

TAC ATTACK

TAC Attack January 1966



January 1966



TAC ATTACK

GENERAL GABRIEL P. DISOSWAY, COMMANDER
LT GEN ALBERT P. CLARK, VICE COMMANDER
COLONEL GUST ASKOUNIS, CHIEF OF SAFETY

VOL. 6 NO. 1

JANUARY 1966

Contents

ANGLE OF ATTACK.....	1
NORTH TO ALASKA.....	2
STATIC ELECTRICITY.....	5
A 2ND LOOK.....	6
CANOPY CARE.....	8
P-SHOOTER.....	11
CHOCK TALK.....	12
PUFF THE MAGIC DRAGON.....	14
SAFETY WIRING.....	16
GROUND SAFETY.....	18
PHYLLIS PLAYS.....	19
SIDESLIP.....	20
BETTER MOUSETRAP.....	22
TAC TIPS.....	23
BE A WINNER.....	26
RECOGNITION.....	27
LETTERS.....	28

EDITOR

Capt John D. Shacklock

ASSISTANT EDITOR

Capt Edward N. Giddings

PRODUCTION & LAYOUT

SSGT James E. Fields

EDITORIAL ASSISTANT

SSGT Richard D. Reid

PRINTING

Hq TAC Langley AFB Field Printing Plant



COVER PHOTO:

One F-100 frames another on a snow-covered flight line.

Articles, accident briefs and associated material published in this magazine are non-directive in nature. All suggestions and recommendations are intended to remain within the scope of existing directives. Information used to brief accidents and incidents does not identify the persons, places, or units involved and may not be construed as incriminating under Article 31 of the Uniform Code of Military Justice. All names, dates and places used in conjunction with accident stories are fictitious. Air Force units are encouraged to republish the material contained herein; however, contents are not for public release. Written permission must be obtained from HQ TAC before material may be republished by other than Department of Defense organizations. Contributions are solicited from personnel in the field, as are comments and criticisms. We reserve the right to make any changes in manuscripts which we believe will improve the material without altering the intended meaning. Direct correspondence with the Editor is authorized.

angle of attack

angle of

ATTACK

The greatest difficulties lie where we are not looking for them.

—Goethe

The flurry of activity which followed autumn's first cold snap has subsided. Now it's time to take a good look at our winter programs to see if we are really prepared for winter's worst. In most TAC aircraft cold weather is only an hour or so from even our southernmost bases, and diversions, mission requirements, or deployments can place us in a winter environment with very little warning.

As in any situation, effective management is the key to efficient operation; however, under adverse and unpredictable weather conditions your role as a supervisor becomes more critical as the margin for error is reduced and the probability of human failure is increased. It means that you as a supervisor must spend a great deal more time with your people on the line, in the shops, and in the squadrons if you are going to detect the attitudes, conditions, and habits that will erode and thwart your efforts as a manager.

An effective manager is out on the flight line when the wind and temperature make the chill factor critical, and he can see and feel the urgency to finish a job and get under cover. He knows this is a crucial time and a few on-the-spot words about check lists and thoroughness while his people are on the job will have much more effect than a long tirade at a safety meeting or commanders call. This direct supervision in the work environment accents the manager's concern for accurate job completion while giving him first hand contact with working conditions. And it has the effect of stimulating the manager's imagination to seek ways of improving work methods and conditions.

I once saw an imaginative unit, working in cold country, devise small tents for shelter during outside maintenance such as wheel changes or weapons system calibration. I'm sure this idea wasn't born behind a desk. The tents were there because a supervisor knew what it felt like out in the cold . . . and because he knew that cold, stiff, shivering, fingers, hurrying to finish a job can make unintentional errors.

Our ability to continue normal operations during adverse and hostile weather conditions truly measures the effectiveness of our managers.



Colonel Gust Askounis inspects F-4C pod with Colonel Floyd White, Commandant, USAF Fighter Weapons School, and Captain Everest R. Raspberry of the School's TAC Eval Section.

When we learned that the 389th was going on rotation to the cold country from Holloman AFB, we asked them to jot down their impressions of the drastic change. Ron and Larry sent us this fine synopsis of their experiences when they went...



NORTH TO

From sun and sand to sun and snow in a few short hours summarized the September deployment of the 389th Tactical Fighter Squadron. Experience with the F-4C Phantom II in the deserts of New Mexico provided little reliable knowledge of operation in the frozen wastes of Alaska. However, after our three months of successful operation in this new environment McDonnell can again be congratulated on this truly remarkable fighter. Although the information we had on cold weather operations was limited, practical application of what was available supplemented by plain old common sense was more than enough to surmount any difficulties that did arise. And they did arise!

After initial indoctrination by personnel of the Alaskan Air Command Arctic Survival School and the first local flight over rugged Alaskan terrain we were all convinced the TAC world-wide survival kit does not include some items necessary for survival in extreme cold. We immediately added mukluks, heavy mittens, socks, and sleeping bags to our kits. The cleverly packed sleeping bag replaced the existing and notoriously uncomfortable seat cushion with an equally uncomfortable, but essential, piece of survival gear. We also learned the clothing we were accustomed to wearing in the air-conditioned and superbly heated office of the Phantom II was inadequate for northern

climate survival. The bulky but warmer Air Force arctic flying gear was a must. This apparel caused some of our more muscular troops to have trouble hooking up their restrainers since the straps were just barely long enough to reach around. There is no denying that wearing cold weather gear does restrict movement, but not enough to compromise mission performance. However, the alternate ejection handle was our primary means of ejection because the face curtain handles were very difficult to reach while wearing bulky arctic gear.

With the prospect of ice and snow covered runways that were not 12,000 feet long, we took a close look at landing techniques. Our major conclusion merely confirmed that the F-4C should be flown and landed exactly as advertised.

In spite of the amazing cushioning effect of the landing gear many pilots had been adding 10 knots for the wife and kiddies. This gave them a touchdown so smooth they had to ask mobile if they were on the ground. Though satisfying to the ego on a long, dry runway, this technique on a short, damp, wet, puddled, snow

ALASKA

By - Capt Ron Kovar
Maj Larry Welch



covered, icy, or what have you runway practically guarantees disaster. This aircraft was built to fly an "on-speed" final, followed by a "slow-speed" when ground effect takes hold, and a firm touchdown. If the touchdown was enough to make the non-F-4C pilot in mobile cringe, the technique was proper. And it is this technique that produces the stopping distances advertised in the Dash One. It is also this technique that gives you a sporting chance of staying out of the barrier on icy runways.

We stressed timely use of the drag chute to shorten the landing roll. The time to use the chute is immediately after touchdown. In

addition, full back stick which provides some aerodynamic braking and more important, shifts the aircraft weight to the main gear, greatly improves stopping performance. This brings us to the matter of braking.

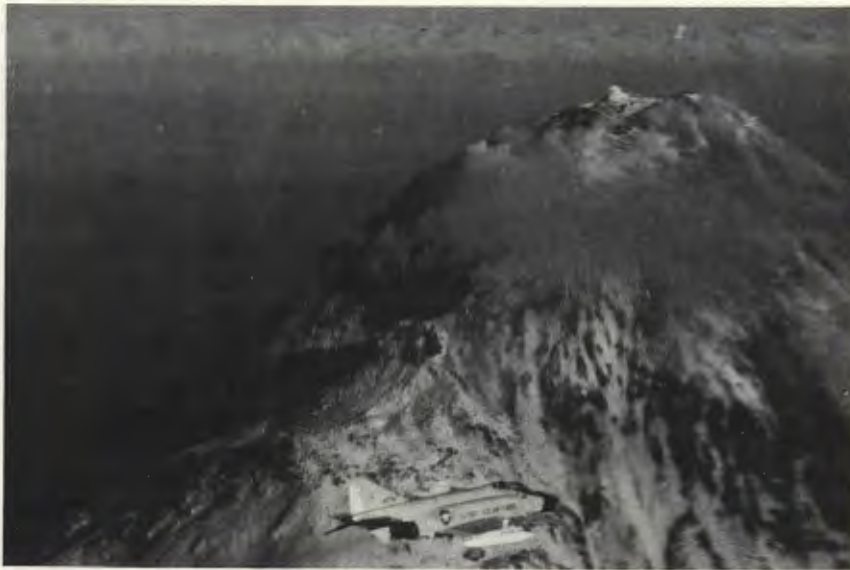
We found that on a slippery surface the anti-skid system is infinitely wiser than the pilot. We used nose wheel steering for directional control, and maximum braking controlled by the anti-skid system to get maximum stop-

ping performance. However, the anti-skid system is deceptive. On a dry runway or a variable condition runway anti-skid cycling is easy to detect. But on a genuinely slippery runway anti-skid cycling is difficult to feel and speed bleed off is uncomfortably slow. You don't feel the brakes are actually working until you are down to near taxi speed. Which simply means ... don't be in too big a hurry to decide the anti-skid system doesn't work.

We've said nothing really new in the preceding four paragraphs because essentially the same information is in the Dash One. However, actual operation conclusively verified the written word for us. We did not use snow and ice tires at any time; consequently, we can not confirm or deny comments relative to them.

We should make one additional point on the subject of landing. It goes without saying that landing roll charts must be used before attempting a landing on anything but a dry runway of normal Air





Force length. RCR is the best information available, but it certainly should not be considered as gospel. At best, it represents approximate stopping factors, and stopping distance will often be considerably different than calculated. When available runway length and computed landing roll became uncomfortably close, operational requirements dictated whether we would attempt to land. In such cases, it made good sense to lower the tail hook early. If you didn't need it you could always raise it again, thanks to the US Navy.


