORE YOU TOUCH DOWN. True, your skill, or lack of it, will alter the book figures. But you no longer have control over the point where your aircraft will come to rest, unless the stopping distance which is now governed by the physical laws of nature is less than the runway available in front of you.

If you are too hot, it follows that no amount of pedal pushing, handle pulling, switch flicking, or button pushing is going to insure that you will complete a normal landing. Drag chutes fail, hooks skip (or don't drop), and brakes may or may not be effective. You should be fully aware on final, each and every time you line up for a normal landing, that the approach can be carried out safely without having to rely on your drag chute or your hook. If you don't feel this assurance in your own mind, something has been left out in your training or planning . . . or you don't fly with all the precision your skill will allow. And your profession demands!

TOUCHDOWN DISTANCE

This point is mentioned primarily to clear up one of the myths surrounding it. We use the touchdown point as a criteria to judge landings. This is fine, but it's only half of the story. Our fighters have the capability to set down

at speeds anywhere from 135 to 200 knots at normal landing weights and who can judge that?

The problem here is one of technique. Assume a final approach speed is right on the money – how long do you hold it? Some jocks fail to transition from a final approach speed, to "over-the-fence" speed, to touchdown speed, in an orderly and programmed sequence. Except for the F-4, our other airplanes require this pilot technique. Often, a final approach speed is established and held until over the overrun. Then the descent is broken and the aircraft is "flown" onto the runway at the proper touchdown point. And, instead of being at the proper speed, the bird can be smoking along anywhere from ten to forty knots faster than it should be.

Holding final approach speed into the flare also throws in another hooker. Anytime you are hot and level off just above the runway you will be in ground effect to some degree. Then, as you know, aircraft drag decreases and those extra knots you're carrying are guaranteed to extend your rollout. Not so however, if you had transitioned properly from final airspeed to "over-the-fence" speed a few thousand feet back on final.

AERODYNAMIC DRAG

If your bird will cut it, this is the cheapest "velocity decreaser" in your pilot's bag of tricks. At touchdown aerodynamic drag will exceed your available braking force by many pounds. At some intermediate point in your rollout they will be equal; your Dash One should recommend when and how to transition to wheel brakes. Your Dash One should also tell you how to get maximum aerodynamic drag from your bird. Remember, for a given velocity it drops off rapidly when below the optimum nose-up angle.

One final point to remember if you can use this cheap

The Stopping Problem

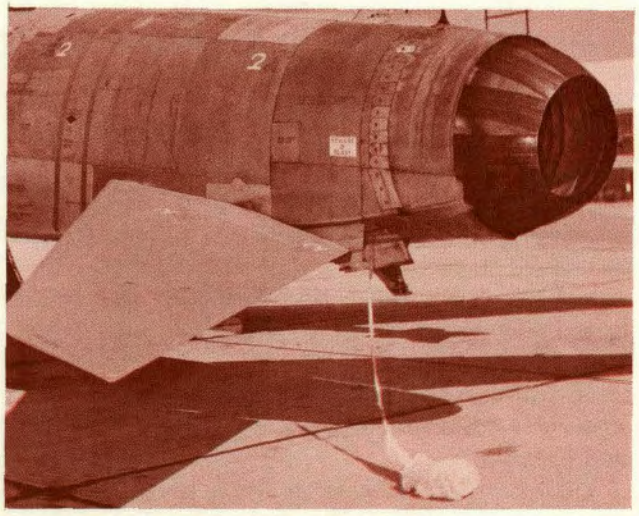
drag procedure, take care of your nose gear. When your bird is cocked up at an angle around sixteen degrees, don't hold it there until the bottom drops out. Start flying it down to the runway at the Dash One recommended speed.

WHEEL BRAKING

There's enough material on this subject alone to fill all thirty-two pages of this issue. You've read it all before and you've heard it a million times, right? Okay, then why don't we stop blowing tires like they cost only a nickel apiece? First of all, is there any overriding tactical necessity to tromp on the binders at a hundred knots? The only requirement we know of is to finish a test hop. One young troop came up with, "Well, the book says it's no problem." Someday he's going to look awfully silly scrambling out of the cloud of dust kicked up by his bird after it left either side of the concrete with both tires blown. And he'll really be one sick lad when he tells the boss that was the reason they're one bird short for the big mission. Antiskid is the greatest thing since you-know what. But it doesn't always work as advertised. It takes skill and cunning to blow a tire at low speed, it only takes a pair of ham feet to do it around a hundred knots, so take your choice. But don't point to the Dash One when they blow — you're the goat and there's no way out.

DRAG CHUTE

Contrary to what some pilots may believe, the drag chute is not on your aircraft to stop it. Its sole purpose is to save wear and tear on tires and brakes. Think about it — wouldn't it be utterly stupid to buy a multi-million dollar airplane and then pack a little parachute in a canvas bag to be used to stop it? Sure, it's handy for salvaging a poor approach and for use during an emergency landing — but can you depend on it? Our low drag chute failure rate can lull you into a false sense of landing security. Since you can't predict a drag chute failure, you're just playing the odds when you pull the handle — like in a crap game. You have no more idea of whether your drag chute will deploy on a given attempt than if the dice shooter you're betting on will make his point of four on the next roll. So why is it that a man who doesn't drink, smoke, gamble, or even cuss, will bet his expensive, sophisticated fighter, probably worth over three million bucks, on one pull of the drag chute handle?



BARRIERS AND A-GEAR

These energy absorbers are on the end of your runway for only one reason: To stop you when all other methods of stopping have failed. They are strictly for emergency use, their concept that is. They are not a back-up for the drag chute that was intended to salvage a bum approach. Our success with the A-gear has been phenomenal, but we have also had misses. And the misses really hurt us when the A-gear or barrier was the last resort for what was supposed to have been a normal landing. The misses also hurt when a bird ends up in the toolies leaving a shoe mark a foot past the pendant cable. The missed shoe mark has been labeled an indication of a pilot's ego — it could also indicate a case of misjudgment by someone relatively inexperienced. However, we all should learn our arrestment lessons well before the off-the-runway bash.

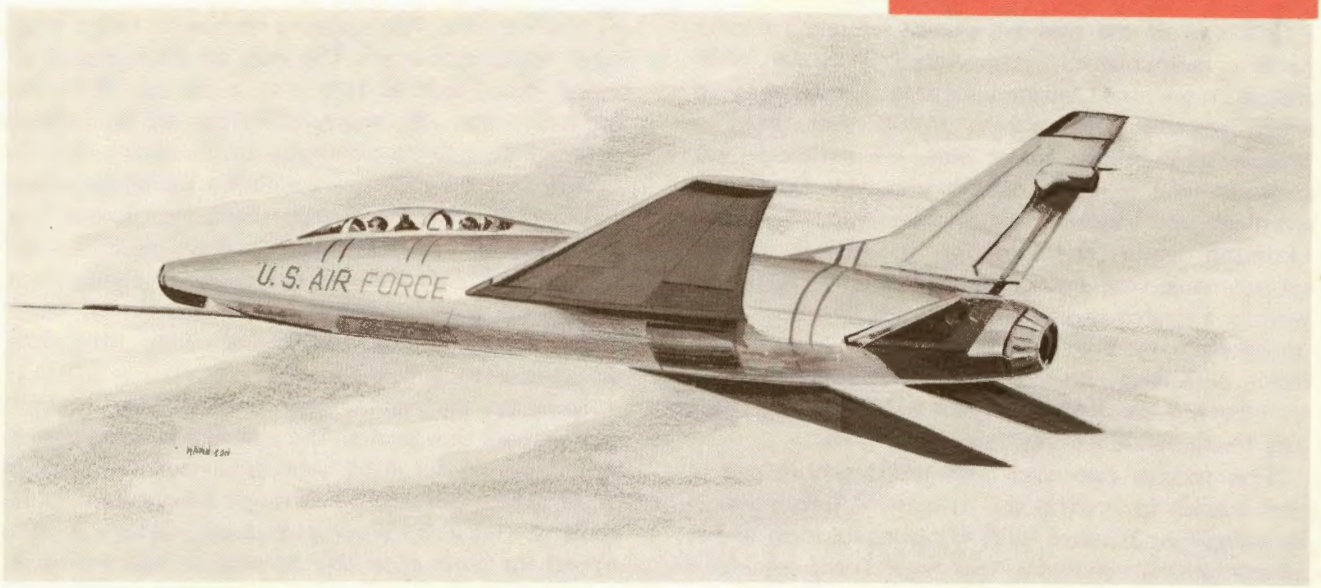
Well, there you have it, quick and dirty. We've tried to call a spade a spade. The facts mentioned are gleaned from flying airplanes and reading too many landing accident reports. Our exposure during the landing phase of flight has always been high, it will remain so. But there is no need to ignore the lessons learned from other pilot's accidents and incidents. Imagine how many times in TAC's history the difference between a normal landing and an accident was a drag chute that worked. You friendly readers may know of some actual cases, your also-friendly editor just might too.

As for playing the odds, you all know that the crap shooter eventually "sevens-out" and the casino owner wins in the long run. He wins because he has the gambling odds going for him. So, the next time you drive down final, don't just hope that you'll make that "hard-way four" — eliminate the unfavorable odds, get out of the landing crap game. Plan ahead, fly accordingly, and be a sure winner.

