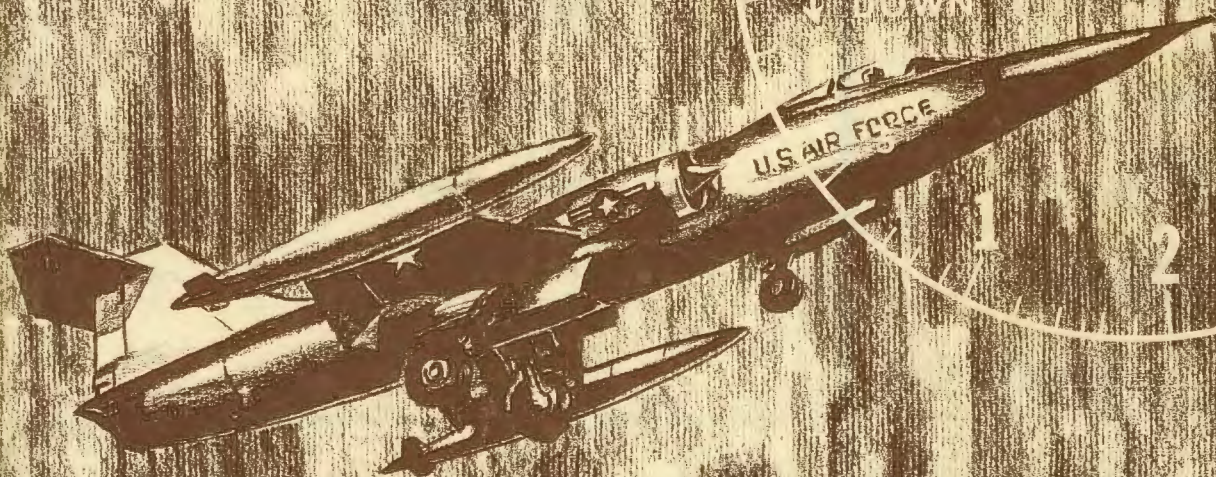


TAC ATTACK

TAC Attack

November 1966

NOVEMBER 1966



TRAPPED !
... page 4

VOL. 6 NO. 11

TAC ATTACK

for efficient tactical air power

NOVEMBER 1966

TACTICAL AIR COMMAND

COMMANDER

GENERAL GABRIEL P. DISOSWAY

VICE COMMANDER

LT GEN ALBERT P. CLARK

Published by the Chief of Safety
COLONEL HOMER C. BOLES



CHIEF SAFETY EDUCATION DIV
LT COL CARL E. PEARSON

editor

Capt John D. Shacklock

art director

Stan Hardison

layout & production

SSGT James E. Fields

editorial assistant

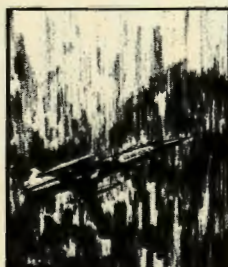
SSGT Richard D. Reid

HQ TAC Field Printing Plant
Langley AFB, Va.

THE COVER

you must recognize
sink rate before it
happens....

Pg 4



current interest

THE SINK HOLE	Pg 4
- a trap on final approach	
THE LETTER	Pg 14
- an amazing OHR	
HOW SLICK IS SLICK	Pg 16
- about slippery runways	
GASOLINE!!	Pg 22
- a true story	
READIN' AND WRITIN'	Pg 27
- is that what you meant?	
THE HUMAN TRANSACTION	Pg 28
- communication	
THE TREE CLIMBER	Pg 29
- for the two-wheel crowd	

departments

Angle of ATTACK	3
A 2nd Look	10
Better Mousetrap Dept.	19
Tac Tips	20
Surveys of Places	23
Chock Talk	25
Letters	31

TACRP 127-1

Articles, accident briefs, and associated material 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. 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 of articles, photos, and items of interest from personnel in the field are encouraged, as are comments and criticism. We reserve the right to edit all manuscripts for clarity and readability. Direct communication is authorized with: The Editor, TAC ATTACK, HQ TAC (OSEPA), Langley AFB, Va. 23365.

Distribution F, Controlled by OSEPA - TAC Publications Bulletin No. 22, dated 3 June 1966

Angle of ATTACK

EJECTION

In recent months our attention has been repeatedly focused on ejection systems, their successes...and their failures. And we are not too happy with what we found!

We are all aware that our present aircrew escape systems have undesirable limitations. We have experienced problems with seat-chute entanglement, seat-man interference, and inability to eject safely in a high sink-rate condition. On some occasions we felt that we lost the man in the rear cockpit of tandem aircraft because he failed to eject in time...either through confusion, disorientation, or because he didn't understand the order to eject. In other cases the front seat pilot has waited too long for his partner to eject. We have become concerned about the growing complexity of some of our systems. We fear that this complexity adds the complication of maintenance problems to our overall ejection success rate.

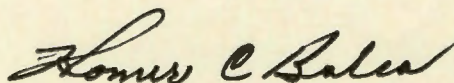
Frequently you in the field, fully aware of the limitations or deficiencies in your equipment, are unaware of the steps that are being taken to correct these conditions. And this is usually because we fail to keep you up to date on the progress of the proposals, studies, engineering, testing, purchasing, and distribution that goes into changing or replacing a piece of equipment. When the equipment involves your personal survival it means a great deal to know that something is being done to correct an unsatisfactory situation.

In this instance, you may rest assured that TAC is actively engaged in improving the escape systems. TAC has made a number of inputs to the USAF study group evaluating ejection equipment and devising improvements. TAC is asking for a completely new approach to the problem instead of continued modification.

However, making every effort to improve escape equipment is only part of what we can do. More important, we can immediately improve our ejection success rate by recognizing our present equipment for what it is. It has limitations. These limitations add up to the fact that you can't ride it down to zero altitude; you can't wait until the last moment; you must be level or climbing at low altitude.