Preflights required additional effort by maintenance personnel and pilots alike. Snow and ice is not likely to blow off airplanes on takeoff roll, so adequate de-icing became mandatory. When it was really cold we applied hot air to intakes, engine bays, uncovered static ports, and cockpit interiors to warm up the black boxes, valves, and instruments so they would operate properly. And we learned that unprotected BLC valves will freeze and fail if you actuate the flaps too soon after engine start when the valves have

not had a chance to thaw. As a sidelight, we discovered the plunger type BLC micro switch would often stick momentarily on flap extension giving an erroneous, flashing BLC malfunction lite in the cockpit. In most cases a little extra preflight time by all concerned eliminated much of the frustration that the cold weather could have caused.

The F-4C is a joy to launch in any climate, but add some really cold air and it will take off in such a short distance that all of us ex-hog drivers were airborne before we were settled down in the seat for takeoff. However, getting it to and from the runway still requires all the skill, cunning, and CAUTION that you'd use when maneuvering any mass of machinery on ice. Taxi accidents can be avoided, there is no such thing as going too slow. We placed special emphasis on taxi spacing to avoid unscheduled join ups and ice ingestion. Sometimes, with both engines at idle we had almost too much power to taxi. It soon became SOP to shut down one engine after landing. In any event, you can never overstress the importance of early and judicious use of brakes and nose wheel steering.

Our experience with the Phantom II during this deployment convinced us that it can turn in the same outstanding performance in the arctic cold as in the desert heat.





STATIC ELECTRICITY

Anyone who studies reports of explosive mishaps soon becomes familiar with one comment that often appears in them. It is likely to appear as follows in the list of causes for this type accident:

"Investigation revealed that static electricity was a possible cause of the explosion."

Practically all our units handle and store materials that a spark may cause to explode. If loss of life and property is to be avoided, we must take effective measures to prevent static sparks that can cause disaster. Whether we have few or many years of experience working with explosives, we must remain keenly aware of just what static is and what measures we must take to prevent it from causing an unwanted explosion.

Static electricity, as the name indicates, is the accumulated

charge of electricity on the surface of a nonconductive material. This electrification is caused by migration of electrons across the surface between dissimilar materials that come into contact with each other. If one or both of the materials are non-conductors, the new distribution of electrons probably will persist when the materials are separated. The hazard of static electricity lies in the accumulation of charges and their eventual discharge in the form of a spark.

A dangerous accumulation of static electricity is most commonly prevented by bonding and grounding, but you must understand certain facts about them before you can use them successfully.

* The mere physical connection to a ground is not neces-

sarily enough to dissipate static charges. Connections must provide continuous, low-resistance paths to ground.

* Bonding and grounding conductors must be large enough to provide required electrical conductivity and mechanical strength.

* Connections to equipment and ground must be strong and insure good electrical contact.

* Grounding two pieces of equipment that are close together by separate ground conductors does not always eliminate the static hazard. In such cases a difference of electric potential can exist and a static spark can occur. To eliminate this difference of potential all bodies in close proximity must be electrically interconnected or bonded.

You can take the following precautions to prevent static caused explosions:

* Don't use non-conductive material such as plastics or nylons.

* Bond and ground all static producing objects.

* Make sure that grounds and bonds are both physically and electrically adequate. If you're not sure, check with an electrician.

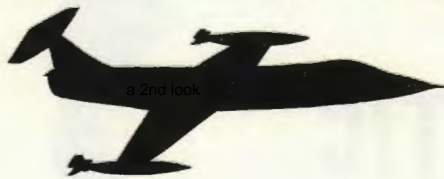
* Have all grounds and bonds tested when they're installed and periodically thereafter.

* Connect all machinery and equipment in one room to a common ground to avoid differences of potential.

* Be sure all piping such as exhaust systems and collection ducts are bonded together. Physical connection of the pipes or ducts does not necessarily mean the system is bonded.



A 2ND LOOK



Two TAC fighter troops had to eject after bumping together in the traffic pattern at night. No one hurt, but the bash sure spoiled a couple of our better type fighters. Weather was reasonable...high thin overcast in an area that is sparsely populated with few lights on the ground...the proverbial inkwell.

The two troops were flying as an element and it was daylight when they leaped. Twice they latched onto a tanker to extend their mission and the sun set before they finished their chores and headed for home, fat on fuel. The wingman soon learned that his gallant leader had only one reference light on each side of his bird. His own bird was no better equipped. He complained to Lead, and while at altitude, did his flying where he could silhouette Lead against the glow in the western sky.

Lead let down into the inkwell, using minimum AB with speed brakes out. Glow from the AB made formation easier, and Lead made a right descending 360. He rolled level, switched his wingman to his right wing and then started a left turn with the AB out.

Here's what his wingman said after they picked him up out of the drink. "Lead crossed me over to the right and began a left descending turn after I crossed. Shortly afterward, there was a tremendous crash and I was thrown forcefully from side to side..."

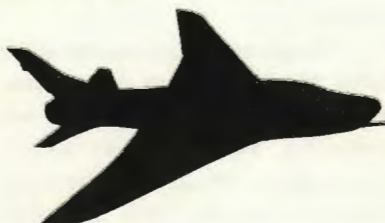
Local directives said all night recoveries would

be single ship GCA whenever fuel and traffic permitted. Since this pair were burning out excess fuel on their letdown, the board pointed a critical finger at the flight leader for violating this directive by attempting a VFR formation recovery with a wingman who had already said he was having trouble flying formation due to inadequate light references.

The board credited the wingman with the primary cause for not stressing how hairy things were getting out there on wing and for not breaking formation after they got to the critical point. A wingman is only obligated to stay with his leader up to a certain point. You may admire the type of flight integrity that resulted in four black spots on the white cliffs of Dover... but let's be more realistic. When forced to fly formation on a single light source on an inky night, a night so black there is no visual reference with the bird itself even when you're tucked in close, let's hope we all have smarts enough to forget pride and go solo.

On the other hand, when a normally competent wingman says he's having trouble, a leader who is equally competent should consider the trouble quite serious. Face it... **MOST PILOTS ARE PRONE TO LET THINGS LIKE THAT GET DEADLY SERIOUS BEFORE THEY SING OUT!**

On second thought, we're almost inclined to finger the flight leader on this one... what better place to burn off fuel than stooging thru a long, drawn out GCA?



At 0330 hours anybody feels punchy; it's just that time of the night. And it was about that time when two airmen were readying an F-100 for engine run-up

following maintenance. After receiving an "all clear" from his cohort with the fire bottle, the troop in the cockpit turned on the engine master switch and imme-

diately hit the start button. The airman standing fire guard saw fuel start leaking from the bottom of the engine bay, but the starter cartridge had already fired. Fuel on the ground was ignited by flames from the cartridge exhaust. There was no way to stop the burning cartridge. The aircraft was destroyed.

The investigation that followed revealed the fuel leak came from an old bugaboo... a marmon clamp used to secure the engine fuel line to the main fuel shut off valve was improperly installed. It also brought to light the factors that set this one up. Engine specialists in this unit were working 24-hour shifts and lighting in the work area was far from adequate. Fatigue induced by unusually long hours and poor working conditions surely had an effect on the mechanic who tried to install the marmon clamp and may have affected the airman starting the engine, who overlooked two vital procedures. The first was a pre-operational check for newly installed engines that would have revealed the fuel leak long before he got

to the start button. The second was step number three in the bold-face emergency check list for engine fire during start...ENGINE MASTER SWITCH-OFF. That would have stopped the flow of fuel which fed the fire and would probably have saved the airplane.


Why did he fail to follow these two procedures, either of which could have prevented the disaster? Should we chalk it up to the tired troop who goofed the procedures? Or should we chalk it up to the sorry supervisors who scurried around after the smoke settled to look for a loophole in the T.O., which could be construed to allow the use of a cartridge starter after work had been performed on the engine? Maybe the blame lies with the system that sent this young troop out to do a job he was not qualified to perform. No, not hardly... the system is run by people, supervisors, and they must take the blame for failing to give the mechanic in the cockpit the proper training. Then testing him on his knowledge of bold-face procedures that apply to ground operation of the aircraft.



It was an extended mission flying shuttle hops for several days under field conditions from bases with little or no maintenance capability for a C-130. The crew was carrying a delayed discrepancy in the Form 781 because a faulty check valve let oil drain from the reservoir whenever the engines weren't operating. They had been able to keep going because they pulled the oil fire shut off circuit breakers each time they shut down the engines. At the end of the fifth day they parked for the night and the crew chief pulled the circuit breakers for all engines. The next morning their preflight preparations were routine. They had taxied about 100 feet when the rpm on number three decreased rapidly with a loud explosive sound. As the co-pilot shut down number three with the T-handle the crew chief saw the four circuit breakers were still out and reset them. Within 20 to 30 seconds they had the remaining engines shut down. Number three had to be changed. Run-up and inspection of the other three showed turbine damage to number four and contaminated oil sumps in one and two.

The crew knew that their procedure of pulling cir-

cuit breakers to prevent the oil leak wasn't quite by the book. They had rationalized that the deviation was acceptable because the importance of their mission and their unit's heavy operational commitment wouldn't allow time to repair the valve. We quarrel with the thinking that short cuts of this nature will actually stretch your ability to complete a heavy commitment. A long, unhappy history of incidents like this has convinced most of us that the procedures in the book have been worked out to give us the best sustained performance. But our biggest impression from this one is of a crew that knows its machine so well they can modify a procedure and then operate without much reference to the check list. You see, these oil shut off circuit breakers are on both the Before Exterior Inspection check list and the Before Starting Engines check list. Perhaps they allowed themselves this seemingly minor deviation because they knew they'd catch the cb's on the check list. But no, that can't be it... it doesn't appear that they thought that much about check lists at all.



Canopy 'Care'

from Northrop Norair F-5 Service News.

An appreciable amount of the improvement in aircraft performance has evolved from better aerodynamic contours and configurations. In tactical fighter and training type aircraft the crew compartment constitutes about half of the frontal area.