TACTICAL AIR COMMAND

Pilot of Distinction

Maj Wells



Major Edwin V. Wells of the 550 Tactical Fighter Training Squadron, Luke Air Force Base, Arizona, has been selected as a Tactical Air Command Pilot of Distinction.

Major Wells and a student were flying an F-100F in an ACM training mission. At 21,000 feet the formation of four ships initiated a climb to their working altitude. Passing 27,000 feet at .90 mach, the rear canopy disintegrated with such force it shattered Major Wells' helmet visor, inflicting severe facial lacerations. Suddenly blinded by blood and debris, unable to determine the condition of the student or the aircraft, Major Wells instinctively took control of the aircraft and broke down and away from the formation. Wind blast and noise level at high speed made communication between cockpits and with other planes in the formation impossible. During the descent Major Wells regained partial vision and performed emergency procedures. Slowing the aircraft to 225 knots and shouting in the intercom, he learned that the student was not injured but was severely disoriented due to the sudden explosive decompression. Altitude under 10,000 feet in mountainous terrain, numb with cold and suffering from impaired vision and loss of blood, Major Wells returned control of the aircraft to his student. In spite of continuous communications difficulties, he instructed the student during the return to their home field and a safe landing.

Major Wells' demonstration of outstanding airmanship in a critical inflight situation qualifies him as a Tactical Air Command Pilot of Distinction.

T-STORMS ARE Terrors!

by Captain James F. Hines
Scientific Services Officer
Hq, 5WW

It's one of the meanest animals in our aerospace jungle . . . still untamed and uncontrollable by man. When mature, it's a mean, mightily-muscled monster that sits erect reaching well above 30,000 feet from a broad-beamed bottom, miles wide. It's terrible temper tantrums have awesome damage potential. Few flying machines can survive if caught trespassing where it's claiming squatter's rights. It relishes playing cat-and-mouse with unsuspecting pilots; it may let him go without a scratch or leave lasting scars. When provoked intentionally by bold flying types it can maul, chew, maim, dismember, electrocute, or quick-freeze as it sees fit. Whatever the outcome, it makes the decision. That's why T-storms are terrors.

Five hazards associated with thunderstorms and of vital interest to aircrews are: 1) extreme turbulence, 2) damaging hail, 3) severe icing, 4) searing lightning, and 5) adverse terminal conditions. This rugged lineup requires us first to define and examine the formation and development of thunderstorms; then to deal individually with each of the hazards.

A thunderstorm is usually defined as a local storm invariably produced by a cumulonimbus cloud, and always accompanied by lightning and thunder. The synoptic meteorologist generally classes a thunderstorm by the nature of the overall weather situation such as air-mass thunderstorm, frontal thunderstorm, and squall-line types.

In general, there are certain combinations of atmospheric conditions that are necessary for the formation of a thunderstorm. First, there must be an unstable situation which basically means that controlling weather parameters are easily upset. A relatively high moisture content and some form of triggering mechanism are also required. The triggering mechanism results in an initial lifting of the air. This may be accomplished by several means such as 1) heat from the sun, 2) frontal upslope motion, 3) orographic lifting, and 4) induced vertical motion due to converging streams of air.

Now that the necessary conditions for thunderstorm development have been established, let's follow one through its life cycle (See Figure 1). First, the initial stage (cumulus stage) of development is one of building and consists of predominately updrafts. Condensed water vapor is usually carried upward with very little precipitation reaching the ground.

Secondly, the mature stage is characterized by both updrafts and downdrafts. The downdrafts being created by the drag on the air by water droplets that have grown to the extent that they can no longer be supported by the updrafts. This yields a cumulonimbus cloud with updrafts around the outer edges and downdrafts near the center. These downdrafts cause extremely high gusty winds near the surface and generally ahead of the storm. The mature stage is perhaps the most deadly, since all of the hazards associated with thunderstorms are reaching their maximum intensity.

The final stage of development is known as the dissipating, or anvil stage. This is usually indicated by a cirrus top and a predominance of downdrafts.

turbulence

Turbulence in and around thunderstorms must be expected because of the tremendous wind shear caused by the interplay of updrafts and downdrafts. The severity of turbulence is directly proportional to the aircraft speed

and the amount of wind shear encountered. Each pilot should check his Dash One for the recommended turbulence speed for his aircraft, and then avoid each storm cell if possible.

hail

Unlike most of the other thunderstorm phenomenon, hail does not exist in every storm. However, when it does, it usually occurs during the mature stage. The probability of occurrence increases as a storm reaches greater heights and intensities. The determination of whether or not a particular storm will produce, or is producing hail, is not an easy task. Therefore, every storm must be considered potentially capable of producing hail.

icing

Icing is always an important factor to be considered when flying in thunderstorms at temperatures below freezing. In general, icing will be associated with temperatures from 0^{O} Centigrade to -30^{O} Centigrade with rare occurrences near -40^{O} Centigrade. In areas of numerous thunderstorms, the icing problem may become serious with prolonged exposure to such conditions. The effect of icing due to thunderstorms does not differ

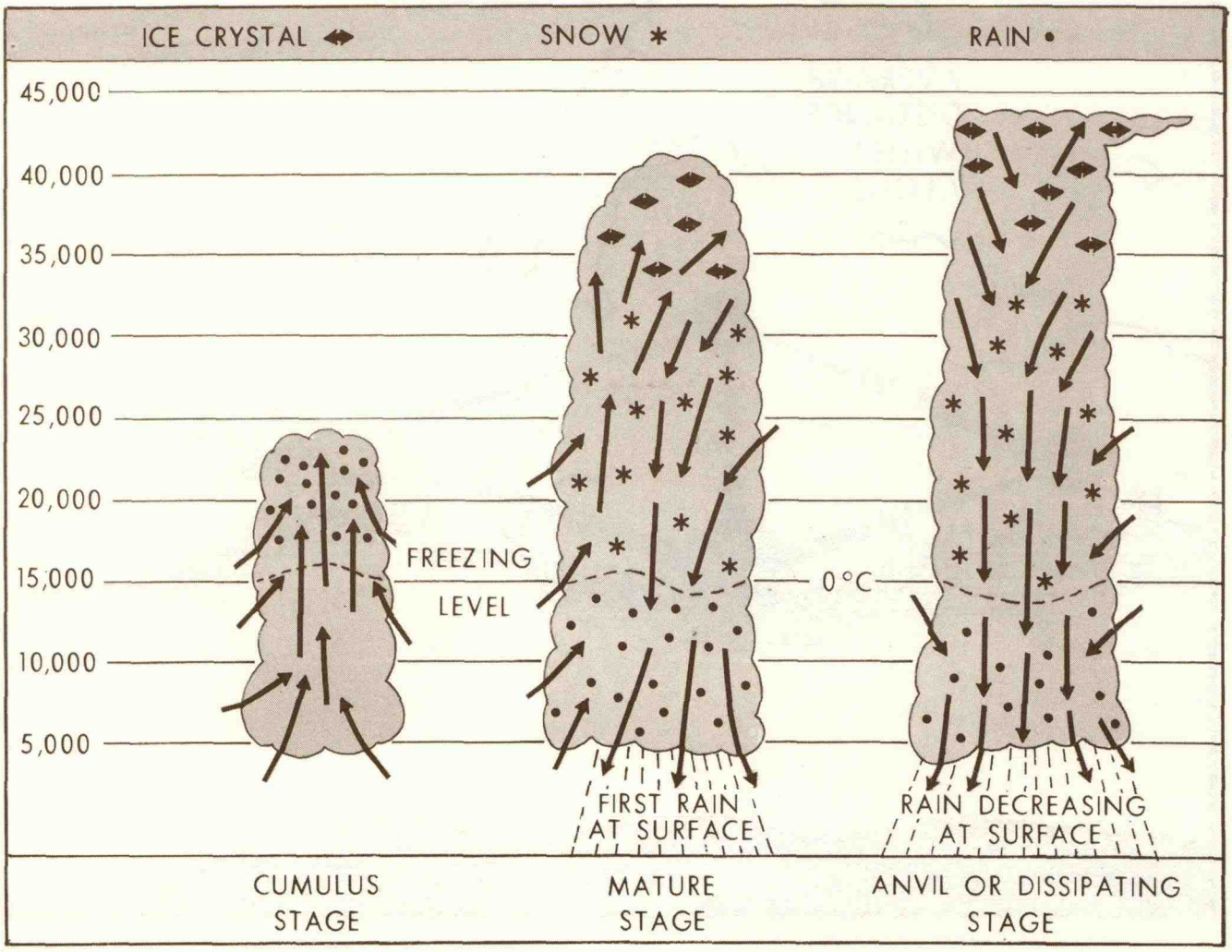


Figure 1 Thunderstorm Structure Stages

T-STORMS ARE TERRORS !

significantly from that caused by other means; therefore, the treatment of such a problem should be the same.

lightning

Lightning is perhaps the least understood phenomenon encountered by flyers. Why does lightning strike aircraft? This question has stimulated the development of many prominent theories, most of which are realistic but as yet unproven. Probably, the most credible answer is that an airplane is struck only when it happens to be in, or very near, the natural path of a lightning bolt.