We must accept one critical fact...until the optimum equipment is installed in all aircraft: We must get out earlier!! Whenever possible, we must give the system every chance to save our lives. The additional three airstart attempts, or that one last reapplication of spin-recovery controls, may eat up the margin between a seat that will save you and one that will not. Accept your present system for what it is...learn to live with it by using it earlier in the emergency situation.

We are not losing airplanes unnecessarily because pilots are ejecting prematurely. Quite the contrary, we lose far too many pilots as a result of delayed ejection!



HOMER C. BOLES, Colonel, USAF
Chief of Safety



THE SINK HOLE

...is a trap off the end of the runway that is waiting for the unwary and the unwarned. You fly into it when you duck under a precision glide path trying to land in the first 1500 feet...or attempt an abnormally steep VFR final. You avoid it by understanding it...and using enough power.

(Phantom-phyers may turn to the next article...able to land without going thru the...descent at touchdown.)

F-4 drivers had better read this after all...as we went to press we heard of a Phantom, in TAC, that got into exactly the kind of trouble we are talking about here.

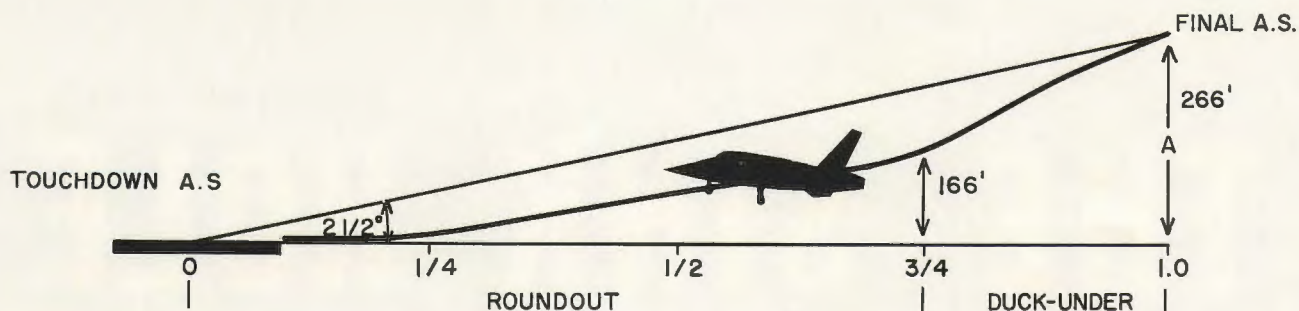
It was good to see familiar terrain below him in the letdown even if it was only light patterns on the ground. He knew he could land VFR if he couldn't raise GCA, but he called again for one last try. At last the controller answered!

They exchanged the standard greeting... "How do you read?" ... "Fine, how do you read?" ... "Fine." Immediately the GCA operator, in a somewhat concerned voice started saying he was 500 feet high and five miles from the runway. He eased back the throttle, leaned forward on the stick a bit, and started toward the glide path. Even with speed brakes in, he corrected rapidly. At two miles he was on glide path and stayed on it until just after the controller announced one mile.

As he ducked below glide path he noticed the VASI lights go red. He didn't look at them again. When the picture in front of him looked about right, he started back on the stick to flare for a smooth landing. A little correction to the left for wind and ...

The nose came up abruptly. He released back pressure to break the stall and jammed the throttle all the way forward.

The aircraft touched down hard in the first five feet of the overrun. The left gear was dangling when he came back down on the runway. The drop tank held his wing off for a while, but when he went off the side of the runway the airplane was sliding sideways. The right gear folded outward. Finally all motion stopped.



He felt like crying.

There was no fire.

He unstrapped and got out.

There's a trap out there on final. Many of us who drive high-performance (high wing loading, low aspect ratio ... call it what you will) airplanes have fallen into it. No, we usually dive into it ... or let down into it. It's about a half mile out from the threshold.

The trap is where you get into a sink rate you can't recover from. Sometimes you can't recover even tho you recognize it immediately. You might call it a sink hole!

The path to the sink hole is not a straight line. It is not a "glide slope" as we think of it on GCA, ILS, or VASI. It is curved. Two curves. One curve starts at a position on or above "glide path" and descends to a point somewhere below it. Then the curve reverses. The second curve is the flare or round-out that decreases your descent to almost zero as you contact the runway.

You get into trouble right af-

ter the transition from one curve to the other ... when the airplane realizes it doesn't have enough thrust to follow the path your eyeball has planned for it. And that's the other half of it, landing an airplane is still strictly eyeball. All the approach aids in the world will not land the airplane for you. They'll give you a lot of help during the approach to a landing, but you must land the airplane! The only landing aid you'll find in the books, or anywhere else, is what connects the stick to the throttle ... the pilot!

Most of us dive below the 2-1/2 degree glide path at some point inside the mile-to-touchdown point if we expect to land in the first 1500 feet. After you dive below the glide path, you use the first quarter of the remaining distance to momentarily increase your rate of descent. Then you raise the nose to resume a normal sink rate and attitude. If you hold a normal glide path power setting, this will net you no increase

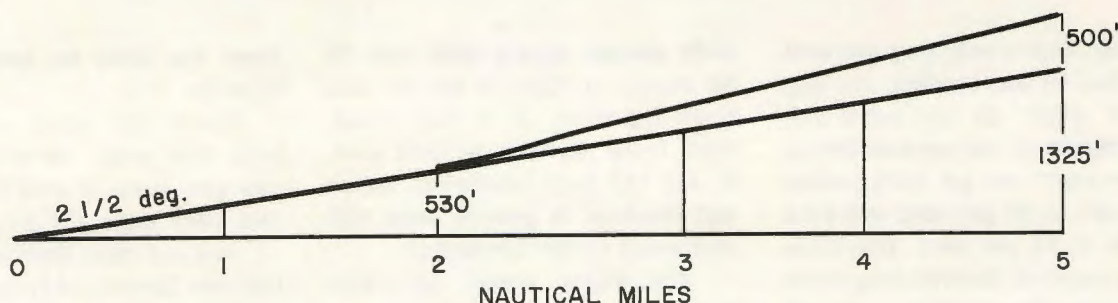
in airspeed. The energy you gain in the dive will be dissipated when you rotate the nose up again.