Approximately one half of the crew inclosure is transparent. The selection of materials and the design of these transparent areas has been very thorough. Only plastics can be formed to the designed configurations and maintain acceptable optical quality. As with all designs there have been

many compromises. Perhaps the most troublesome problem with transparent plastic canopies and windscreens is their low resistance to abrasion. Transparent plastic's resistance to solvents has been increased nearly tenfold, but their solvent and scratch resistance is still far below that of glass. In the present state of technology this is a penalty which we must accept.

Routine cleaning and careful waxing in accordance with established T O s will do much to make the shortcomings of transparent plastics more tolerable. In a



sense, the wax can be considered as a sacrificial coating functioning in the same manner as wax on furniture or an automobile.

We have protective covers for the transparent areas which provide protection from frost and ice when used properly, but improperly used they will cause more harm than good. First, these protective covers must be stowed so that foreign objects such as sand, grit, metal shaving, and dried paint cannot lodge in the nap side of the cover. Second, they must be laid on the canopy, not slid into place. Third, they must be secured so there is no motion between the cover and the plastic. Allowing a contaminated protective cover to flap or slide about on the plastic surface is equivalent to rubbing it with sand paper.

You can remove frost and ice from unprotected aircraft by three methods: mechanical, thermal, or chemical.

The low resistance of transparent plastics to abrasion rules out mechanical methods such as rapping or scraping.

Thermal means, either hot air or infrared radiation, are quite satisfactory for use on canopy plastics if the maximum temperature is kept below 200 degrees F. Heat may be applied either internally or externally. Internally applied heat will be a little slower because of the low thermal conductivity of plastic and the insulating effect of the ice. External application, applying the heat directly to the frost or ice, is faster, but this is not always physically easy to accomplish. Both these means of thermal removal allow melted frost or ice to run from the warmed surface onto cold surfaces where refreezing can occur. So you must continue to apply heat until all the water runs

off the aircraft.

Chemical methods of frost and ice removal use a solution of water and some material that will depress the freezing point, liquify the ice. A common example of this is glycol-based antifreeze used in automobiles. Another is the use of salt to rid streets of ice. Note that we used two examples. The glycol solution is relatively noncorrosive and may be used for extended periods in a liquid cooling system. On the other hand, salt solutions are very corrosive to most metals; therefore, corrosion denies the use of salts for ice and frost removal from aircraft.

The reaction of canopy plastic to solvents severely limits your choice of fluid for de-icing or frost removal. The basic resin of acrylic canopy plastic, paint on the aircraft, and the paint on most new automobiles is the same. If you use full strength glycol or alcohol it will mar the plastic and aircraft finish just as it does the automobile finish.

Glycol and alcohol solutions have been successfully used for many years, with glycol preferred by commercial airlines. However, the shape and contour of aircraft canopies and the low viscosity of glycol and alcohol cause these solutions to run off before they can completely melt the ice or frost. If just frost is to be removed it is best to spray on the glycol or alcohol using a very fine mist and applying it carefully to prevent runoff. When the ice crystals melt, wipe the canopy with a clean, soft cotton flannel cloth saturated with glycol or alcohol. Alcohol will probably work better for this wiping operation.

For ice removal use a heavy soft cotton cloth such as a piece of bedding blanket. Wet the blanket

with glycol or alcohol and squeeze it nearly drip-free. Then lay the wet blanket directly on the ice coated canopy and add glycol or alcohol as melting progresses. The blanket serves to keep the glycol or alcohol from runoff until the ice has melted. You may launder the blanket and use it again provided it's free of all foreign objects such as sand and grit.

This method of ice removal should introduce sufficient glycol or alcohol into the water so any runoff will not freeze when it contacts cold metal. A final wipe of the canopy area with an alcohol soaked cloth will finish the job.

If the aircraft is to be flown as soon as ice or frost is removed the air stream can be used to blow away the residual glycol or alcohol. When the aircraft is not going to fly immediately the excess glycol or alcohol should be washed off with water. There is usually enough warmth in an industrial supply of water to warm the iced or frosted surfaces above the frost point.

Be very careful if it is necessary to clear ice from an aircraft surface. Anti-icing, deicing, and defrosting fluid (MIL-A-8243) should be used on the exterior surface of aircraft only under the following conditions:

- * Dilute the fluid, ethylene and propylene glycols, with equal parts of volume of water.

- * When temperatures are above freezing the fluid should not remain on aircraft surfaces. Rinse it off with a water spray, but do not rub the fluid coated surface. Paint and plastic soften when exposed to defrosting fluids at temperatures above freezing. The degree of softening is dependent on, and proportional to, both fluid concentration and time of exposure.

The PEASHOOTERS

The order for 210 Curtiss P-36As in 1938 was the largest placed by the Army for one model since WWI.

The P-36 rapidly became a favorite with the U.S. pursuit pilots. It was the first pursuit type to boast a speed of over 300 mph and was easy to fly and maintain.

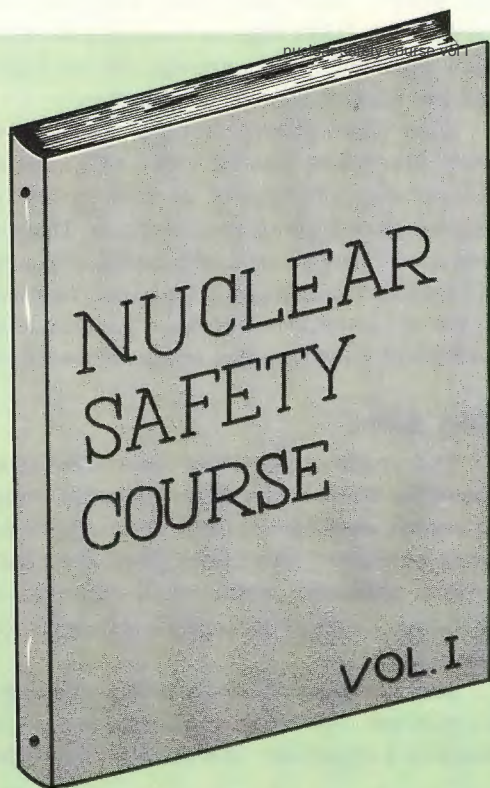
Later modifications had bomb racks and wing-mounted guns in addition to those on top of the nose cowling.

The design eventually was powered with the Allison V-12 engine and evolved into the P-40 "Tomahawk" of WWII fame.

P-36s were sold in quantity to France and did yeoman service against the Luftwaffe in the Battle of France.

Gross Weight 5,650 pounds
 Wing Span 37' 4"
 Top Speed 300 mph
 Cruising Speed . . . 270 mph
 Landing Speed . . . 75 mph
 Range 875 miles
 Armament Two .30 cal machine guns
 Engine Pratt & Whitney R-1830, 1050 HP

CURTISS P-36 A



A correspondence course in Nuclear Safety (Course 01955) is now available thru the Air University Extension Course Institute. The training is designed for people who have direct or indirect Nuclear Safety responsibilities or interests. You should consult paragraph 10, page I-28 of AFM 50-5, for enrollment procedures and other helpful information. Contents and estimated study hours for the course are as follows:

- Vol 1, Organization and Management - valued at 12 hours (4 points)
- Vol 2, Human reliability and Safety Procedures - valued at 24 hours (8 points)
- Vol 3, Before, During, and After Accidents - Valued at 12 hours (4 points)

TIG Brief



chock talk risk reducer torqued off hey rube

CHOCK TALK

risk reducer

When a maintenance crew turned on the battery switch to check the starter cartridge breach of an F-100, the right inboard pylon jettisoned. The aircraft was going on alert and had a full 200 gallon drop tank on the pylon.

No, the drop tank did not gush fuel all over the area even tho it was full. The maintenance troops had placed a pair of old rubber tires under each drop tank before working on the bird as a routine precaution for just this type of mishap. The tires softened the impact and altho the tank buckled at the nose seam, the leak was slight and there was no fire. The tires are a good idea which more and more units are using to reduce the risk factor.

superwise the supervisors

After reducing power to cruise setting, the C-119 crew found that the left engine continued to unwind. Throttle movement had no effect on it. They caged the engine and aborted the mission. A fast inspection by the maintainers revealed that the left throttle push-pull rod was detached from the jackshaft support bell-crank arm. They found the bolt that holds the push-pull rod in the bottom of the cowling, but the cotter key that secures the bolt could not be found. Instead of setting up a great hue and cry to find the mechanic who last worked on the throttle linkage, the unit tightened down on inspections and quality control procedures . . . supervision, they decided must take the rap for this one.

torqued off

The rest of the flight had refueled without incident when the F-104 driver moved in behind a KC-135 and speared the drogue. After taking a full load of fuel, he backed off only to find the basket was still on the probe. The other members of his flight reported that the entire operation looked smooth and normal until the basket came away with him, and some debris entered the '104s engine, causing a compressor stall. Stall clearing went normally, the re-light was good, and the flight landed at destination.

When maintenance troops removed the basket from the probe it came loose with normal force . . . the mating mechanism of both probe and drogue showed no defects or malfunctions. The hose coupling was not broken or cracked. Best guess at this writing is that the clamp holding the basket to the hose either broke or came loose. Now, if it came loose, we immediately start thinking about torque values . . .

hey rube

For years circus folks have overlooked an inexhaustible source of talent for their trapeze acts. Everyone working on, or near the flight line can see these would-be flyers demonstrate their skill as aerial artists. The star performer in this fearless display is known throughout aviation circles as an aircraft mechanic.

The sprightly, dexterous way in which he swings from stand rail to wing to engine cowl and back to stand is a symphony of motion and a spectacular dis-

play of boldness. Of course, as in all awesome acts of this kind, safety nets aren't used despite the mis-cues that occur. A misjudged step, a little oil or grease on this daring young man's shoe or the trapeze can cause an unrehearsed descent to the ring floor.

A breath taking aerial act is exciting entertainment at the circus or on television, but has absolutely no entertainment value on the flight line, where every year the rash of sprains and breaks caused by slips and falls continues unabated.