Another prevalent theory is based on the idea that an

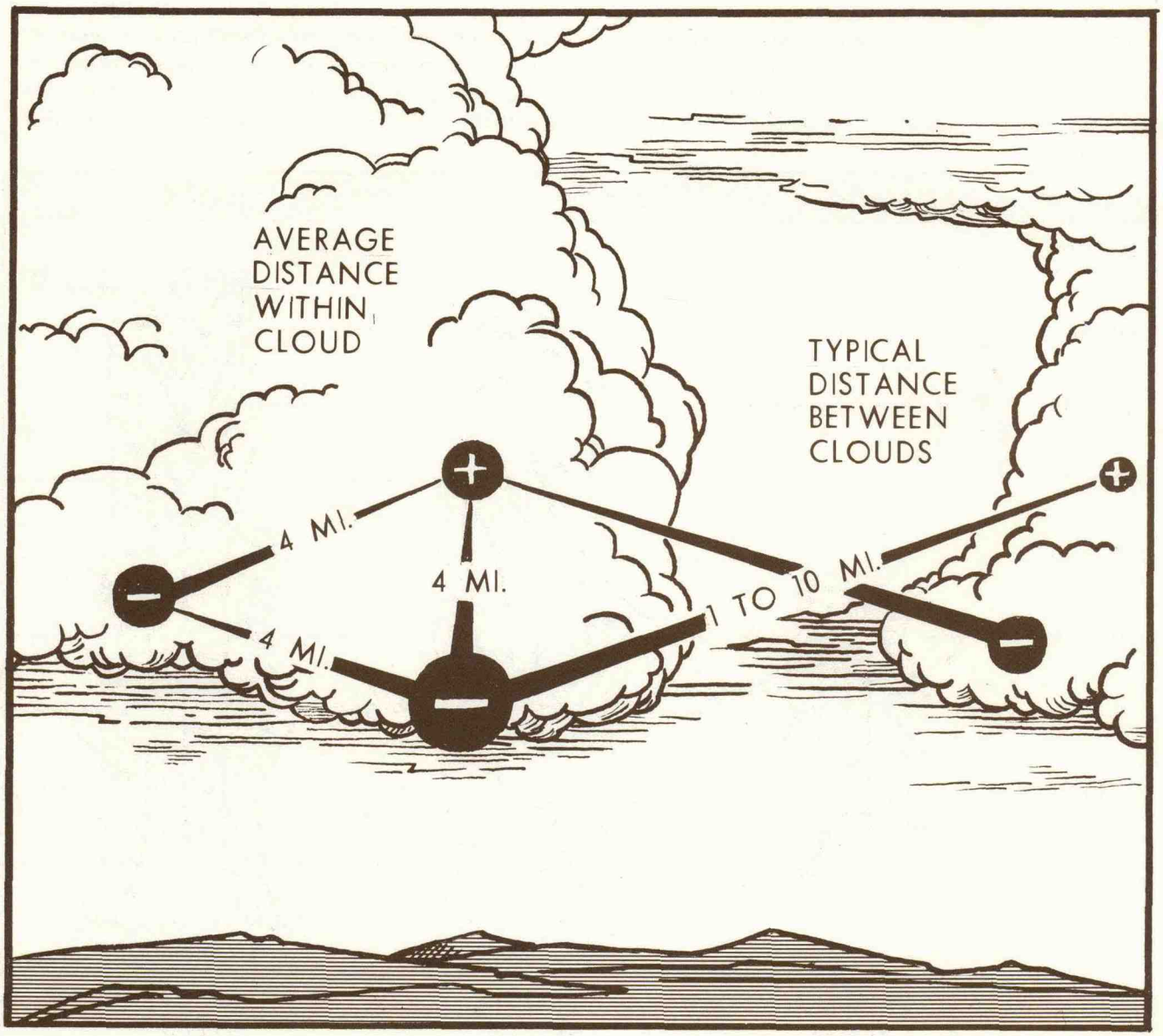


Figure 2 Typical Distances Between Thundercloud Charge Centers

airplane is a better conductor of electricity than is the air. This effectively shortens the distance (See Figure 2) between charged centers, and therefore triggers the discharge.

Regardless of the cause, there are a few very important points to establish. First, most strikes occur below 20,000 feet, and usually between 5,000 and 10,000 feet. Secondly, about 80 percent of the strikes occur in the -10°C to +10°C temperature range. A good precaution is to avoid flying near the freezing level, especially with buildups along the intended flight path.

terminal conditions

Now that the four major in-flight hazards have been discussed, it becomes necessary to add the final dilemma that you as a pilot may encounter. During the period of time that an area is under the influence of thunderstorms, terminal conditions may become lower than operational minimums. Obscured ceilings and heavy rainfall will reduce slant range visibilities, thus increasing the difficulties in executing approach and landing procedures. Landing may also be troublesome due to strong gusty surface winds that are characteristic of thunderstorms.

Finally, heavy rainfall creates another problem. Accumulation of water on the runway causes poor braking action and tends to create a possible hydroplaning situation.

avoidance

The above facts along with the AWS publication (See Figure 3) on avoidance procedures may assist you in staying out of trouble. These procedures were based on data that United Airlines found to be very effective over a period of years.

Remember, good judgment, crew and weather service coordination, and maximum use of all available radar (weather and airborne) information will minimize the hazards of flying during the severe weather season.

Figure 3 Thunderstorm Avoidance Procedures

		Flight Altitude	Height	Shape	Intensity	Gradient of Intensity	Rate of Change
No Radar or Radar Inoperative	By visual inspection of clouds, only the height, size, and exterior appearance give clues as to the hazards within. These characteristics do not provide unique indicators of severity and are not available if masking clouds interfere. Avoid by at least 10 miles any storms having any or all of the following characteristics: taller than 30,000, large in diameter, anvil top, and growing rapidly. To gain more information on storms in the flight path, call military forecasters on PFSV or ask ARTC for assistance. However, remember that ARTC does not have weather radar and is limited in the weather information it can provide.	0' to 20,000'		Avoid any storm by 10 miles which is tall, large, growing rapidly, or has an anvil.	The intensity of the storm can only be estimated by exterior characteristics.	No way to determine visually.	
		20,000' to 25,000'		Same	Same	Same	Same
		25,000' to 30,000'		Same	Same	Same	Same
		above 30,000'	Maintain a minimum clearance of 5,000' from the visible top of a cloud. If the storm is growing rapidly, increase this distance.	Same	Same	Same	Same
Radar With Iso-Echo Contouring Circuitry	Iso-echo circuitry on airborne radar cuts off the signal to the scope when its return is above a set value. This produces a hole in a strong echo when the central portion of a storm causes the signal to be greater than the set value. A strong gradient is seen as a narrow band between the no-echo region outside the storm and the hole in the center of the storm. Monitor long ranges on the radar to avoid getting into situations where no alternative remains but the penetration of hazardous areas. Avoid flying under a cumulonimbus over hang, whenever practical. If such a flight cannot be avoided, tilt the radar antenna full-up occasionally, to guard against a fresh shaft of hail falling suddenly from the overhang.	0' to 20,000'		Avoid by 10 miles echoes which have hooks, fingers, scalloped edges, or other protrusions.	Avoid by 5 miles any echo which has strong intensity denoted by an iso-echo hole cut in the cloud echo and sharp edges.	Avoid areas of echoes by 5 miles which have strong gradients of intensity. Areas of weak gradients can be flown through if necessary.	Avoid by 10 miles echoes which are changing shape, height, or intensity rapidly.
		20,000' to 25,000'		Avoid all echoes by 10 miles.	Avoid all echoes by 10 miles.	Avoid all echoes by 10 miles.	Avoid all echoes by 10 miles.
		25,000' to 30,000'		Avoid all echoes by 15 miles.	Avoid all echoes by 15 miles.	Avoid all echoes by 15 miles.	Avoid all echoes by 15 miles.
		above 30,000'	Maintain a minimum vertical separation of 5,000' when flying above an echo. If the storm is growing rapidly, increase this distance.	Avoid all echoes by 20 miles.	Avoid all echoes by 20 miles.	Avoid all echoes by 20 miles.	Avoid all echoes by 20 miles.