When you reverse the curve and start the final landing arc, you are usually approximating a 1-1/2 to 2 degree slope instead of the 2-1/2 to 3 degree instrument approach slope you left earlier. It's worth noting that the angle of the final approach slope has decreased bit by bit ever since someone invented the term. While WWII Jugs and Spam Cans could handle a slope that was 3-1/2 degrees or steeper with impunity, we're finding that the current crop of fighters land best ... shortest, safest, gentlest ... out of an approach that is somewhat less than two degrees.

Tests conducted by the RCAF revealed that their F-104s and F-101s which had been landing 1800 to 2500 feet down the runway from a 2-1/2 degree GCA, were able to touch down 700 to 1000 feet closer to the approach end from a two degree glide path.

Part of the short, safe, gentle bit you can attribute to the fact that the flatter your approach angle, the less you must rotate your aircraft. Therefore, you fly the pre-flare approach closer to the ground ... and can judge it more accurately. Also, by requiring less rotation to complete the flare, the flat approach introduces less drag increase at the last moment. You don't stick as much wing up into the wind. Less drag increase means either less

Final A.S	Depart Glide Path	Aircraft
100-130K	1/2 NM	T-33, T-39
140-170K	3/4 NM	F-84, F-100
180-210K	1.0 NM	F-101, F-104, F-105



power required or less sink ... however you want to play it.

And drag is what the sink hole is made of. We've heard for years about the back side of the power curve and the area of reverse command. They're no more than manifestations of drag. Basically it is drag that gets us into trouble on final approach ... that makes short landings or hard landings. (hard landings are short landings that made it up to the runway)

Let's take the hypothetical case of a '105 (because the figures are right handy) and run thru an approach to see what we're faced with:*

<u>assume</u>	
aircraft	F-105D
gross weight	31,000 lbs
final approach speed	185K
touchdown speed	155K
glide path angle	2-1/2 deg
depart glide path	1 mi
wind	calm

As we said, the first 25 per cent of the distance to touchdown sees us easing the nose down and increasing our rate of descent momentarily. Then we raise the nose to resume a normal descent

rate. We don't lose or gain any airspeed because the energy gained in losing altitude is just equal to what we consume when we rotate the nose down and then up again. The last three-quarters of the trip down final becomes a circular arc as we decrease airspeed from final approach to touchdown speed.

Average speed in the F-105 for the last three-quarters of a mile will be 170K. This will eat up the distance in just under 16 seconds. Since we now have about 160 feet to lose, we'll have to average 10 feet per second ... or 600 feet per minute.

We started the flare after diving down to a position that looked good to us (185 knots and 160 feet). Right there our total energy was 52,000,000 foot-pounds (kinetic energy plus potential energy). At touchdown, with 155 knots and zero altitude, total energy was 33,000,000 foot-pounds. We lost 19,000,000 foot-pounds somewhere along the line. Why? Because we weren't carrying enough power to equal the drag of the airplane ... we were descending. This unbalanced drag force over the flare distance absorbed 19,000,000 foot-pounds of energy. Put another way, drag exceeds thrust during a normal roundout by an average 4200 lbs.

If we carry more than normal power during flare, we will either land long or touch down hot ... or both. If we carry less than the thrust required to maintain a 4200

pound drag excess, we will find ourselves with a higher than normal airspeed bleed rate. Uncorrected, that leads to early touchdown ... or low-speed instability problems when we hold it off too long trying to reach the pavement.

Now let's look at the example from the beginning of this article in the same frame of mind. GCA picked him up at five miles, 250 KIAS, and high, high, high on the glide path ... like 500 feet. He decided to pull off power, leave the speed brakes in, and nose his 'Chief over to get down to the glide path. He reached glide path two miles from the runway with 185 knots ... let's say he, too, was at 31,000 pounds gross weight. In that three miles he lost 1295 feet at an average speed of 218 knots. That's a vertical speed of 1600 feet per minute! It's also double the vertical speed he'd have needed on the same slope with speed constant. That's nice, you say ... but he lost 65 knots in the process! That takes some pretty spectacular throttle chopping ... with the boards still retracted!

We asked some of the people who can figure these things out what kind of power this guy was carrying. They said about 84 per cent after he left the glide path. Test reports and pilot experience say that something more like 88 per cent is the minimum average power needed to complete a successful flare and normal touchdown from a 2-1/2 degree approach at his weight.

*We have the long-handled math for all this worked out in the office (it's in the long-handled math locker). Be glad to give a copy to anyone interested. For this discussion, tho, we'll just throw the important figures at you without trying to impress anyone with our slide-rule ability or anything like that.

Okay, that's only four per cent less than he was holding, you say ... not much! Do you know how much thrust he lost between 88 and 84 per cent? You get 5400 pounds of thrust at 88 per cent and 4300 pounds at 84 per cent. This tells us the value of the total drag force acting on the airplane. As we showed earlier, the optimum difference between drag and thrust is 4200 pounds. This changes only when you change configuration or angle of attack.

So what does he get when he leaves his power at 84 per cent through the flare? Drag (9600 lbs) minus thrust (4300 lbs) equals 5300 pounds of thrust deficiency. We said a 4200 pound difference is ideal. He's 1100 pounds short in the go department. And it shows up as either a more rapid airspeed loss or, if he tries to hold airspeed, an impressively increased sink rate. Either way the results are the same. Very unfriendly.

How far can this pilot press thru his flare with power four per cent low before he's in trouble? He's okay until he uses up the 19,000,000 foot-pounds of energy we figured he would normally use in the flare. Energy available divided by retarding force (drag excess) gives us the distance he will travel before his energy is used up. Plug in the figures ... 19,000,000 foot-pounds divided by

5300 pounds equals 3580 feet. If he starts to flare at his normal three-quarters of a mile (4560 feet) from the runway, he'll slow to his 155 knot touchdown speed and descend to ground level 980 feet short of the threshold.