Maintenance supervisors, take a close look at your local directives and see if they are in harmony with AFM 32-3, paragraph 0802.8. Then constantly monitor your flight line operation for compliance with these safety rules. Be on the lookout for people who remove guard rails unnecessarily or climb on railings and exposed portions of engines and cowlings. Inspect work stands and platforms daily for cleanliness and serviceability. In short, active supervision is what's needed to keep aerial acts off the flight line and under the big top.

*Walter J. Grimm
Maint Control Officer
904th TCG*

rub-a-dub

A T-39 was going peacefully thru the before starting engines check using the check list until it came time to check the landing gear latch reset button.

The pilot hit the proper button, but instead of the clunk that normally accompanies this action, the nose dropped smartly to the ramp! The pilot cut the switches and hollered for the safety officer.

One nose wheel had rubbed against a wire bundle in the nose wheel well, chafed the wires and shorted out the circuit.

Chalk this one up to the crew chief. He should have caught it on post flight since looking for chafed wire bundles and rubbed lines is one of the more important reasons he has for sticking his head up in the wheel well.

screwloose

Engine FOD from screws or fasteners coming loose in the intake and going thru the engine is nothing new. Recently we received a report on one such occurrence that said the suspected cause was an incorrect type of screw, probably too short, which had been installed in the fuselage skin forward of the intake. Part of their corrective action was to remind all hands that altho a screw looks secure...

even if the painted marks line up...you can quickly tell if it is loose by running your fingers over the screw. Good plan!

more torque

Forty minutes after takeoff from an overseas base, the F-100 herder saw the AC generator light blink three or four times and the generator quit. Before landing from a precautionary pattern at an emergency field, the pilot made three unsuccessful attempts to reset the generator. After maintenance spent 30 man-hours on the bird, they had learned that the oil line to the CSD had worked loose!

Now, had this been on a long overwater flight...

service ?

The F-105 pilot landed at an enroute base in the evening and parked his steed overnight. The next morning, while he was preparing to saddle up, the transient alert people said they would have to service the oil system after he started the engine. It seems they had trouble finding servicing equipment the night before. (We won't comment on the fact that this guy had RON'd at a 'Five base for a reason!) He fired up, the oil system was checked, and the transient troops gave him a going-over before he took the runway. As he levelled at FL 290, the pilot saw his oil pressure fluctuate and then begin to decrease. The low oil pressure light started blinking. He reduced power and headed for the nearest runway. Pressure continued to decrease in the descent and he had 20 psi on final. When he pulled the power off on landing, oil pressure went to zero! It didn't take long to learn that the engine oil drain valve had been left in the Gage Fill position after the transient cats had "serviced" the bird.

After the engine was changed ...

hard knocks

In order to reach the oil line on the right engine of his C-119, the mechanic placed an auxiliary stand on top of a regular engine stand. The auxiliary stand didn't have guard rails and he had left the guard rail off the step side of the engine stand. The nut suddenly loosened as the mechanic applied pressure with both hands on the wrench. He lost his balance and fell toward the steps. Altho he managed to grab the step railing and softened his fall, he still fractured his left elbow and received multiple bumps and bruises. The unit lost his services for six days and he gained a healthy respect for guard rails... the hard way. ➤



Puff

**THE
MAGIC DRAGON**



Two of the six-barrel
of the wing,



Close-up



Versatile and irrepressible, the oft-maligned Douglas Skytrain has earned itself a new nickname in its thirtieth year of service. Belching fire from three side-mounted 7.62 mm. gatling guns at a combined rate of 18,000 rounds per minute, Puff the Magic Dragon has been terrorizing the Viet Cong with his long tongues of tracers while illuminating targets with his own flares at night.

Although the Gooney Bird has performed virtually every possible support mission over the years on floats, skis, and conventional wheels, it now finds itself in an active attack role in the unconventional war in Viet Nam. The combination of its low speed, long endurance, and large capacity for ammunition and flares has

made this strange bird particularly well suited to the requirements of the strange war it is engaged in.

Altho it can circle over a target for extended periods in daylight or darkness, Puff has been able to avoid serious damage from small arms ground fire because its guns are effective from an altitude of 3000 feet. The pilot aims his gatling guns with a familiar illuminated gunsight . . . but it is mounted in the window at his side! Flying at around 120 knots, he fires while he keeps the left wing low in an orbit of the target. He can set up the deadly circle rapidly and cover an area the size of a football field with his tongues of fire in three seconds.



cannons protrude from windows aft the third from the door.



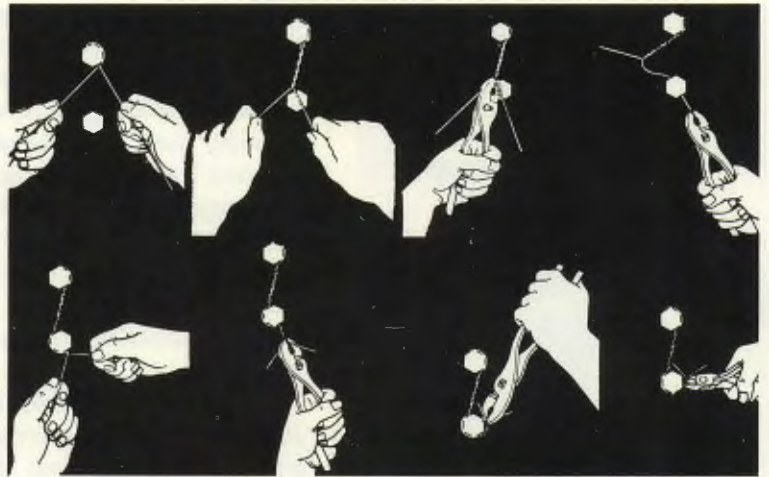
shows one of Puff's deadly stingers.



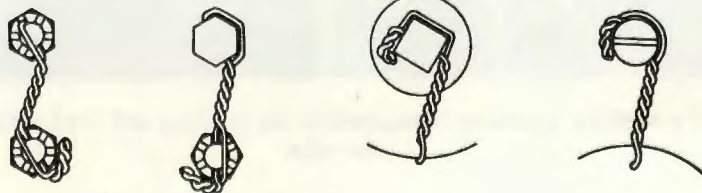
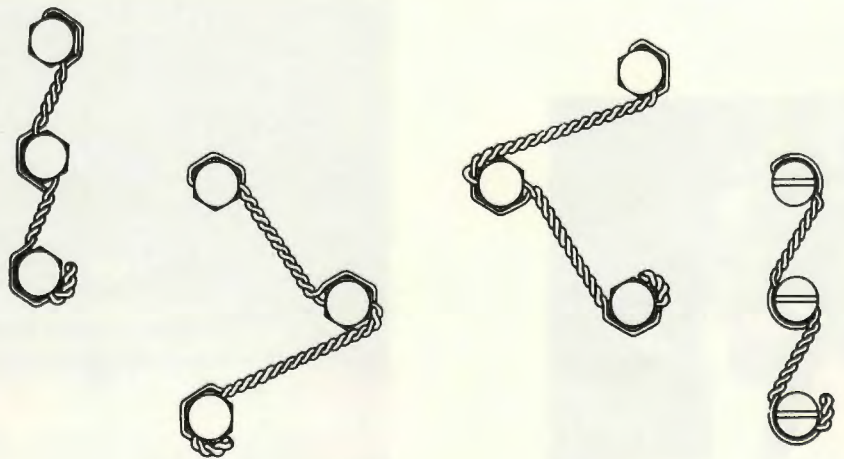
Puff's mini-gun armament is mounted in the fuselage and fired remotely by the pilot.

the basic principals of

These first examples apply to all types of bolts, fillister head screws, square head plugs, and other similar parts which are wired so that if one tends to work loose it is counteracted by tightening on one or both of the others. The direction of twist from the second and third unit is counterclockwise to keep the loop in position against the head of the bolt. The wire entering the hole in the third unit will be the lower wire and by making a counterclockwise twist after it leaves the hold, the loop will be secured in place around the head of that bolt.

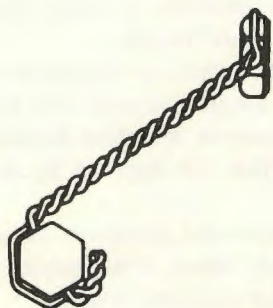


SAFETY WIRING



The four illustrations on the left show methods of wiring various standard items. Note, you may wrap the wire over the unit rather than around it when wiring castellated nuts or on other items when there is a clearance problem.

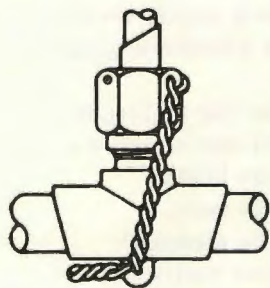
TAB Y - diagrams



The example above shows the method for wiring bolts in different planes. You should always install the wire so that tension is in the tightening direction.



Bend the tab inside the hole of hollow head plugs to avoid snags and possible injury when you brush against it later.