Tactical Air Command

UNIT ACHIEVEMENT AWARD

Our congratulations to the following units for completing

926 Tactical Airlift Group, New Orleans Naval Air Station, Louisiana
1 January 1969 through 31 December 1969

440 Tactical Airlift Wing, General Billy Mitchell Field, Wisconsin
1 January 1969 through 31 December 1969

933 Tactical Airlift Group, General Billy Mitchell Field, Wisconsin
1 January 1969 through 31 December 1969

934 Tactical Airlift Group, Minneapolis-St Paul International Airport, Minnesota
1 January 1969 through 31 December 1969

924 Tactical Airlift Group, Ellington Air Force Base, Texas
1 January 1969 through 31 December 1969

914 Tactical Airlift Group, Niagara Falls International Airport, Niagara Falls, New York
1 January 1969 through 31 December 1969

563 Tactical Fighter Squadron, McConnell Air Force Base, Kansas
1 January 1969 through 31 December 1969

23 Combat Support Group, McConnell Air Force Base, Kansas
1 January 1969 through 31 December 1969

522 Tactical Fighter Squadron, Cannon Air Force Base, New Mexico
1 January 1969 through 31 December 1969

27 Combat Support Group, Cannon Air Force Base, New Mexico
1 January 1969 through 31 December 1969

127 Tactical Reconnaissance Group, Detroit ANG Base, Detroit, Mich.
1 January 1969 through 31 December 1969

190 Tactical Reconnaissance Group, Forbes Air Force Base, Kansas
1 January 1969 through 31 December 1969

114 Tactical Fighter Group, Joe Foss Field, South Dakota
1 January 1969 through 31 December 1969

140 Tactical Fighter Group, Buckley ANG Base, Aurora, Colorado
1 January 1969 through 31 December 1969

12 months of accident free flying:

922 Tactical Airlift Group, Kelly Air Force Base, Texas
1 January 1969 through 31 December 1969

185 Tactical Fighter Group, ANG Base, Sergeant Bluff, Iowa
1 January 1969 through 31 December 1969

10 Air Transport Squadron, Chanute Air Force Base, Illinois
1 January 1969 through 31 December 1969

13 Air Transport Squadron, Dobbins Air Force Base, Georgia
1 January 1969 through 31 December 1969

21 Air Transport Squadron, Randolph Air Force Base, Texas
1 January 1969 through 31 December 1969

26 Air Transport Squadron, Hamilton Air Force Base, California
1 January 1969 through 31 December 1969

43 Tactical Fighter Squadron, MacDill Air Force Base, Florida
20 January 1969 through 19 January 1970

4413 Combat Crew Training Squadron, Lockbourne Air Force Base, Ohio
20 January 1969 through 19 January 1970

4533 Tactical Training Squadron, Eglin Air Force Base, Florida
29 January 1969 through 28 January 1970

37 Tactical Airlift Squadron, Langley Air Force Base, Virginia
19 February 1969 through 18 February 1970

316 Tactical Airlift Wing, Langley Air Force Base, Virginia
19 February 1969 through 18 February 1970

121 Tactical Fighter Group, Lockbourne Air Force Base, Ohio
27 February 1969 through 26 February 1970

16 Tactical Airlift Training Squadron, Little Rock Air Force Base, Arkansas
1 March 1969 through 28 February 1970

66 Fighter Weapons Squadron, Nellis Air Force Base, Nevada
18 March 1969 through 17 March 1970

CHOCK TALK ...incidents and incidentals

THROTTLE BOOBY TRAP

The Phantom had made two rocket passes on the range and was in afterburner climbout for the third. Nearing level off altitude, he reduced thrust, or tried to. The left throttle was stuck and would not budge from AB. So he cut the left engine master switch and made an uneventful landing.

Investigators found the adjustment locknuts on the idle cutoff spring assembly were loose, allowing the spring assembly to move outboard behind the left throttle arm when AB was selected, preventing subsequent rearward movement of the throttle.

A one-time inspection of all the unit's aircraft found two more birds with the built-in booby trap. Supervisors submitted an EUMR, and crew chiefs are trying to keep adjustment locknuts tight.

CHAFING

The incident aircraft was number two in a flight of two F-4s. All went well until a high speed yo-yo was initiated, at that time lead observed vapor trailing from the right engine of number two and advised him immediately. Two checked his engine instruments and noted all was normal. The maneuver was discontinued. Shortly, Two's right engine nozzles failed full open and the engine oil pressure dropped to zero. The engine was secured.

The number three bearing scavenge hose ruptured causing loss of all engine oil. The wire braid on the hose had been chafed completely through by a defective clamp. The cushion on the clamp was too short, causing metal to metal contact between the clamp strap and the wire braid.

MAVERICK TAKES LOOSE REINS

A ground crew was trouble-shooting the performance of an F-4's right generator. It called for a run-up, and a harness tester was connected alternately to the right and left supervisory panel. A couple of throttle bursts were made for each check, all in accord with tech orders 1F-4C-2-8CL-1 and 1F-4C-2-13.

That's when the right throttle jammed and couldn't be retarded below 80 percent. Before the operator got the master switches to "OFF" the Phantom jumped the chocks, mashed the radome against a Coleman towing tractor, and gouged a wing and drop tank in several places, as it moved over a B-4 maintenance stand.

Investigators found that the utility light in the rear cockpit came loose and was wedged between the left throttle, which was at idle, and the advanced right throttle. A revision of the unit's MOI will include a check for proper position of the utility light, as well as several modifications of procedures while operating on hardstands, like special run-up chocks and limiting RPM during checks.

CREW CHIEF PROMOTES FOD

An F-4 crew chief started a preflight inspection about 0300 hours. He was signing off the 781 after checking both intakes for FOD when his assistant spotted a small amount of hydraulic fluid in the left speed brake area. Not sure that it was residue from an old leak or coming from a new trouble spot, he decided on an engine run to make sure.

With his assistant on the ground and intercom

with a maintenance slant.

connected, engine start was accomplished according to engine run-up cards. As the right engine accelerated to idle, the assistant noted fire of an unusual color coming from a tail pipe. The crew chief chopped the throttle, secured the cockpit, and checked the engine. Most of the visible compressor section was damaged by ingested metallic material.

After the engine was pulled, inspection detected in other sections of the engine small pieces of metal and battery from a flashlight. The light used by the crew chief to make the preflight FOD inspection could not be found. That's when his stomach turned to rocks.

On completing the inspection, he had placed the light at the mouth of the scoop while he shinnied to the ground. Immediately distracted by his assistant's call about the hydraulic leak, the flashlight was never retrieved.

The crew chief will be returned to maintenance duties when his supervisors are sure he will follow local policy of donning a bunny suit and have his flashlight attached with string before conducting routine FOD inspections.

MAVERICK PANEL

A ground crew was preflighting an F-100D. During hydraulic check, the saddle back panel was placed aft of the opening and atop the dorsal spine. Soon after, gusty wind whipped it from its perch. Plummeting toward the ramp, it struck a glancing blow to the protruding drop tank, leaving a ragged puncture before it bounced on the ramp.

Now, in this unit, the assistant crew chief is responsible for the panel and he will physically hold on to it, if necessary, to assure that it can be removed and replaced without creating a hazard.

DIRTY TRACK TRICK !

On a combat mission the gunship's giteepoo developed a fuel leak, so their illuminator crumped out. Troops in contact below called for more light on the subject and the aerial gunner tried flares. The first flare wouldn't let go; it hung up halfway out of No. 1 tube. He pushed it out with a stick and tried a flare launch out of No. 2 tube. It hung up too! After pushing it out they went back to No. 1 tube. Another hangup! While the pulling and pushing went on the flare decided to go off. It lacerated and fractured the gunner's left hand.

Investigators found that dirty launcher tracks caused the hangups. Also, they decided to retrain illuminator operators on procedures for ejecting hung flares.

TWISTED TECHNIQUE

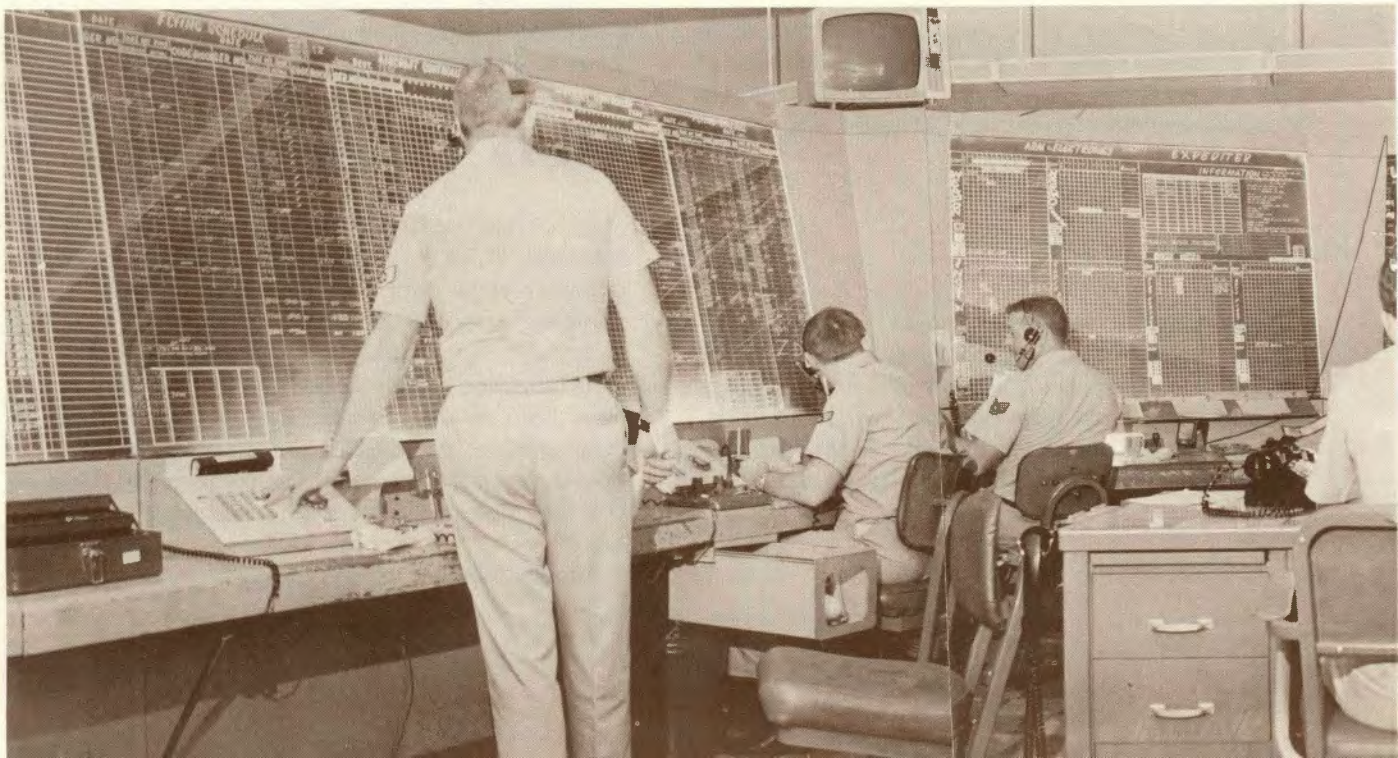
A T-38 student had a good takeoff and climb. Shortly after level off, he got a right engine fire warning light. He followed through with correct emergency procedures, and soon after engine shutdown the light went out. He called it a day and made an uneventful single engine landing.