And that's where he came down ... in the first few feet of a 1000-foot overrun!

What's that? He jammed on full power, you say ... why didn't that stop his sink?

The J-75 takes six seconds to accelerate from idle to 100 per cent. It takes about 2-1/2 seconds from 84 per cent. If his vertical speed was up to 1000 feet per minute when he decided to shove the throttle, he lost 40 feet in the time it took the engine to wind up to full rpm.

Once he had full power, he held the nose of the aircraft up just short of a stall. Let's say one degree above takeoff angle of attack ... 12 degrees. How long would it have taken him to kill off his sink?

The downward energy of his 31,000 pound chariot was in the vicinity of 135,000 foot-pounds. The 13,000 pounds of thrust at 100 per cent gave him a 2700-pound vertical thrust component at 12 degrees angle of attack. The bird lost another 50 feet of altitude before he leveled it off holding airspeed constant. He couldn't stop the sink in less than 90 feet

from the time he advanced the throttle.

That's the story of the sink hole. It's made out of drag. And you can avoid it with thrust. But you must know the hole is there ... and you must keep the balance between thrust and drag where it's supposed to be. The dash one for your bird gives you recommended airspeeds for varying weight. And it gives you recommended throttle settings. Know them well! Also keep in mind that these are often built on the assumption that you'll be on a three-degree glide-path. The throttle setting will give you enough thrust for the energy-exchange during flare. But if you've driven in for some distance on a flatter glide slope, better keep a wary eye on the airspeed meter. Be sure you're carrying enough power to keep you out of the overrun!

If you're shooting for the first 1000 or 1500 feet from an ILS, GCA or VASI approach, you'll have to "Duck Down." You can get down to the spot you want without touching the throttle if you've the proper power set. If you find yourself high, high, high ... and pull off some power, be very sure you put it back on and then some to stop the sink you set up!

If you don't, you can be very sure you'll touch down hard or short ... or both! ➔

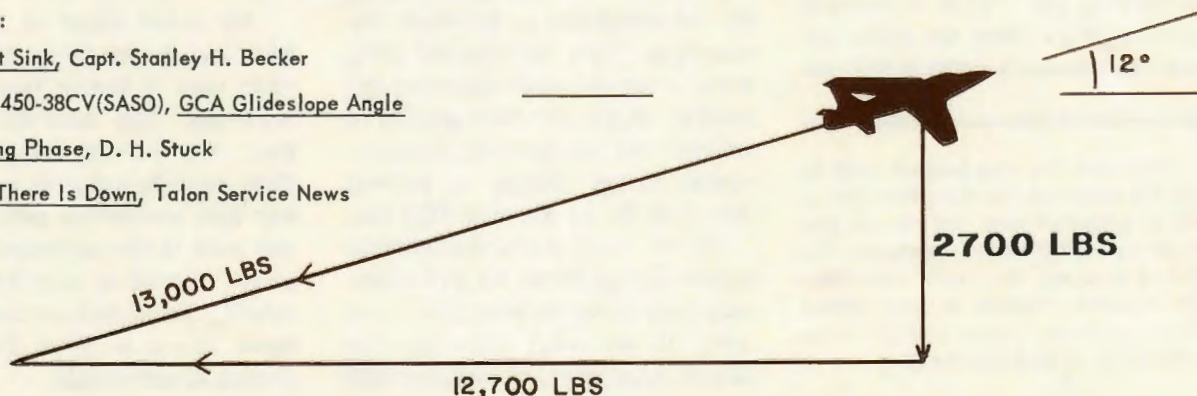
References:

Check That Sink, Capt. Stanley H. Becker

RCAF ltr. 450-38CV(SASO), GCA Glideslope Angle

The Landing Phase, D. H. Stuck

And Then There Is Down, Talon Service News



NOTICE!

PLEASE DON'T SHOOT OUR CHARLIE!

The 2nd platoon of the 74th Aviation Company, 145th Aviation Battalion, has a VC "friend" named Charlie. He lives about two kilometers off the end of their runway at Duc Hoa. Charlie is a nice sort of fellow except for one bad habit... he likes to shoot at airplanes!

Over the past year Charlie has fired some 300 rounds at the 74th's observation planes as they land and take off from Duc Hoa. To date he hasn't hit one!

At first the irritated pilots shot back, but they were never able to pinpoint his position. As Charlie's impressive miss record began to swell, he was soon ignored by all and life went smoothly. He would shoot and the pilots would take some evasive action to give Charlie a thrill.

Then one day it happened. Charlie missed an O-1 so far he inadvertently hit an armed helicopter from another outfit. The chopper pilot, being new to the area, was unaware that it was all an accident. He turned his rocket-bearing helicopter on Charlie and returned the fire. Fortunately, Charlie escaped with only minor injuries.

Now the pilots who live and fly out of Duc Hoa are asking transient chopper pilots not to shoot their Charlie...

The VC may replace him with someone who can shoot straight!



reprinted from Army Aviation Digest

A

2ND LOOK



“As the aircraft taxied in after landing, the crewman opened the rear door and was preparing for off loading. He slipped and fell out the door, receiving critical head injuries when his head struck the concrete.”

“The ground crewman removed a down lock safety pin from the landing gear. He then turned and ran into a rotating propeller.”

“The pilot had noticed that his nosewheel steering was stiff on the previous flight. A perfunctory visual check showed nothing wrong. The nose wheel collapsed on the next landing.”

“The ejection seat did not fire because three safety pins had not been removed before flight.”

Each of these mishaps was the result of undue haste, someone hurrying to get a job done. A second look at them makes us ask . . . Why all the rush?

An article in the Aviation Mechanics Bulletin on this subject calls hurry the “most common prelude to disaster . . . it is the most illogical, most unsatisfactory excuse for a mishap to either men or equipment.” Yet we continue to lose both men and equipment because people hurry.