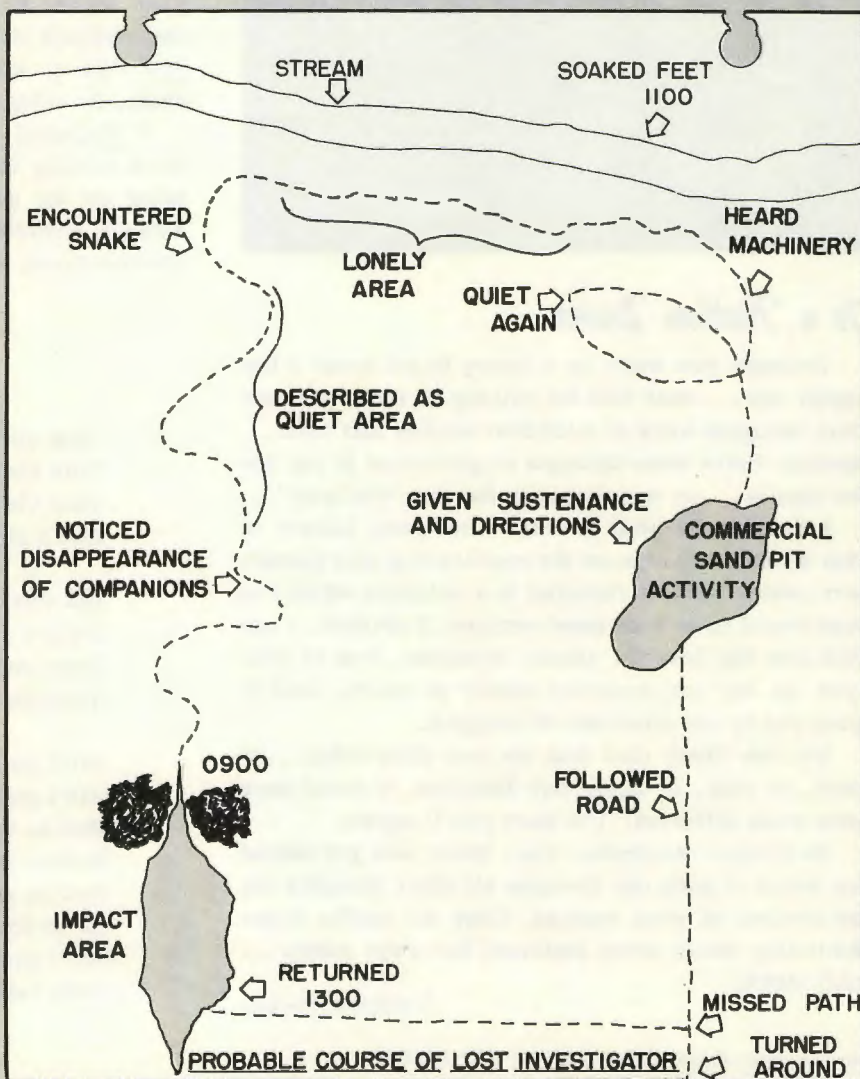


If the fitting you're wiring incorporates wire lugs, wire it as shown above.

After several years in the safety business you get to know what to expect in an accident report. There are items that just have to be in it...several standard forms, lots of words about investigation and analysis and findings, photos of scorched trees and unrecognizable wreckage...and diagrams. In the entire, inch-thick report the diagrams alone allow the individual a bit of expression. They may be plain or fancy, pictorial or schematic, annotated or illustrated, but they usually reveal more about the members of the accident board...and the individual who drew them...than anything else in the report.

Thumbing thru a report the other day, we found all the usual and accepted forms, charts, words, and conclusions. When we got to the diagrams we found them clear and concise, easy to read, a definite contribution to the meaning of the report.

Then we found this -





To a Reckless Driver

Perhaps you were in a hurry to get home a few nights ago... what with its raining so hard, perhaps your thoughts were of a kitchen window left open... perhaps there were thoughts of groceries to buy for the family... or a newspaper for the "old man"...

I don't know what it was... but your failure to stop at that stop sign on the road leading into Oceanport Avenue almost resulted in a collision which I'm sure would have been most serious, if not fatal. I can still see the frantic, almost hopeless, look in your eyes as my car swerved closer to yours, only to miss you by the smallest of margins.

We can thank God that we are alive today... to work, to play, to enjoy our families. It could have been much different! I'm sure you'll agree.

So please remember this. When you get behind the wheel of your car dismiss all other thoughts but the control of your vehicle. Obey all traffic signs implicitly which were installed for your safety... AND MINE.

A Fellow Driver

from US Army Materiel Command SAFETY DIGEST

* * * * *

The Army Mobility Command SAFETY GRAM recently listed the basic hazards of winter driving that cause motorists the most trouble.

* Temperature. Packed snow or ice that is close to the freezing point is more slippery than colder surfaces. Braking distances on ice about doubles as the temperature rises from 10 degrees to 32 degrees F.

* Visibility. Road slush and grime on the windshield, ice and snow, early hours of darkness... all of these make it hard to see on winter roads.

* Traction. Pulling away from a standstill, climbing hills, or going through deep snow can all cause trouble... from aggravating delays to major tie-ups and accidents. Reduced traction on snow or ice stretches braking distances from three to twelve times the distance needed on dry pavement.

* Ice. Sleet or freezing rain can catch you with your winter driving guard down. Equally important, and perhaps more dangerous, is the unexpected ice you find in clear weather in shady and protected spots, on bridges, and on overpasses.

* Polished Roadways. The polishing action of tires sliding to a stop or spinning to get started on snow or ice greatly increases the slipperiness of already hazardous road surfaces. Beware of this at intersections, around curves, and on hills.

* * * * *

This Ole Car

This ole car once knew some children
 This ole car once knew a wife,
 This ole car once knew a husband
 And a merry family life . . .

But this family's trips are over,
 Picked a dangerous spot to pass -
 Then they saw death's angel peekin'
 Through the broken windshield glass.

Ain't gonna need this car no longer,
 Ain't gonna need this car no more -
 Had no time to fix the brakes
 Had no time to fix the door,
 Had no time to fix the steering'
 Or to drive with more restraint -
 Ain't gonna need this car no longer,
 Been taken to meet the Saint.

- Keesler News

* * * * *

It is said that you can take a healthy frog, put him in a pan of water at room temperature and gradually heat the water to the boiling point, and Mr. Frog will not jump out. Lulled into a feeling of well being, he gradually loses consciousness and never recovers.

If you take the time to look around some day you'll probably see Mr. Frog all about you.

He's the one whose brakes squeal so badly it makes you wince. You can just see the brake drums wearing away . . . the liners have been gone for weeks.

He's the guy who has been towing airplanes over the rotting wood grating on the wash rack for months . . . it has held up so far hasn't it?

He's been getting along on the flight line without ear protectors for years . . . doesn't even hear the noise anymore.

He's the egress technician who knows the ejection seat so well he doesn't need a check list.

He's handled explosives for years and never seen an accidental explosion . . . he doesn't realize that his handling is getting rougher and rougher.

How about it? Have you seen Mr. Frog lately?

Or have you been watching him so long that you don't recognize him anymore?



TAC ATTACK

She just sort of dropped in out of the blue, talking about the little games she likes . . . and plays so well. When we asked, she replied that sure, she'd love to share her ideas with the boys!

So here she is . . .

Phyllis plays ...



The Gentle Art of Squeezing

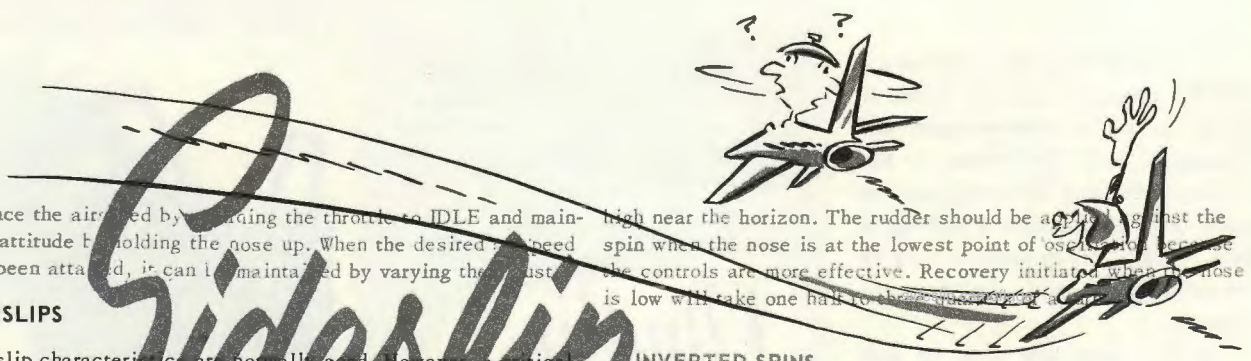
Although the "squeeze play" is often a last resort type effort, it's one of my favorites . . . I use it in bridge. It can be employed when you know you are going to be short one trick unless you can get your opponents to throw away a winning card. You can do this by running a long trump suit or a long outside suit after you have taken their trumps. It forces them to make discards until finally they have to throw away one of their winning cards, thereby promoting one of your smaller cards to winning status. Needless to say, you have to keep very close count on every discard they make. This play is sometimes very profitable . . . sometimes doesn't work at all . . . but it is always fun to watch the fear in your opponent's eye as he realizes what you are trying to do and he has to guess which card to keep. Remember, even if it doesn't work at all, you will have at least made him feel insecure.

You can also employ this play when you are driving your car. It is a lot more dangerous, the stakes are higher, and the profits are negligible. But if you want to live fast, die young, and take some others with you, try it on the high-

way. Anytime a car tries to pass and you don't especially feel like being passed, wait for him to get alongside and then speed up so he can't complete the pass. This is especially effective when there is another car approaching from the opposite direction. Your only gain is watching the fear in the poor devil's eyes when he sees what you are doing to him. Of course, there is always the chance that he may start playing your game and crash into you. You have to gamble that he has a good driver education background and that he will take to the ditch instead of taking you with him.

You can try squeezin' when you are at a stop sign and there is another car approaching on the right-of-way. Wait until he gets almost to the intersection and then dash out in front of him. Here again, your only benefit is to watch his despair and confusion. The chances that he will hit you in this maneuver are pretty good. He might brake in time or take to the ditch but that's the gamble. Beginning to get the idea?

If so, save your squeezin' for the parlor games . . . bridge, that is!



Reduce the airspeed by pulling the throttle to IDLE and maintain attitude by holding the nose up. When the desired airspeed has been attained, it can be maintained by varying the pitch of the

high near the horizon. The rudder should be applied against the spin when the nose is at the lowest point of oscillation because the controls are more effective. Recovery initiated when the nose is low will take one half to three quarters of a spin.

SIDESLIPS

Sideslip characteristics are normally good. However, a critical limit exists beyond which the maneuver may progress into uncontrolled flight. The limit of control condition is never

INVERTED SPINS.