Investigators found the fire warning control box had fallen from its mounting bracket because of a broken retaining pin. The threaded pin broke at the lip of a wingnut which had secured the whole assembly. Required to be only finger tight, the wingnut had gouge marks from some heavy-handed mechanic's pliers.

Another flight lost to over torque!

Super Sabre Safety

Quality maintenance and standardized instructor pilots are credited by three Super Sabre squadrons at Luke AFB as top reasons for safe and successful tactical fighter pilot training. Their records won two of three 1969 USAF Flight Safety Plaques awarded to TAC units. For the 311th, 426th, and 550th TFTSs, maintenance control of the 58th TFTW (below) provided an average of a sortie a day per flying year for each of the 122 birds on the ramps. To accomplish all maintenance for the year's 39,452 flying hours plus all TCTOs required 29.2 maintenance man-hours per flying hour. And to assure reliable engine performance and engine life, the J-57 turbojets and afterburners were subject to severe screening during test cell operations.



Three tactical fighter training squadrons in one wing have established remarkable records of safe flying, and while doing it trained 231 students, either new pilots or cross-training old heads, in an airplane that has passed the 15-year old mark . . . the F-100 Super Sabre.

The units flew a no-accident year during 1969 from their home at Luke AFB near Phoenix, Arizona. They are the 311th, 426th, and 550th Tactical Fighter Training Squadrons of the 58th Tactical Fighter Training Wing.

Sometimes success seems to "just happen" and it's difficult to pin down reasons why. But when it comes to three sister units in the same wing and at the same base, saying that flying without an accident for a full year "just happened" is less than an acceptable explanation. Reasons must exist that explain this unusual success, an accomplishment gained even though there existed several serious accident-potential circumstances.

Of the 231 students graduated last year, about 40 percent were from undergraduate pilot training (UPT) with an average total time of about 250 hours. They had never flown heavy fighters. The remaining 60 percent were older pilots whose average flying time was about 2900 hours, but who had flown a variety of aircraft. Two other factors which contributed to accident potential were flight regime and weather. The majority of the flying was air-to-ground gunnery, a situation of high airspeeds, steep dive angles, and low altitudes, a new kind of flying for both new students and most of the older ones.

Weather on the Arizona desert cannot be shrugged off lightly. Last year more than 100 days at Luke had temperatures that exceeded 100 degrees, and ramp temperatures often climbed to 120 degrees. This not only leads to mechanical problems, but human efficiency can deteriorate quickly.

As said before, how this enviable record was accomplished is not easy to explain, but according to unit commanders and ops officers, it is not the result of some management secret . . . nor did it just happen. However, some of these officers admit to accusations of "nit-pickin," a charge they confess may be justified because, as they suggest, it is probably the reason they have prevented bashing some birds.

A good example of this nit-picking is the communications program which is designed to prevent someone "not getting the word." One squadron, the 311th, requires its pilots to sign off on three PIFs; wing, safety, and get this, the squadron's. Another program which helps keep people informed is the base level Incident Report, which may be more correctly titled an Unusual Occurrence Report. Pilots use this system to report any situation which they deem abnormal and want a written reply as to what action will be taken to prevent re-occurrence. During 1969, 1037 reports were made by squadron pilots. Here's how it works.

Luke AFB Form 2 is completed by the pilot, usually at debriefing, but must be prepared and distributed within three hours of the flight on which the incident happened. One copy goes to the squadron commander, one to wing safety, and the third copy to the quality control section of maintenance. QC is the action agency and must reply within three days to the pilot through his squadron. The reply must state corrective action, by whom to be accomplished, and when it is to be done.

Of the more than one thousand reports prepared, only

Super Sabre Safety

56 were of the nature which required reporting to higher headquarters. Obviously, many of the reports did not fall into an emergency category, but unit commanders agree that it is just this kind of nit-picking that prevented some emergencies.

The units' abort rate of 4.3 percent will never win top honors, but then it's not a record to be taken lightly when you consider that the airframes are getting a little tired after 15 years of flying. Add to this a maintenance force manned with more than 15 percent of three-level trainees. This requires the remaining experienced technicians and supervisors not only to maintain the fleet but to conduct continuing OJT programs.

Fortunately for the Super Sabre students, the Gila Bend AF Aux is located near several of the gunnery and bombing ranges. Of the 29,201 sorties flown by the squadrons, the airstrip was used for 79 emergencies, of which several would probably have been losses because the failing single engine would not have taken the pilots home.

Aircraft age has not been a total detriment to the units, however, for with it comes experience. Year after year of developing standardized, efficient maintenance and operational procedures have lead to tried and true methods. Explained one of the commanders, "We teach our students that sticking to standardized practices makes our operation "almost infallible." Procedures for flying the Super Sabre have been proven through years of flight. This doesn't change. Our IPs know this and they don't tolerate procedure variations. At the same time, they do all they can to help students develop their techniques and attitudes that can match the success of our well developed procedures."

The fact that this glove-tight supervisory control does work is borne out by recent recognition of the 311th and 426th, who both have been named to receive USAF Flight Safety Plaques for Outstanding Flight Safety Achievement in 1969. Except for being a little short of the minimum flying hours required, the 550th would also have been eligible for award nomination.

There's not a man in the units that will confess he has a perfect solution to flying safety. But experience clearly shows that with detailed management policies and responsible supervisory control, flight training can be accomplished with losses held to low, low minimums.

Instructor pilot Maj Michael P. McCoy (above, left) briefs students before a ground attack mission on one of the several ranges surrounding the Phoenix, Arizona area. The 426th TFTS students are (from right) Capt. Michael J. Crawford, 1Lt Thomas R. Dougherty, and (seated) 2Lt Charles R. Harr. BELOW: Keeping the more than 100 Super Sabres ready for the three training squadrons is the job of Wing Maintenance. Servicing a J-57 turbojet is A1C Floyd H. Slinker (foreground) and A1C Ted A. Paulson.

USAF SAFETY AWARDS FOR 1969

Flying Safety Plaque

For meritorious achievement in Flight Safety, 1969

1. 311 Tactical Fighter Training Squadron, Luke AFB, Arizona
2. 426 Tactical Fighter Training Squadron, Luke AFB, Arizona
3. 464 Tactical Airlift Wing, Pope AFB, North Carolina

Missile Safety Plaque

For meritorious achievement in Missile Safety, 1969

1. 33 Tactical Fighter Wing, Eglin AFB, Florida
2. 57 Fighter Weapons Wing, Nellis AFB, Nevada

TAC TIPS ...interest items, mishaps

"RICOCHETED" RADOME

During pullout from their third strafe pass the F-4 crew felt and heard a "thump." Postflight inspection revealed damage to the radome. Blue paint in the area of the damage indicated that a 20mm practice round ricocheted and struck the aircraft on its last pass. Tactics used were 15-degree dive at 400 knots. The range officer stated that the pilot pulled off flatter than normal and was slow in initiating his turn to crosswind. The range was inspected and found to be in good condition.

The ricochet may have struck the aircraft in spite of what the pilot did when he pulled off. Predicting ricochets is like trying to call a roll of the dice — so we go with the odds. Pull at the proper time and get out of the high-probability-of-hit area. And don't worry — someone will count your hits. You don't have to do it on final.

BLOODY, BUT UNBOWED

The flight of two recce types turned onto initial and ended up eyeball-to-eyeball with an equal number of buzzards. One brave buzzard objected violently to sharing his hunting grounds (and girl friend?) with the encroaching RFs and attacked. He put on a pretty impressive show before subdued by an obviously superior force.

The iron bird suffered a large leading edge dent, aggravated by a bulge on top of the wing. Also, slight damage to the leading edge ribs, skin torn on both ribs, and a broken forward leading edge upper stringer. It'll take about 96 hours to glue it back together. As for the feathered bird, don't know how long it will take his maintenance troops to put him back in fighting shape. But when he is . . . with his experience, he'll really be mean the next time. Watch out for a slightly bowed buzzard who's trying to even up the score!

HOT NICKEL

A minute after takeoff, when the temperature control was advanced to the auto position, extremely hot air began entering the F-105G cockpit. It could not be controlled by the temperature control rheostat. The pilot then attempted to return the control lever to ram, but it was jammed in auto. The mission was aborted but they couldn't land due to another emergency in progress. During this delay the main airline switch was turned off — this didn't seem to alleviate the flow of hot air into the cockpit so it was turned back on to regain use of the utility hydraulic system and the AC generator.