And few of us recognize the hurry for what it is. In the case of the crewman who ran into the propeller, the word “ran” appeared in the accident report fourteen times. Neither the investigators nor the

people who reviewed the report recognized it as the key to the mishap.

Is there ever a requirement, except under fire . . . or on fire . . . to run within 50 feet of an aircraft?

We often encourage ourselves and others around us to hurry on a job because we confuse hurrying with rapid movement or swift job completion. Hurry is not purposeful, it tends to omit important steps in a procedure. Hurry is unthinking, often rash and impatient.

Hurry defeats the purpose of our work. We are here to do a job that adds up to safe, efficient, and thorough operation or maintenance of a weapon system. We sometimes must act with speed, use rapid movements, or complete a job in minimum time. But that does not mean we ever have to act in a state of agitation, confusion, or inaccuracy . . . in a state of hurry!

Finally, this business of getting hurt because we don't think there is time to do a job correctly just isn't very smart. It will take you much longer to recover and be back on the job than it would to do the job completely and carefully . . . efficiently . . . the first time.

Maybe we should expand the slogan the traffic safety people use, make it apply to everything we do . . . “Slow down and live!”



It had been a normal night refueling training mission in many respects. The flight leader was an experienced troop... being a headquarters type, it was natural that he would lead the flight. They each picked up their fuel with minimum fuss... two stabs with 1000 pounds each time. And, as will often happen, Number Two in the flight experienced some minor mechanical problem and Lead brought him back to the field. After Two landed, Lead drilled around the local area until he had flown his pre-planned time and entered the pattern for landing. He hadn't flown any night time in this airplane for almost five months, and had briefed that he would probably make a low approach or two before his final landing.

But turning from base to final the approach looked good to him and he decided to go ahead and land. He pulled off a little power to get down to the glide slope he wanted. A bit later he noticed his airspeed was about ten knots below desired. Crossing the fence his main gear struck a 30-inch iron approach light ladder which was five feet from the end of the overrun. On touchdown, seventeen feet from the overrun threshold, his left gear folded. His left drop tank dragged the runway until it exploded, and he veered off the

runway. Just before the bird came to a stop the right gear folded outward.

The approach lights were not turned on and there were no obstruction lights on the approach light ladders. The only lights this pilot had to go by were the runway lights, green runway threshold lights, and red lights on the overrun threshold.

The first reaction is that he should have known the ladders were there. And his high turn to final and reduced power and airspeed set him up for a sink rate only power could correct. But a second look reveals the basic problem. No matter how familiar a pilot is with his home drome, it always looks different at night. And you have to look at it thru the darkness more than once every five months to be familiar... current... proficient.

This accident occurred shortly before the close of a semi-annual flying time period. The pilot was a supervisory type who had allowed the press of office business to keep him off the night schedule. When the calendar forced him to put aside other worries and get in the cockpit, he didn't give himself the break he needed... and had acknowledged in the briefing. A low approach... practice pattern... might have avoided all his troubles on this flight.



As the F-5 pilot pulled up from his second dive bomb pass at 4 1/2 G and 450 knots, he felt a thump and his survival kit pushed him up a few inches. He was climbing thru about 2500 feet when he saw the life raft coming out the left side of his kit. It pushed his left leg up against the instrument panel as it inflated. Filling the space between his leg and the left console, the raft forced his leg against the stick.

F-5, pilot, and life raft went thru about six or seven quick rolls together as they climbed into and out of a layer of broken clouds. Unable to read the altimeter or see the ground, the pilot tried to eject... but the raft seemed to be holding the left armrest down. He knew the airspeed was bleeding off and he thought he saw 4000 feet on the altimeter. He finally freed his personal knife from his right g-suit pocket and stabbed the raft.

The whole affair had taken less than ten seconds!

After the pilot stuffed the deflated raft under his seat, rejoined his flight, and landed, personal equipment types found the valve on his dingy bottle had tripped to the inflate position. They suspect the valve was partially uncocked during installation... or as a result of some rough handling.

We hardly need a second look at this one to make us study the cockpit for possible dingy-stabbers. The canopy tool would do... if you can get it loose in time. And a personal knife or two where you're sure you can reach them in a hurry are an excellent idea.

What ever happened to the little metal dingy knife we used to keep in easy reach, taped to the glare shield?

HELP WANTED



We still have an empty desk in the office that is looking for an experienced tactical pilot.

And we are trying to locate someone who would like to call that desk home while he helps us put together TAC ATTACK each month. We're not looking for an accomplished journalist... altho that would be an exciting change (he could teach us a lot!). We're really more interested in finding a pilot who is seriously interested in promoting a safe and efficient TAC...by helping us write and edit the command safety magazine.

Basic prerequisite is a desire to try the job. A flair for writing would help. Varied and current TAC fighter experience would make the whole job easier. And the Personnel folks downstairs tell us that a SEA tour behind you is just about mandatory. Beyond that, it's wide open...

Write: The Editor, TAC ATTACK
HQ TAC (OSEPA), Langley AFB, Va. 23365
Call: ext. 2937 or 3373
Or: just jump in the closest airplane and come look over the desk yourself!
...like HELP WANTED! Help!

help!

help

TACTICAL AIR COMMAND UNIT ACHIEVEMENT AWARD

The following units have distinguished themselves with a record of 12 months accident-free flying

- 4500 Air Base Wing, Langley AFB, Virginia
- 4432 Air Transport Squadron, Chanute AFB, Illinois
- 4433 Air Transport Squadron, Dobbins AFB, Georgia
- 4434 Air Transport Squadron, Randolph AFB, Texas
- 4435 Air Transport Squadron, Hamilton AFB, California
- 911 Troop Carrier Group, Greater Pittsburgh Airport, Pennsylvania
- 901 Troop Carrier Group, L. G. Hanscom Field, Massachusetts
- 906 Troop Carrier Group, Clinton County AFB, Ohio
- 910 Troop Carrier Group, Youngstown Municipal Airport, Ohio
- 913 Troop Carrier Group, Willow Grove Air Reserve Facility, Pennsylvania
- 188 Tactical Reconnaissance Group, Fort Smith Municipal Airport, Arkansas





Captain Robert D. Hughes, 15th Tactical Fighter Wing, MacDill Air Force Base, Florida, has been selected as a Tactical Air Command Pilot of Distinction.