Note

An inverted spin is easily recognized because negative-G forces exerted on the pilot will force him against the lap belt.

STALLS

1G Stalls.

At 1G and with flaps up the airplane stalls normally with plenty of warning; it must be noticeably buffeted to stall and buffeted about 10 knots

Inverted spins are usually caused by too slow a stall during slow speed inverted flight, or by pulling the stick forward too quickly when rotation stops during recovery from an inverted spin. In

CAMOUFLAGE

The driver slipped the wagon into gear and Sideslip slouched back in the seat, relaxing completely. It seemed like the day had been 72 hours long ... no, not all day, just since it got dark ...

"That's right, VOQ, Driver," he sighed, "Then go by the hospital and pick up Capt Bell ... they'll be finished with him by then."

"Trouble on landing, Sir?" The driver was trying to make conversation.

"No ... uh, well, not bad."

"Looked like a pretty big crowd 'round your airplanes fer just a coupla captains ... I was wonderin' ..."

"Yes, it was ..." Sideslip could see the crowd again. All those people ... the transient alert truck with its headlights pointing right in his eyes. And that guy trying to park him with only one flashlight wand. Really wild ... anybody's guess what his signals meant!

But that wasn't the trouble ... It seemed as tho it had started

with the letdown. They had been on top at FL 310. It was still light and as he turned toward the fix Sideslip had noticed that Bell, on the wing, was having trouble with the sun. That was when Sideslip had crossed him over to the left.

As they started down into the undercast Sideslip realized that it was getting dark awful fast. He remembered that the weather guesser had told them to expect solid weather all the way down. He looked over at his wingman ... he had his nav lights on.

"Cockpit lights up and panic lights dimmed, Dinger?"

"All set, Slip ... press on!" Ding Dong Bell was steady on the wing, his head nodded vigorously.

"OK, recheck defrost and pitot heat ... I'm getting my lanyard when we level at 20."

"Rog, Slipper, rog."

By the time they reached three thousand feet it was full dark ... night. GCA came on the air with the cheerful news that ...

"... 1800 observation is six hundred broken, one mile in light

snow. You are cleared to land runway 02 ..."

It had been a good GCA, easy and relaxed. Sideslip didn't actually look out at Ding Dong, but could sense he was there ... maybe it was peripheral vision. It had occurred to Sideslip for a moment that the Dinger might have been more comfortable on the right side, but he dismissed it and concentrated on a smooth transition as the strobes started to appear thru the murk.

The weather certainly wasn't any better than 600 and one, Sideslip had thought as he measured the distance to the green lights thru the brilliant confusion of snow flakes. After his landing lights were on he wished he hadn't used them.

Then he had been over the approach lights ... too bright in the snow, giving him the feeling that he was too close to them ... fighting the impulse to add power, forcing himself to descend to the runway.

He was suddenly past the blind-

ing light, in the cavernous dark between two rows of lights. The runway looked right ... he hesitated before cutting his own throttle, giving Ding Dong time to get a second or two of spacing on the runway.

He had sensed it then, he realized later, out of the corner of his eye. Dinger was wide ... too wide!

But then Sideslip had become busy when his drag chute pulled his nose to the left. Counter with right rudder ... not too much ... ease the nose down. Feel the runway ... how slick is it? Not bad ... easy on the brakes. Remember, two thirds of the stopping occurs in the last third of roll ... there!

He twisted around to look down the runway as he turned off at the end. Dinger was pretty far back ... got a good chute! Sideslip stopped, cleaned up his airplane and put in his seat pin. When he looked up, Dinger's bird was stopping beside him. He had the impression that it looked strange ... something he couldn't define. He shrugged his shoulders and started taxiing when he saw the top of Dinger's helmet nodding to go ahead.

After Sideslip had shut down on the ramp and opened the canopy he realized what it was. Ding Dong Bell's airplane was camouflaged! Couldn't be! It hadn't been when they took off. But that's what it had looked like ... the whole side. Then the awful realization had struck him ... mud!

Sideslip was out of the airplane as soon as his ladder was in place. He ran across and was up Dinger's ladder before he had his helmet off.

"Wha ..."

"That's right, Slipper," Ding Dong smiled ruefully, "I must

have left the runway with one wheel for a while. I moved out as we flared ... awful uncomfortable on the left wing as we came over all that glare. I moved over toward the runway lights. About the time the nose came down all hell broke loose ... roughest ride I've ever had ... thought about a blown tire, but it smoothed out when I moved back toward the center." He stopped and looked quickly at Sideslip as he started to raise himself from the seat. "But ... how'd you know?"

"Come down here and look at the side of your airplane, Dinger ... I thought you'd picked up a fast paint job."

"Cheez, Slipper ... whadda we do now?" Ding Dong flinched when he saw the mud. The underside of the wing, the wheel well, and the side of the airplane all the way up the tail was black.

"Face the music, I guess ... here it comes!" Sideslip nodded toward the carryall with antennas all over the roof and a red light flashing as it skidded to a stop. A short, bald figure jumped out and trotted over toward them.

"I was in Mobile and saw the whole thing. Which one of you was ... Good Heavens!! Is that ..." He stepped over and gingerly touched the airplane. His hand jerked back as though he had felt something unpleasant... "MUD!"

The major trotted over to his safety vehicle and came back with a taxi director's wand. Sideslip and Ding Dong elbowed thru the growing crowd of spectators with him as he muttered to himself, "See how much damage ... always happens when I'm on my way home ..."

As they inspected the wheel well in the meager light from the wand, scraping the rapidly freezing mud away with their hands,

Ding Dong repeated what he had told Sideslip.

"... but I swear those lights were on my left the whole time ... can't understand how I could get ..."

"Well ... Captain ... I saw it from Mobile. You left the runway, all right! Sent up a rooster tail like a racing hydroplane when you did, too!"

Nothing looked bent or broken, but they agreed the airplane should be washed down and pulled into a lighted hangar for a better inspection. After a short discussion with the line chief they had decided to request a retraction test.

When the medics arrived, the major, insisting that he would have to make a full report of the incident, sent Ding Dong off with the flight surgeon.

Sideslip didn't like the way things were going. It was getting altogether too serious ... the kind of serious that would get back to the wing commander before they could. When the major said he was going out to look at Dinger's tracks, Sideslip decided to go with him. He needed time to think ... and time to talk to this guy!

The snow had been falling faster as they reached the runway, but there was no doubt about the point where Dinger's wheel had left the pavement. The dark scar thru the snow stood out in the headlights as they slowed down beside it. The wheels of the carryall bumped over clods of mud freezing on the runway.

They stopped and got out. As he kicked at the mud underfoot the major seemed to be getting more and more irritated. "Can't see how he could get this far to the side of the runway ... must have been asleep. Why'd he want to move out so wide ... flown much formation?"

Sideslip, hands in his jacket pockets, had walked away from the major's muttering. The single track ran about four hundred feet before it went back onto the pavement. It never had been more than a foot or two from the runway. "Lucky he didn't hit a runway light or something ... he thought.

Then he had stopped short ... the runway lights were a full ten or twelve feet from the pavement! He looked down the runway and even without a windshield and gun-sight glass in front of him it was difficult to tell where the edge of the pavement was. Ding Dong had landed on the wing ... he didn't use landing lights. When Sideslip

looked at the second runway distance marker down from him the line of lights became the edge of the runway.

By the time he reached the Major, Sideslip had worked up an attitude of hurt and indignation. The major had immediately turned defensive when Sideslip mentioned an Operational Hazard Report.

Sideslip smiled to himself as he snuffed his cigarette stub out in the ashtray. The clincher had been in the carryall when he mumbled something about submitting the OHR thru channels so everyone could benefit from it. The major had been all sweetness and light

when they went into Base Ops. He checked the VOQ to be sure there was room for them and called the club steward to have him keep the dining room open.

The station wagon seemed to be caught in some kind of traffic jam. Sideslip was about to ask the driver where they were when he volunteered, "I shouldn'ta come by the base theater here, Cap'n ... forgot it was time for the first show to get out. Say, lookit that AP, will you sir ... those two long flashlight things he uses to direct traffic sure make it easy to see him at night. Where d'you s'pose he got them?"



Better Mousetrap

Finger-Saver

Anyone who has manhandled the brake assembly out of an F-100 wheel can understand the merit of this month's Mousetrap. Airman Second Class Donald F. Sprague at Homestead AFB watched the struggle between man and brake several times. He saw near misses when fingers were almost smashed under the heavy brake, fumbling with asbestos gloves when the assembly was hot after landing, and frustration when the brake became wedged on the segment locks ... so he did something about it! Airman Sprague's simple solution was an axle extension about 18 inches long and heavy enough to support the brake assembly. Six inches of the small end fit into the axle and the brake assembly slides out easily on the extension. The extension then serves as a handy handle to lift



the 100 pound brake.

Good thinking, Don! Your idea will probably work on more than just the F-100.



TAC TIPS

TAKE IT AROUND

An F-4 phlyer from another command was on a no-radio, right hand, VFR approach to the runway when he overshot final, tried to correct, and landed in a left-to-right drift about 10 knots too fast. His right tire blew on touchdown and the Phantom swerved to the right side of the runway. After wiping out two runway lights, the right main gear went over an arresting gear chain before our hero managed to get his chariot under control and pointed down the center of the runway. He tested his brakes, which appeared normal, so approaching the end of the runway he clamped on the binders and smartly blew the left tire. Since he now had no brakes and had passed the barrier, he secured both engines and managed a 150-degree ground loop with nose steering, which finally stopped him.

This one pretty obviously goes into the pilot goof column when you add up all the facts. The poor pilot was so engrossed in a no-radio situation, which was self-induced because he had the volumn too low, that he lost control of the whole situation. Normal traffic on the runway was left hand; his right hand pattern was not only against the rules, but unfamiliar to him. He landed in a drift and 10 knots too fast. He did not use the drag chute.