Canopy jettison was discussed and discarded, both crewmembers felt it was not necessary at that time. An additional delay was encountered due to no A-gear, it had been taken out of battery for the previous emergency which landed downwind. Finally ready for landing, the gear was lowered, but roll-out on final was too low. The pilot then discovered that he could not maintain altitude with full mil. He selected burner to recover and then lowered full flaps. The EWO noticed that although flaps were selected, they didn't go down. He couldn't pass this info on due to intercom failure. Despite no-flaps and lots of fuel, the pilot touched down in the first five hundred feet at 225 knots. He stop-cocked and used aerodynamic braking down to 190 before deploying the drag chute. Approaching the BAK-12, he dropped the hook and got a successful arrestment at 120 knots.

The pilot and EWO both received localized first degree burns, the only other damage in the cockpit was to the pilot's relief bottle which melted due to the extreme heat. The cause of the problem was an improperly adjusted temperature control linkage which allowed an "overcenter" condition to occur in the linkage assembly, jamming the temperature control lever in the auto position. The flap and intercom problems were caused by popped circuit breakers due to extreme heat.

with morals, for the TAC aircrewman

ACROBATIC AIR EVAC

The air evac C-118 started down and the pilot lowered the gear to expedite descent. His main gear responded normally, but the nose gear stayed in the well, doors open. He tried all known emergency gear lowering procedures, including max G forces in turns and pull-ups. Various combinations of hydraulic system configurations and free-fall attempts failed also. After about 10 assorted pull-ups, he contacted a nearby command post for technical assistance. The "AMA" recommended recycling the gear and a higher G load. He tried about 10 more pull-ups at higher Gs and airspeeds. Recycling didn't help either. When retracted the gear looked normal, but lowering left the nose gear up.

After descending through an overcast, the pilot tried one more 50-degree dive and pullout. Simultaneously, he lowered the gear handle, pushed the hydraulic bypass handle down, and activated the emergency hydraulic pump. The reluctant nose gear popped out and all three hung in the 200-knot breeze. The pilot tried a trial touch-and-go before his full-stop landing.

Maintenance troops suspected faulty rigging of selector valve cables. They changed the nose gear actuating cylinder, rerigged the selector valve cables, and checked the restrictor valve and valve filters. Then they inspected the acrobatic air evac for overstress symptoms. The old bird checked out okay.

OUT OF SEASON !

The Herky started down ILS glidepath and the tower advised, "There are deer near the taxiway." The bird ahead of him on a touch-and-go didn't see them on the runway, so the pilot continued his approach and landed. Then he saw deer; three of them. Hunting deer out of season cost 2331 dollars in gear doors, plus 18 manhours to hang them.

TELL'EM

After takeoff the transport pilot informed the crew that he was going back over the field to look for runway distance markings at the departure end. He made a low pass over the runway at about 230 KIAS and 200 feet indicated. At the departure end he raised the bird's nose abruptly and initiated a turn. The loadmaster was making his post takeoff checks during the pass and when the nose pitched up he lost his footing and fell to the floor, sustaining multiple injuries. The accident report cited the primary cause as operator error; the pilot's maneuvering caused the loadmaster to lose his footing and fall. In addition, the pilot failed to provide his crew members with sufficient information on a maneuver that required prior crew coordination to assure security of personnel and equipment.

The lessons learned from this one are obvious. Keep your crew informed or you'll lose them . . . one way or another!

'TWAS THRILLING

The F-4 crew was attempting to drop four live M-117s in dive bomb direct ripple. Three left, but one hung on the right outboard station. All attempts to release it were unsuccessful. Following this the pilot decided to jettison the two outboard MERs. The left one departed, but the right one hung on. In accordance with local procedures the pilot diverted to an auxiliary field with his unwelcome cargo and landed out of a hung-ordnance pattern. Five hundred feet after touchdown, the live bomb fell off the aircraft and began rolling and skipping down the runway. When notified by a chase aircraft that his cargo had departed, the pilot jettisoned his drag chute and made an immediate go-around. The M-117 worked its way 4700 feet down the runway and detonated. How about that, sports fans?

LAP BELTS.... AGAIN

In our December issue we previewed the HBU-2A lap belt to give you all an idea of what was coming. The INTERCEPTOR Magazine covered the lap belt in their December issue also – and included a full photo spread on exactly how to strap in with the new rig. Obviously the coverage of both magazines isn't what we thought. In addition, the time to get everyone educated is nigh onto 5 months now. Is it possible that a someone still doesn't have the word? You all remember the story about 'Ole Joe? It goes like this . . .

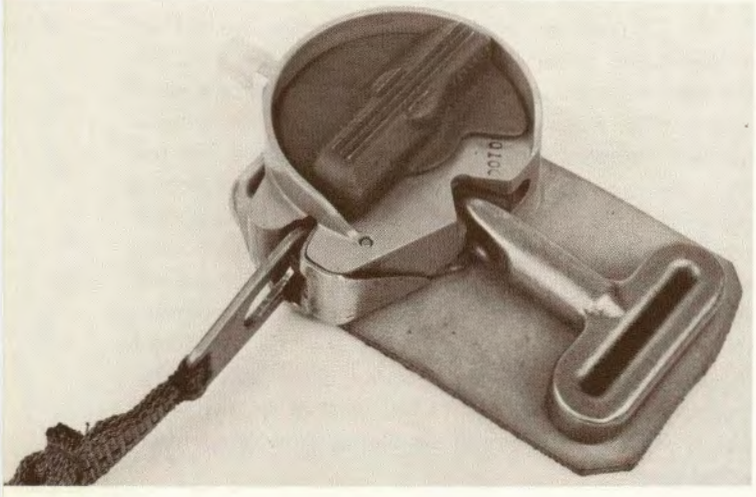
"Hey, have you seen 'Old Joe lately?"

"Didn't you know that he bought it?"

"Well, I'll be damned, what happened?"

"We bought him books and sent him to school . . . but I guess he ate the books."

Remember our "half of a Murphy" in the December 1969 issue? Well, would you believe that someone went one better and put the gold key over the lap belt connector before inserting it into the gold key slot? What's pictured here is not conducive to earning another "Fogie" if you should have to punch at a low altitude. What would happen is self-explanatory.



The fix. To prevent the problem shown, ASD developed the formed guard pictured. It is attached to the lap belt buckle using an existing screw. The production version will be slightly different but that shouldn't bother you. In any event, you will not be able to connect this little jewel incorrectly.

The top photo shows the lap belt buckle with both latches closed and the lap belt release in the normal position. The attaching hardware is shown in its relative position. The photo below shows the position of the lap belt release as both latches release simultaneously. We found that by moving the lap belt release very slowly and carefully, and jamming the gold key at an odd angle, occasionally the gold key would hang up. We did this to check out a complaint reported in one of the many messages generated about the HBU-2A. In no case could the gold key be hung up by turning the lap belt release smartly to its stop (simulating a shot of adrenalin in the system).

inadvertent

MISSILE LAUNCH

(on the ground)

by Lt Col George Sherman
Hq TAC (OSMEN)

The most harrowing experience missileers can have is an inadvertent missile launch in a congested aircraft parking area. Three occurred Air Force-wide in 1969. Fortunately, none have happened in TAC units although we handle the same missile systems that were involved in these mishaps.

To clear the air a bit, let's define an inadvertent launch. It is an unprogrammed ignition of the missile motor resulting in missile flight.

Now, let's take a look at the events that took place during the mishaps.

In the most recent one, an AIM-7 launched during built-in-test (BIT) checks prior to takeoff. Missile flight terminated in an open field two miles from the "launch" aircraft, totally destroying the wayward Sparrow.

An aircraft crew chief standing behind the missile at the time of launch was hospitalized for burns and cuts received from the motor gases. The aircraft incurred reparable gear door and gun pod damage.

Another launch was the result of a "missing" safety pin. The crew got out of sequence during the aircraft functional checklist procedures. The Sidewinder launched, slightly injured two airmen, and severed the arm of a third. Again, the missile was totally destroyed when it impacted the revetment wall in front of the aircraft.

Still another, a Bullpup went sailing through the air immediately after the safety plug (cap) was removed during pre-takeoff arming procedures. Stray voltage, helped by FOD or moisture in the umbilical plug, was offered as the suspected cause.

One thing must be recognized that was common to all three events. The last ditch safety features were removed before the missile launched. Two were removed intentionally and one had been overlooked several times during aircraft/missile preparatory checklist procedures. Further, these accidents highlight safety observations made over a period of many years. Accidents are seldom caused by one mistake alone but rather a sequential accumulation of two or more errors, malfunctions, faults, oversights, omissions, and so forth, in random combinations. How many others have had a similar accumulation, but pure luck prevented an accident?

From the above one might draw the conclusion that it is acceptable to make one miscue, ignore it, and press on. Nothing could be farther from the truth. If the first miscue is not made, then the foundation for subsequent mistakes will not be made.