Captain Hughes was in the front seat of an F-4C turning base leg for a simulated single-engine landing when he observed the number two engine fire warning light come on. He placed number one throttle at military power and retarded number two to idle, then immediately to off because of high EGT and obvious indications of fire. He declared an emergency and continued the approach. Turning from base to final the leading edge flaps and the right trailing edge flap came up. This caused a severe yaw to the left and then a roll to the right, requiring full aileron deflection to control the aircraft. Captain Hughes had selected afterburner on the good engine and started to climb when the Check Hydraulic Gauges light came on. He saw utility pressure was zero. Remaining in closed traffic, he was soon joined by another F-4C who reported no visible fire. The fire warning light had gone out. Captain Hughes used emergency systems to lower gear and flaps and landed successfully.

Arcing from generator control cables had failed a hydraulic line and ignited the fluid, causing the split flaps and serious fire damage in the engine area.

Captain Hughes' rapid evaluation of a critical low altitude emergency and professional response averted the loss of a valuable combat aircraft and readily qualify him as a Tactical Air Command Pilot of Distinction.

TACTICAL AIR COMMAND

PILOT OF DISTINCTION



TAC ATTACK

the

OPERATIONAL HAZARD REPORT (Indicate recommendations on reverse)									
I. Flying Safety Officer					FROM:				
LOCATION OF OCCURRENCE/HAZARD SURVIVAL EQUIPMENT ISSUE ROOM					TIME OF OCCURRENCE DATE 12 JULY 0800 HOUR <input checked="" type="checkbox"/> DAY <input type="checkbox"/> DUSK <input type="checkbox"/> DARK				
IF HAZARD OCCURRED WHILE IN AIRCRAFT, COMPLETE THE FOLLOWING:									
DEPARTED FROM HOMELATE AFB OVERSEA AB			MISSION SEA SUPPORT			ACFT SERIAL NO. 76-5432		RADIO CALL HELP!	
ORGANIZATION AIRCRAFT ASSIGNED 9499 TCW			TYPE C-111			WEATHER CONDITIONS OBSCURE			
CLEARANCE			COMMUNICATION DIFFICULTIES <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO			ALTITUDE 0' AGL			
LOCAL		VFR DD 175	IFR DD 175	CREW POSITION			OTHER (Specify)		
<input checked="" type="checkbox"/> PILOT	CO-PILOT	INSTRUCTOR PILOT	NAVIGATOR	ENGINEER					
PHASE OF FLIGHT									
PRE-FLIGHT	STARTING	RUN-UP	TAXI	TAKE OFF	CLIMB	CRUISE	DESCENT	LANDING	POST FLIGHT
DESCRIPTION OF OPERATIONAL HAZARD									
<p>While preparing an aircraft for a MAC mission (SEA support) I requested to know what was being loaded. The man in charge of P.E. told me that there would be six one-man survival kits on board. When I told him there would be seven crewmembers he stated we were authorized only six survival kits per aircraft and that there was a letter to this effect. This man was told by his helper that I was correct but the chief still said "No." The chief is not authorized to inspect chutes and other equipment. I believe something should be done about this appalling situation.</p>									
DATE					SIGNATURE OF REPORTING PERSON (Optional)				

“Lookit, Captain, I’ve got my rules to go by and you’ve got yours. The major told me only six survival kits per aircraft... he’s real serious about it! He put it on paper in this letter here... ‘Lim- it the issue of one man survival

kits to six, repeat six, per aircraft.’ ”

“But Sarge, this is an over- water trip and I’ve got a seven man crew. Six kits just won’t hack it!! I’m sick of running a lottery before every takeoff. One of these times

Letter

I'm going to pull the short straw ... and I can't swim a stroke!"

"Like I said, I've got my problems and you've got yours. If I make an exception for you ... every Tom, Dick, and Hairless in the outfit will be in here asking for the same kind of under-the-counter treatment. If you aircrew types had your way, I never could maintain a supply schedule ... I've got to go by this letter!"

"You can't be serious! Last time I made one of these runs, number one barked a couple of times and the guy who'd lost the draw for survival kits mutinied ... brought him back in cargo straps! Let me see that letter you're talking about."

"Here it is, Captain, like I said ... six per aircraft. I preserved it

in plastic and anchored it down on my desk right next to this neat pile of supply rules and manuals. Had to take extra precautions ... some of you excitable aircrew types who can't understand the basic rules of supply discipline would probably try to burn it."

"Okay, Sarge ... okay! I guess I was being a little selfish ... Maybe I'm mixed up, but I always thought this stuff was here for the use of the aircrews."

"Well, there you go, Captain ... you just don't understand the supply business. I'll bet you don't even know how much that stuff costs! If the major hadn't given me this letter, you crew types would really louse up my schedule. If I let you have what you think you need for a mission, I'd never pass

an inspection. I'd end up with bare shelves and overdue inspections ... don't get any supply awards that way, you know."

Ridiculous? Yes!

Never happen here? Not quite so. The dialogue was manufactured locally but the basic facts are true ... it happened in a troop carrier outfit. Truth is still stranger than fiction.

There's no telling how long various versions of this real life thriller went on until some sound thinker decided to go the OHR route. The fact that he made it anonymous is puzzling, but it may give some insight into how firmly the author of "The Letter" was established in his unit.

If you think it will take wild horses ... go the OHR route! ➤



HOW SLICK IS

... the season's upon us, here are some thoughts for

After years of trying to describe runways as wet, slick, slippery, icy, or awful, we came up with a system called RCR a few years ago. What does Runway Condition Reference mean to you in the cockpit? What can it do for you?