Somewhere along the line this troop must have heard someone preach about taking it around instead of trying to salvage a lousy approach, but he apparently forgot that, too!

TAC ATTACK

NICK OF TIME

The 'Five driver released his trigger and knew he had a good hit when pieces flew from the dart ahead of him. As he pulled away he flew thru some small bits of foil and other debris. He didn't feel any unusual vibrations and the engine instruments remained normal throughout the remaining thirty minutes of flight, but after landing he decided to request an FOD inspection as a precautionary measure. During the borescope inspection that followed, engine specialists found nicks that were beyond tolerance in the ninth stage compressor. There's no proof that these small nicks occurred on this flight, but there's also no doubt that this pilot's action may have saved serious trouble on a later flight. He wasn't satisfied that the engine happened to keep running smoothly after it was exposed to FOD . . .

YOU ASKED FOR IT

A flight of two F-100s from a rote unit in Europe was on a cross country into Merry Old England where winter weather is never very good and winter days never very long. The weather wizards had forecast these hearty lads' destination to be below minimums with 200 feet broken and three tenths of a mile visibility in fog and haze. From the incident report it appears the weather over the rest of the Common Market may not have been too good either, so two alternates were kept in mind. Approaching their destination the pilots were informed the weather was

400 feet broken and 1/2 mile, better than forecast, but expected to go below minimums shortly. One of their two alternates was back on the Continent; therefore, the flight leader decided on a heavy weight night formation landing. All went well until one bird failed to get a good drag chute after a 160 knot touchdown with 6000 pounds of fuel. The BAK-9 did its job and the bird received only a few dents and scratches.

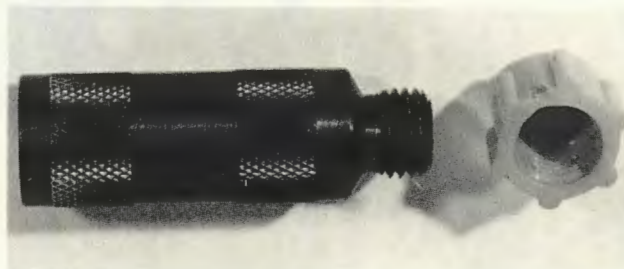
Fortunately this one didn't end up as a major accident. But you can bet some serious damage was done to several people's confidence in these aviators, when it was learned their 175 weather showed the field below minimums. The fact they launched on the forecaster's verbal comment that the weather would be at least 700 and one, doesn't help the confidence factor. It's nice to be able to sign our clearances, go where we want on a cross country, have weather minimums commensurate with our experience, and not have to operate under a lot of restrictions that cast aspersions on our judgment. However, and rightly so, it doesn't take many thoughtless acts or displays of poor judgment before people are convinced we ALL need big brother watching over our shoulder all the time. Then cometh the added restrictions, paper work, and signatures before we can get airborne.

DO IT YOURSELF?

The "Do It Yourself" kick has come a long way in the last few years as a result of the high cost of labor. This is all well and good but there is one area where amateurs are not welcome. Specifically, pilots trouble shooting aircraft malfunctions either in flight or on the ground. Sure, it's nice to be able to give maintenance a complete trouble report, but not to the extent that you have to do a lot of switching back and forth between systems in an attempt to duplicate malfunctions. By doing so, you can cause yourself more grief than it's worth. Once in a while you hear about people getting into hot water for playing test pilot. Here's an example. The aircraft commander noticed mild engine compressor stalls in flight, so after landing he decided to run up the affected engine to see what the trouble was. While doing this he again experienced compressor stalls only this time somewhat more severe. It was later determined that the engine was suffering from FOD. The engine had ingested a bolt which had apparently lodged behind the vari ramp. Running up a sick engine just ain't too smart. Some years ago a troop bought a major accident for doing the same thing. Only difference was that the engine came unglued and flung chunks of compressor about the area, opening large holes in the

fuselage. Other than following prescribed dash one procedures, don't fool around with an ailing bird. Let maintenance figure it out. That's their job and not yours. The same holds true for flight control gyrations. If switching the gadget off solves the problem leave it off. You'll be way ahead in the long run.

- PHUMBS UP
4453 CCTW



FLARES

We ran a warning about the pen-gun flares in these pages a few months ago. The primary hazard has been from carrying the flare kits in your flying suit pocket without adequate protection for the flare primers. ADC's INTERCEPTOR recently printed this photo with the explanation that the small plastic caps are available thru normal supply channels... Federal Stock Number for the caps that fit the Penguin pen gun flares is 5340-605-5416.

PHANTOM PHYER

Shortly after a night takeoff, the Navy Phlyer selected centerline tank transfer and the light went out indicating that fuel was transferring normally. During the VFR climb the Bus Tie light illuminated followed a few minutes later by starboard generator failure with the Bus Tie closed. The pilot was unable to reset the generator, so he secured the starboard engine of his F-4B and started a right turn back towards the field. He was slow... about 250 KIAS... and cocked up in the turn with the single engine at military power, when his RIO saw a bright orange light flickering around the wing trailing edge on both sides and a general bright yellow glow in the air. The pilot reduced power to 80 per cent, noted that internal fuel was several thousand pounds lower than it should be, and acknowledged that there sure was a mighty large glow around the aircraft. His engine instruments were all normal and he had no fire or overheat lights, but the combination of electrical problems, an apparent fuselage fuel leak, and the bright flickering light and glow led the pilot to agree with his RIO that they were probably on fire. As the glow persisted, the RIO

requested to eject and the pilot granted permission. After the RIO ejected, the pilot positioned himself for ejection, pulled the operating engine to idle, and took a final look in the mirrors . . . lo and behold, the glow was gone! He abandoned ejection and landed with minimum power after relighting the starboard engine.

Investigators found that the external tank emergency pressure vacuum relief valve assembly had failed allowing overboarding fuel from the external tank to stream across the engine exhaust and ignite at high power settings.

Under the circumstances and without the advantage of hindsight, the crew's decision to eject was understandable. However, if a similar incident occurs in the future, the best move appears to be to terminate external tank transfer, retard power to near idle, and maintain a low angle of attack by descending. If this doesn't stop the torching, jettison the off-feeding tank.

CROSSFEED Comment: If nothing else it certainly is reassuring to know that the RIO's seat worked as advertised.

from USNAS CROSSFEED

VISOR DOWN

In a recent Navy ejection from an out-of-control fighter, the pilot was severely injured . . . and may be physically impaired for life. This might not have occurred if his visor had been down before he started to eject. At the instant of ejection, one hand slipped off the face curtain handle, wind blast caught under the front edge of his helmet and rotated it backward. His head buffeted during ejection and the after edge of his helmet struck him in the nape of the neck, dislocating a vertebra and damaging his spinal cord. This can occur even with chin strap and oxygen mask cinched up tight. But with the visor DOWN it is much less likely to occur.

THAT SUDDEN SILENCE

After the Hundred Herder lost his airspeed meter he joined on his buddy's wing for a GCA recovery. On final he had 2500 pounds of fuel with 1300 in the forward tank and power about 90 per cent when he heard a loud growling sound and then felt a loss of thrust. He immediately hit the airstart and emergency fuel switches as he noted zero fuel flow and oil pressure at 30 pounds. Engine power recovered promptly and he landed straight ahead.

We didn't ask him what he had in mind should the airstart attempt fail. He was mighty close to one of the worst corners you can get into with a

single-engine machine. Final approach airspeed doesn't leave much to zoom with, the bird is a real drag machine with gear, flaps, and boards sticking out all over. The instant the engine starts to unwind, precious airspeed and altitude start to diminish. Anything short of an immediate re-light . . . and power recovery before rpm has dropped very far . . . leaves you facing ejection in a descent with terrifyingly little ground clearance.

It's been pretty well established that unless you've thought this situation out before hand and know exactly what you're going to do, you're going to get hurt . . . bad! You have virtually no time for evaluation, just reaction . . . airstart attempt . . . immediate engine recovery . . . or PUNCH! If anything in the pre-power-loss sequence gives you even an inkling that the engine won't re-start, like it just exploded, or something, don't waste time . . . GET OUT!



HEADS UP

It has been several years since this hat was sliced by a spinning propeller, and this type of accident has happened very rarely since. But a recent passenger fatality prompted another command to review all passenger on- and off-loading procedures. The C-54 crew made a minimum-ground-time stop and left the engines running. No one was watching the passengers deplane. One of them picked up his bag and walked forward under the aircraft . . . into number two prop! Current C-130 procedures permit off-loading passengers from the cargo door, and up to five passengers from the forward crew entrance door, with all engines running. Under some conditions crewmembers are allowed to deplane from other recips without shutting down engines. To ensure that someone in TAC doesn't experience a mishap like this, we must be especially alert during the high-hazard periods of darkness, inclement weather and slippery ramp conditions.



be a WINNER

be a winner

The following information will only be of interest to people in units that accomplish their mission in an aggressive, resourceful, and outstanding manner. If your unit is made up of run-of-the-mill, so-so type people that barely do an average job then don't waste your time by reading any further.

On the other hand, if you work with people who do an outstanding job and you are interested in getting them the recognition they deserve . . . read on!

The TAC safety incentive awards outlined in TACM 900-1 are designed to recognize you and your personnel for their outstanding performance and contribution to TAC's accident prevention program. The following eight awards are given to individuals for their accomplishments:

Aircrewman of Distinction

Outstanding Contributor to Nuc or Msl Safety

Aircrew Achievement Award

Outstanding Flight Safety Officer

Crew Chief of the Month

Outstanding Nuclear Safety Officer

Maintenance Man of the Month

Outstanding Missile Safety Officer

The requirements and procedures for nominating your personnel for these awards are described in Chapter 7 of TACM 900-1. Each recipient of an award listed above receives a letter of appreciation from the Commander, TAC, recognition in the TAC ATTACK magazine, and an award engraved with his name. The two silver cases pictured here are similar to the ones that are given monthly to the Aircrewman of Distinction, Maintenance Man of the Month, and the Crew Chief of the Month.