Enough said on the historical side of these mishaps. Let's take a look at how to stop future ground launches. First of all, a team effort is essential, especially between maintenance, munitions, and operations people. In the first (last to occur) case, the investigation board felt that the Armament Control Relay Panel should be AWM-13 checked on a regular basis and that command-developed Delayed Flight and Alert Loading Procedures should be revised to require the use of a safing device. Further, they recommended changing the bombing system check to include a check of the armament safety override switch after completing bombing system checks. And last, but not least, aircrews should be apprised of the accident with emphasis on switchology and safety considerations of ordnance-loaded aircraft.

As we might guess, this event had two or more ingredients which, when combined, terminated in a launch: (1) human aspect when the missile arm/safe switch was, most probably, in the arm position while the armament override switch remained engaged; (2) tech order deficiency in that the command-option tech order required the removal of the AERO-7 safety pin; (3) a two-second time delay relay failure; (4) the trigger was most likely inadvertently depressed (the missile motor arm/safe switch was in the armed position in accordance with command-option tech order procedures). The absence of any one of the above would have kept the missile glued to the bird.

In the second case, it looks like a properly installed safety pin would have broken the jettison line to the missile motor. Applying the one-two-three bit: (1) the pin should have been installed after loading, or in the dearm area; (2) it should have been checked during aircraft preparation checks prior to the jettison check. In the third case, it is a little more difficult to apply the 1-2-3 bit because the exact events are not too clear. However, a launch signal went undetected until the missile launched. That makes two things clear: thorough inspection of the missile umbilical plug was not made before it was mated to the missile launcher; stray voltage checks were not made, or were made out-of-sequence, which invalidated the check.

TAC missileers should make a concerted effort to detect and correct the first error in missile maintenance/operations procedures. By avoiding the first miscue, we can prevent the sequential accumulation of two or more errors, malfunctions, faults, oversights, omissions, and so forth, in random combinations. Let's keep the missiles glued to the birds, that is, while on the ground.

Pilot's Printable Poetry Page

An aviator's windfall in the form of a POW's World War II diary crossed the editor's desk the other day. It contained some classic examples of the inspired, brown-shoe-days poetry that sustained the lagging spirits of downed aircrewmen spending involuntary TDYs in Germany's scattered Stalags. The authors are unknown and we're unable to give them much-deserved credit for boosting morale.

Perhaps some of TAC ATTACK's readers will recall the poet-pilot who authored these nostalgic notes. After you've wiped away that tear, send us his name. And in addition, if you have some not-too-boisterous ballads you've collected during your Air Corps/Air Force tours, send them along. We'll try illustrating them in future issues on our Pilot's Printable Poetry Page.

MY VISION OF FLIGHT

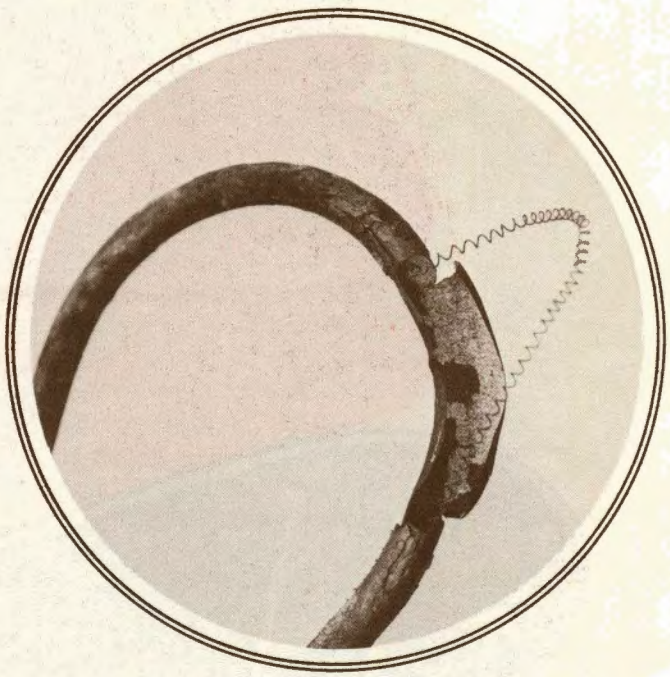
Forgetting those wings of a world at war
Up up we climb through the opaque mist
The drome is gone as though closed by a door
Nerves are taut and the mind says no
But wings are spread and up you go.

As the earth was away — so went the mind
With subconscious thought — you
Knew you'd find
At fifteen thousand at twenty thousand or more
Up up up where no eagle doth soar
Above this sea of treacherous mist

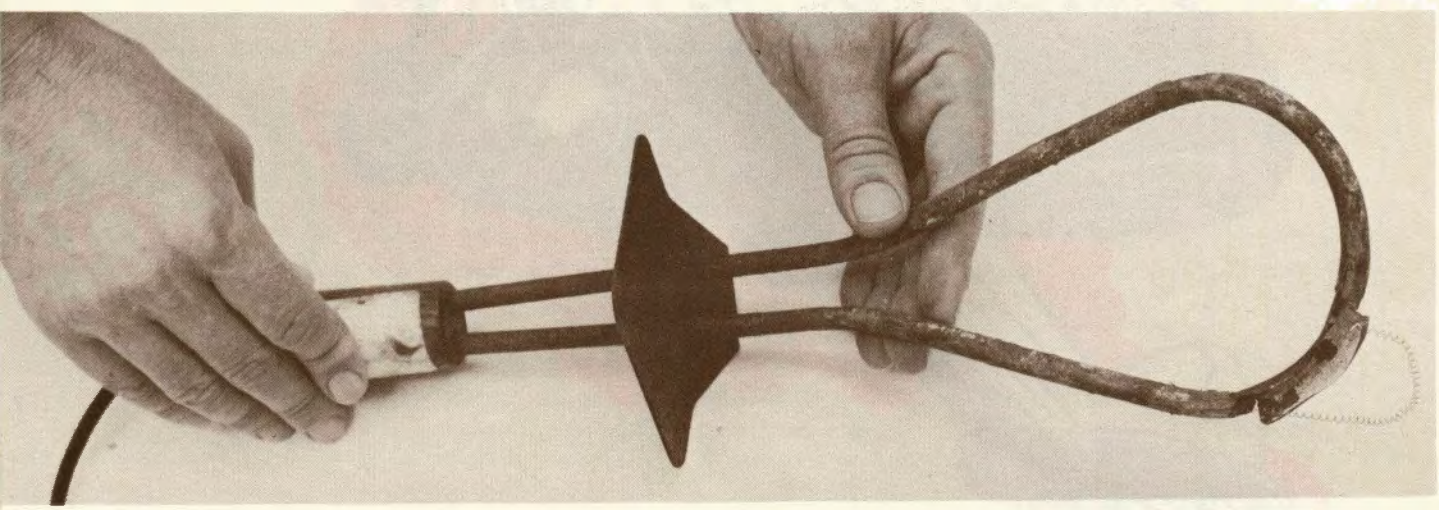
Some of us ne'er more will see
The flowing chaff or green of tree
We die — but we are not gone from this earth
Double the price of our loss is paid
By a glorious mirth.

Into the blue on our course once more
We gaze — momentarily at ease
At gold and topaz and arrayed crimson galore
This is not a fairyland for earthly man
But a heavenly vistage for all of the clan
Whose will it is to soar upward — ever upward.

Check YOUR Equipment



Pilots aren't the only ones who should make a good pre-flight of their equipment prior to starting an operation. The simple act of starting a charcoal fire to sizzle some good beef has its own hazards for the unwary. For years we've preached about the danger of using improper fuel and the further hazard of adding ANY fuel to a hot fire. The electric charcoal starter was the answer to our prayers – or so we thought. The one pictured caused a minor explosion on one of the base housing porches last summer. As you can see from the circled photo, it had probably been around since WW II. Check your starter today – if it's bad, replace it. They don't cost as much as trying to replace an eye. →



Tactical Air Command

Crew Chief of the Month

Technical Sergeant Eddie M. Arnold, 75 Tactical Reconnaissance Wing, Bergstrom Air Force Base, Texas, has been selected to receive the TAC Crew Chief Safety Award. Sergeant Arnold will receive a letter of appreciation from the Commander of Tactical Air Command and an engraved award.

TSgt Arnold

Tactical Air Command

Maintenance Man of the Month

Sergeant Brian S. Casey, 319 Special Operations Squadron, Eglin No. 9 Air Force Base, Florida, has been selected to receive the TAC Maintenance Man Safety Award. Sergeant Casey will receive a letter of appreciation from the Commander of Tactical Air Command and an engraved award.

Sgt Casey

LETTERS to the EDITOR

ACM

I thoroughly enjoyed Capt Melvin's article "ACM-Learn First, Fight Later" in the Jan 70 issue. It covers concisely many areas a lot of us are guility of forgetting. However, I am at odds with the statement in the fourth paragraph which reads, "Even if mistakes occur, the series should continue as briefed so all aircrews can become proficient . . ." At the Fighter Weapons School, we practice that a specific sequence of maneuvers must be briefed and flown. We also feel that an improper maneuver does great harm when continued in that the trainee thinks he has performed correctly when he actually has not.

For example, suppose the trainee has been briefed to do "classic" high speed yo-yo's. Once the maneuver is set up, he then allows himself to slide high and definitely outside the defender although still somewhat to the rear when he trades airspeed for altitude. If the defender continues his turn, the attacker has an easy time sliding back down to the proper position and thinks he has done a proper maneuver. In reality he was well on the way to executing the maneuver known as "Becoming the Defender". It is almost impossible to convince him otherwise during the debriefing if he has not been shown his error.