RCR can tell you one thing: The ground roll it will take to stop your aircraft under optimum conditions on a given runway surface.

Using an RCR-derived ground roll figure, you determine whether you can plan to land safely on a certain runway. Or, when the main runway's closed and you're using the short one, RCR can tell you if you have enough room for an aborted takeoff. It allows you to determine an accurate max refusal speed.

You don't normally make these computations in the cockpit of a one-man airplane in flight. No one expects you to! You work them out on the ground with forecast data. The charts are in the Dash One, not the check list. You determine an RCR figure that lets you roll to the end of the runway ... and stop. That figure becomes your go-no-

go. If, when ready to land you find a lower RCR (slicker runway), you know you can't expect to stop before you run out of macadam. Best divert to a dry runway ... or plan on using the hook. Higher RCR means your chances of stopping before the end are getting better. And you can tell how much better!

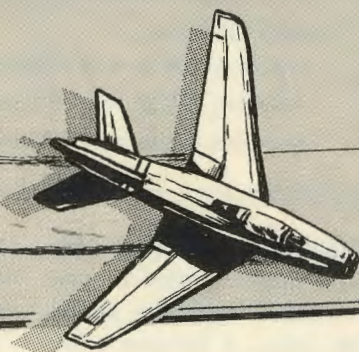
RCR makes your pre-flight computations as accurate as possible. It defines the degree of wet or slippery and allows you to convert that to feet of rollout.

But you must understand the variables that surround the stopping problem if you are to make RCR do honest work for you.

MAX BRAKING

Since we're concerned about running off the far end, it's natural to assume that we'll be calculating a minimum distance stop. Right off the bat we have the first variable. Few of us have made a minimum run stop recently ... if at all! The landings we are accustomed to are far from maximum braking

SLICK ?



slippery day.

situations. We stab at an approach speed, come within five or ten knots, touch down in the first 1000 feet or so, lower the nose, hang out the laundry or reverse the props (if that's what you've got), and start figuring how much braking we'll need to get stopped. In a fighter we'll brake just enough to reach the far end at a slow taxi speed. In the bigger birds we may not even reverse so we can roll comfortably up to a convenient turnoff.

We don't practice minimum run landings all the way to a stop because the margin for error becomes pretty narrow. Directional control, tire wear, possible blow-outs, and max demand on the anti-skid all make the maneuver critical. But when we're suddenly faced with doing it right, all the variables of individual interpretation and guesswork enter the picture. Remember, the stopping figures in the Flight Manual were derived under ideal test conditions!

Some of us may come close to maximum effective braking the first time...but most of us will

be far from it. Actually, if we are landing on a runway with an RCR that says we can stop 700 feet from the end, most of us will still be going strong when the barrier snags us.

In addition to the variables that enter the special case of a maximum braking situation, normal stopping includes a host of vari-

ables. Naturally, these will affect the RCR situation too.

APPROACH SPEED

The most significant factor in stopping is approach speed...the actual amount of speed energy you must dissipate before your chariot comes to a complete stop. Fuel weight enters into this, so you want

OPS TYPES - you can introduce several variables into the RCR, too! Altho you follow the procedures in T.O. 33-1-23 right to the letter in obtaining an RCR with the vehicle-mounted brake decelerometer, there are other factors you should consider:

Do you limit the number of persons authorized to take RCR readings? Stopping technique in a vehicle can vary significantly from one individual to the next.

Do you watch the condition of tires and brakes carefully to assure continuity of readings?

Do you calibrate the speedometer in your vehicle periodically? Or if you use more than one vehicle to take readings, have you matched their speedometers?

Do you have firm procedures to insure that repeat RCR readings are taken when weather or runway conditions start changing? Are you sure a pilot won't receive an old, misleading RCR?

Landing Distance ...

- increases 3½% for each 1,000 foot increase in altitude.
- increases 10% for each 10% increase in gross weight.
- increases 25% for each 10% increase of touchdown velocity.

to have fuel at a minimum safe figure. And most important, you want to control approach speed with great care. A five-knot increase in approach speed in an F-100 will increase the stopping distance about 500 feet!

LITTLE EXTRAS

If we're figuring the problem realistically, we must also consider the little items that we often shrug off on a dry day: runway gradient, runway surface, obstacles in the approach path, turbulence on final, or crosswinds. Even without adding half the gust factor to your approach speed, if you start to weathervane after touchdown and ease up on one brake to keep yourself on the pavement, you're getting less than the best braking performance.

TOUCHDOWN POINT

Ground roll, of course, starts at the point of touchdown...don't let yourself think in terms of the approach end of the runway! Most of us shoot for about the 500-foot point on normal days. But unfortunately, the weather conditions that make us look at RCR and stopping distances are the same ones that make us land farther down the runway. Tests have shown that if you stay on a precision glide path to minimums (100 feet) with a Century Series, or later bird, your average touchdown point will be about 1800 feet beyond the point where the glide path intercepts the runway (GPIP). If the GPIP is 1000 feet down the

runway, we're talking about a 2800 to 3000 foot touchdown! Granted, many of our bases have minimums considerably higher than the 100 and ¼ standard, but the important thing to remember is: The worse the weather, the longer you land. And you must compute your stopping distance from touchdown point!!

TIRE CONDITION

There is one factor in the stopping problem that is most often overlooked. And it can throw all your calculations off faster than anything else! The effect of tire condition on wet runway landing distances is not only the most ignored, it may be the least understood. Wet runway stopping distances in most of our Dash Ones are extrapolations of dry runway tests. They just apply a lower coefficient of friction...usually .15, which is about optimum for a good fib-tread tire on a wet runway. But wear off a good bit of that rubber, try stopping with only 1/16 inch of tread remaining or less... and the coefficient of friction is

more like .05! This can mean as much as 100 percent increase in landing roll. Like 14,000 feet instead of 7,000! This is seldom, if ever, mentioned in our handbooks. (For a starter, try the T-33, F-100, F-105, or F-4C.) Now, imagine the unhappy results you'd get with a brand new tire on one main wheel and a badly worn one on the other!