The key ring shown below will also be given to each person who earns a TAC safety award. This will give him a personal reminder of the award that he can carry with him and use daily. In addition it identifies him as an outstanding contributor to the accomplishment of TAC's mission.

A continual effort should be made to identify and recognize people within your unit for their accomplishments. With you lies the responsibility to properly motivate and reward your personnel, and one effective way to do this is to have an active awards program within your unit.

Recognition

Maintenance Man of the Month

Technical Sergeant Junior R. Fitzpatrick, 464th Field Maintenance Squadron, Pope Air Force Base, North Carolina, has been selected as a Tactical Air Command Maintenance Man of the Month.



Crew Chief of the Month

Staff Sergeant Paul D. Wakefield, 4511th Organizational Maintenance Squadron, Luke Air Force Base, Arizona, has been selected as a Tactical Air Command Crew Chief of the Month.

Pilot of Distinction



Major Quintin H. Evans of the 1st Air Commando Wing, Hurlburt Field, Florida, has been selected as a Tactical Air Command Pilot of Distinction.

Major Evans was flying number two in a flight of three T-28 aircraft being evacuated from their home station because of an approaching hurricane. About thirty miles south of their evacuation base, Major Evans saw the chip-detector light come on. He immediately notified his flight leader to turn the flight east toward a small civilian field. Very shortly after the chip-detector light illuminated the engine began to run rough, lose power, and completely failed. Major Evans' rapid evaluation and reaction to the warning light placed him close enough to the small civilian airfield to skillfully and accurately execute a successful dead-engine landing.

Major Evans' calm thinking, thorough pre-flight planning, and expert flying ability averted the loss of an aircraft and qualify him as a Tactical Air Command Pilot of Distinction.

LETTERS



To the Editor

Found a copy of September INTERCEPTOR this morning and was stopped cold when I came to page four. There in black and white . . . for real . . . was a short bit saying that some real smart types in ADC have finally found a way to turn on Emergency IFF and Code 3/77 at the same time WITH ONE MOVEMENT OF ONE CONTROL!!

All these years SS (since sif) we've been told that we must program enough time into our emergencies to allow us to:

Depress the little button and rotate the IFF selector past the stop, to get an emergency squawk that military radars can see, and then,

Find the SIF panel, select mode 3, and turn both the little dials all the way to 77, so the FAA cats can see we're in trouble too!

When this ridiculous system was first conceived . . . or at least when I first screamed about it, I was told there was absolutely no possible way to hook these together and activate both with one simple flip of one switch. Why, if it was possible, they'd have built it that way, wouldn't they?

Well, these smart guys in ADC have found a way to hook all the

electrons up to a '102 canopy so that when you blow it, both . . . yeah, BOTH emergency squawks turn on! And this is why I'm writing to you . . .

Do you know where a poor ol' TAC fighter jock like me can get his hands on an F-102 canopy? Or maybe just the right-hand hand-grip from a duece would do . . .

Sincerely,

A Two-handed Fighter Pilot

— Forget the duece canopy it's hard to see thru and won't fit your bird. We're for hooking up both squawks to the rotary switch on the IFF panel . . . and are talking to the A&E folks about it.

To the Editor

This is in response to the incident reported in TAC TIPS November 1965, under the heading "Call Your Shots." In the Fall of 1963 we instituted a program to design a phlex conduit which would not be "...pinched in the hinged area." The design of this phix took three weeks. Record time when you consider that four civilian or military agencies were involved at every step and most of our working information was sec-

ond-hand. The resulting design was installed in three aircraft at (Naval Air Test Center) Patuxent River for the purpose of flight test.

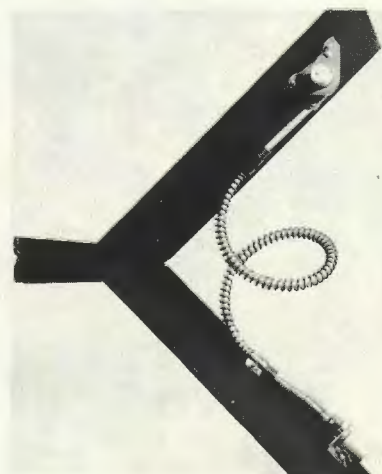
We understand that an ECP covering a phix for the phlex leads has been approved and the Phantom manufacturer will soon be issuing this change to the pfield. In addition, all production aircraft should have the new phlex leads installed at the pfactory.

If we've been tagged as "un-glued engineers" we'd like to redeem ourselves through our new and better paste pot. Our better phlex conduit is shown in the enclosed photographs. The service loop of the spring-encased conduit makes a recurrence of the problem virtually impossible.

So don't feel alone in your battle against red-tape, remember it means lost profits to us in business. When you sum it all up your service is our protection and we're with you all the way.

L. R. Morcone
Director of Technical Documents
FENWAL INCORPORATED
Ashland, Massachusetts

— We like your paste pot, and take back all the words about unglued engineering.



T A C

A

L

L

Y

A COMPARISON OF TAC ORGANIZATIONS

ACCIDENT FREE			
ACTIVE	MONTHS		ANG/RES
354TFW	9	11	126ARW
8TFW	6	8	156TFG
4500ABW	53	108	434TCW
4442CCTW	36	69	435TCW

F-84

MAJOR - Barrier ruptured drop tank on aborted TO. Destroyed by fire.

F-86

MAJOR - Engine disintegrated at 80% on run-up. Destroyed by fire.

F-100

FATAL - Went into overcast on rx pass, no ejection from 80 to 90 deg dive.

MAJOR - Oil overheat lite and smoke from fuselage. Ejection successful.

NOV TALLY		
UNIT	MAJOR	MINOR
516TCW		1
464TCW		1
15TFW	1	
23TFW	1	
479TFW	1	
4520CCTW	1	
123TRW		1
117TRW	1	
113TFW	2	

F-101

MINOR - Nose wheel torque arm ass'y failed on landing. Forward bulkhead damaged.

F-104

FATAL - Power loss after rx pass. Unsuccessful ejection.

F-105

FATAL - Exploded one mile behind tanker.

F-4C

MAJOR - Fire warning lite and fire from fuselage. Ejections successful.

C-130

MINOR - Hard, nose high landing. Damaged aft fuselage.

MINOR - Magnesium wheel failed on TO, damaged wheel well. Wheel and door fell off. Landed safely.

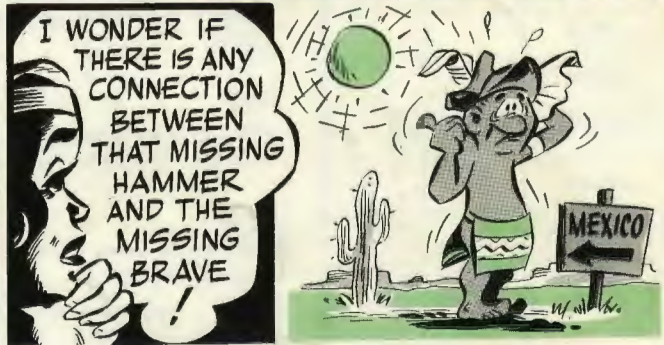
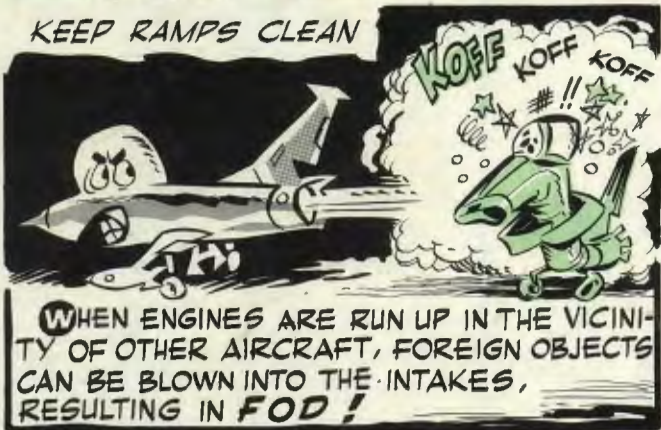
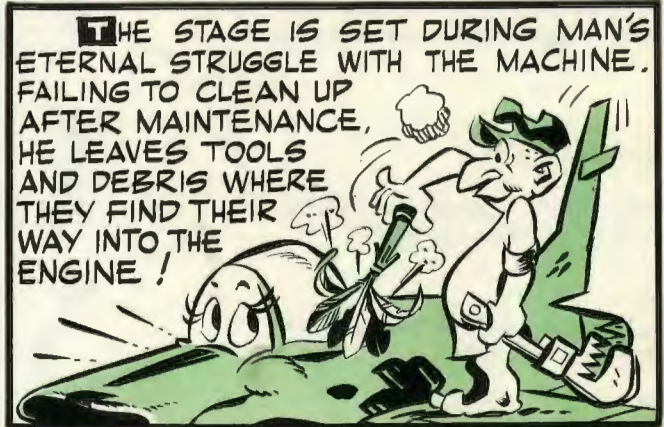
MAJOR ACCIDENT RATE

TYPE	TAC	* ANG	AFRES
ALL	9.0	12.5	1.8
A-1	16.9	8.8	1.7
F-84	0	15.1	
F-86	129.3	21.6	12.4
F-100	14.4	0	16.3
F-101	0	15.2	10.2
F-104	24.6	18.9	20.1
F-105	23.2	0	0
B-57		12.5	0
C-47	0	0	0
C-97		7.1	0
C-119		15.3	1.3
C-123	0	0	11.0
C-130	1.4	8.6	0
T-29	0	1.2	
T-33	0	0	5.7
T-39	0	0	

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

thru Nov 65

1964



FOD IS NOT LIMITED TO ENGINES. TIRES ARE ALSO VULNERABLE AND A TIRE FAILURE CAN COMPLETELY WRECK AN AIRCRAFT!