We have found that mistakes should be countered and these counters must be briefed in advance (I am not talking about the counter to a correctly executed maneuver, this comes later in the program). Once the mistake is shown to the trainee, maneuvering should be stopped and the briefed maneuver set up again until the trainee has performed it correctly in its essential elements. The necessary finesse comes with practice of the correct maneuvers and detailed debriefings (very important!) recommending improvements. The same concept is applied to element and flight training except the whole gamut of maneuver/counter is available within the rules of engagement contained in AFM 55-154.

Capt Melvin's points are well made. The individual unit is still required to shoulder the burden of actually teaching a "pilot" the refinements he really needs to know to tack "fighter" on the front. We have to teach each other and there isn't any graduation picnic.

STEPHEN R. DVORCHAK
Major, USAF
414th Ftr Wpns Sq

An interesting point, and well taken. Any more comments from the field? Ed.

BACKSLIDER

I have read your interesting article on ground pilot rescue in the January issue and have observed a possible oversight in the removal checklist. It appears that the pilot is being removed without his seat pan. If this is the case, his oxygen hose would be disconnected. In many aircraft, this would suffocate the pilot if one side of his mask is not removed, as many pressure and LOX systems are sealed.

I believe the unit should add "Release one side of oxygen mask" in the appropriate place after step C "Safety belt-release."

I hope to enjoy more of your excellent articles on all phases of safety in the future.

Richard P. Connolly
Major, USMC, Cherry Point, N.C.

We put this question to the Backslider designers from the 140th TFG of the Colorado Air National Guard, who confirm that one step is missing from the checklist. Between steps G and H it should read: "Emergency Oxygen (green apple) – Pull."

In reference to your suggestion to release one side of the oxygen mask, they agreed that it was better than no oxygen at all, but as long as the mask remains in place it provides an anchor to hold the head firmly in the helmet, which in turn is held rigid by the Backslider. A new attachment to the Backslider will be previewed soon on these pages. The device is designed to allow installation of the Backslider with little or no head and neck movement. Ed.

TAC TALLY

MAJOR ACCIDENT RATE COMPARISON

	TAC		ANG		AFRes	
	1969	1970	1969	1970	1969	1970
JAN	6.8	4.8	28.9	5.9	0	0
FEB	6.2	3.9	12.8	2.6	0	0
MAR	6.8	4.6	12.6	1.7	0	0
APR	7.4	4.9	15.1	2.4	0	0
MAY	7.5		12.9		0	
JUN	7.2		12.6		0	
JUL	7.4		11.3		0	
AUG	7.3		11.5		0	
SEP	6.9		10.5		0	
OCT	7.1		9.9		0	
NOV	6.6		9.4		0	
DEC	6.8		9.5		0	

AIRCRAFT ACCIDENT RATES

UNITS

	THRU APRIL			THRU APRIL	
	1969	1970		1969	1970
9 AF	2.7	3.2	12 AF	9.7	6.9
4 TFW	11.6	0	23 TFW	16.5	0
15 TFW	0	6.7	27 TFW	0	0
33 TFW	12.6	0	49 TFW	0	15.8
4531 TFW	0	11.5	479 TFW	12.0	13.5
			474 TFW	32.3	0
363 TRW	8.5	8.0	67 TRW	0	11.0
			75 TRW	0	0
316 TAW	0	0	64 TAW	0	0
317 TAW	0	0	313 TAW	0	0
464 TAW	0	0	516 TAW	0	0
			58 TFTW	14.4	16.8
4554 CCTW	0	0	4442 CCTW	0	0
			4453 CCTW	0	0
TAC SPECIAL UNITS					
1 SOW	0	7.3	2 ADG	0	0
4409 SUP SQ	0	0	4500 ABW	13.4	0
4410 CCTW	18.8	0	57 FWW	11.6	0
4416 TSQ	0	0			

April was a bad month. Our board shows eight accidents; four TAC, one ANG, and three not charged which occurred during ferry flights. We had four pilot fatalities, bringing our total for the year to eleven (TAC and ANG).

Three of the accidents involved the F-4. One aborted unsuccessfully at an overseas base and was destroyed; another entered a thunderstorm with his leader and got all of a minute of wing weather before he was mauled to the point where the crew had to eject; the third occurred on takeoff. At lift-off a wing folded because it wasn't locked, they crashed on the spot and the bird was destroyed.

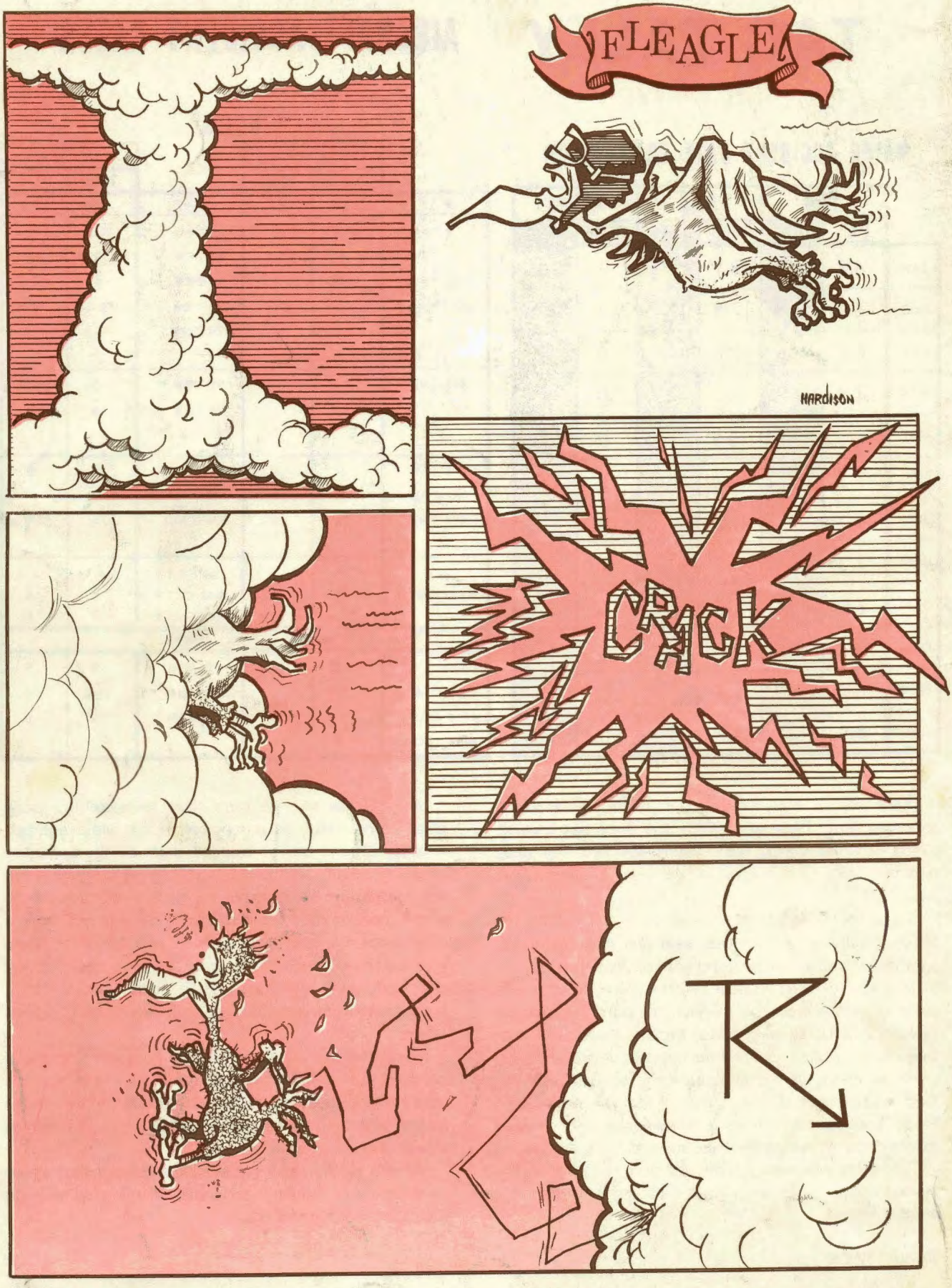
Three other fighters also made the accident roll. An F-84 aborted just at lift-off and couldn't be stopped, an F-100 crashed for reasons unknown and an F-5 wing failure occurred during air-to-ground ordnance delivery.

The other two were a B-66 with an engine fire on the ground and a midair involving a T-39 and a fighter from another service.

As you can see, we can't seem to establish a cause factor trend. That's great in one sense, but bad in another. A specific trend can be stopped short by the concerted action of all of us involved in this flying business – this shotgun pattern we're experiencing is a little tougher to get a handle on. But it's not impossible – it just takes a determined effort in ALL areas of your operation. Does your unit have two Safety Programs, one on paper and the one you use? Where do your supervisors do their supervising from, on the line or in an air conditioned office?

Questions such as these could be posed in groups of a hundred but aren't worth the paper they're printed on until someone goes into ACTION. And we don't mean the airmen and lieutenants, we're talking about the men in charge of the operation.

At this writing, May has already surpassed April in the number of major accidents. Time to get to accident-prevention work!


FLEAGLE
HARDISON
CRACK