Another tire fact that needs advertising relates to tire pressure. The first reaction is usually that low pressure puts more of the tire in contact with the runway, hence better braking. Not so! Disregarding the effects of increased flexing and excessive heating, hydroplaning thrives on soft tires. Experiments conducted by NASA on wet and slush-covered runways proved that as tire pressure goes up, hydroplaning speed goes up. Since wheel braking is most effective at low speeds when the wing has lost its lift, it makes sense to keep hydroplaning speed as high as possible. Use maximum allowable tire inflation pressures.

CONCLUSION

RCR can do a lot for you. If you take it for what it is...a reference, a guide. To be used in planning. You should never consider RCR alone as the final determination of the suitability of a runway for landing. ➤

ICAO	RCR	USAF & USN
GOOD	23	DRY
MEDIUM	12	WET
POOR	5	ICY

BETTER MOUSETRAP DEPARTMENT



Technical Sergeant Floyd R. Cudd of the 31st TFW at Homestead Air Force Base, Florida, has fabricated an arresting hook release button "GO-NO-GO" gage. It seems the F-100 technical orders do not prescribe how far below the guard the tail hook button should be recessed. The depth varies from one bird to the next and in some cases allows the button to be exposed enough that it can be inadvertently depressed.

The simple "GO-NO-GO" gage pictured here can be manufactured locally. The gage has a 1/8 inch lip that is used to establish a uniform depth between the tail hook button and the guard installed in the F-100. Thanx for the Mousetrap, Sergeant Cudd.

Staff Sergeant Normand A. Lavoie of the 4442d Organizational Maintenance Squadron, Sewart Air Force Base, Tennessee, has been selected to receive the TAC Crew Chief Safety Award for the month of October 1966. Sergeant Lavoie will receive a letter of appreciation from the Commander of Tactical Air Command and an engraved award.



Recognition

Technical Sergeant Cecil B. Duncan of the 363d Tactical Reconnaissance Wing, Shaw Air Force Base, South Carolina, has been selected to receive the TAC Maintenance Man Safety Award for the month of October 1966. Sergeant Duncan will receive a letter of appreciation from the Commander of Tactical Air Command and an engraved award.



TAC TIPS

WHODUNIT?

Shortly after takeoff on a cross-country to pick up a passenger, the T-bird pilot from another command realized his steed wasn't climbing the way it should. At 8000 feet it was only climbing 1000 feet per minute. It took him 40 minutes to reach 20,000 feet! He set power at 96 percent and the T settled down to 215 knots...fuel flow was 360 gallons per hour, EGT 600 degrees, fuel pressure 75 psi. When he matched ground speed against fuel consumption he realized he would have only 30 gallons over destination. He diverted into a conveniently close-by field.

Maintenance investigators found the tailpipe and three-fourths of the turbine buckets warped. Most probably from severe over-temperature! The pilot reported no high EGT on this flight. Pilots who had recently flown this airplane reported no unusual problems or high temps. No one had recorded an overtemp in the forms.

Wonder how this pilot's acceleration check and takeoff distance looked?

SMARTER DARTER

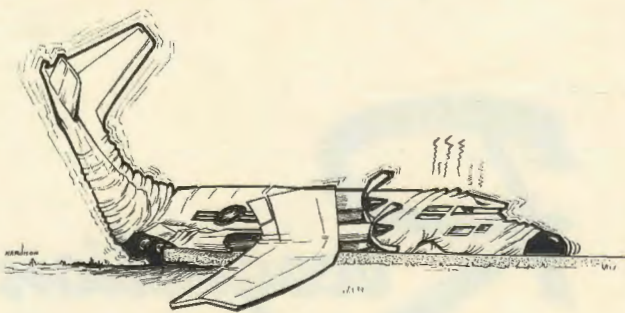
Number Three in a flight of three F-5s in the dart pattern watched Two miss and Lead score good hits. On his downhill pass, Three zapped the target smartly, pulled off, and S'd over the dart to give Two another pass. About fifteen seconds later, Three's right engine chugged a couple of times and rolled back to 70 percent. He landed on the nearest suitable without further trouble.

Maintenance troops found a piece of dart in the compressor, and damage to the second, third, and fourth stages. The pilot involved... and his squadron mates... have been tuned up on break-off minimums and the proper maneuvers to use after cease-fire.

THE INVISIBLE HAZARD

Number Two, on the right wing for a formation takeoff, got a burner light exactly with Lead and both pilots advanced their throttles to full afterburner. Holding what looked like very good position on the roll, Two felt his F-104 being sucked in toward Lead as they approached liftoff. He applied right aileron but didn't notice any significant reaction. Suddenly, after they were both airborne, the wingman's aircraft rolled to the right. His right wing dropped and his tip tank contacted the runway. The tank ruptured.

Two recovered to wings level, aborted the mission, and landed. The squadron was rebriefed on the effects of wake turbulence.



ALL ABOARD

The C-130 driver had landed short of the PSP. Sink rate was more than the long-waisted bird could take without damage. The pilot had tried for the first few feet of the runway and thought he had it made when he saw the PSP pass under him. Unfortunately, the gear is about 35 feet behind him and his part of the bird made it... but the gear didn't!

The people who investigated the mishap advised

all pilots of long, drawn-out birds with the driver 'way up front to aim for touchdown 200 feet down the runway. This will insure they get their feet on the runway... and accomodate slight miscalculations.

UNLOCKED COCKER

The herder was number three in a flight of four Hundreds on the way to the gunnery range. About eleven miles after takeoff, Four told Three he had just dropped a MK 106 practice bomb. Three immediately looked to confirm that all his switches were off.

After landing, the armament people determined that the bomb had not been electrically released. Instead, they found that the mechanical cocking mechanism on the B-37K bomb rack had not been completely cocked. Partially locked as it was, the normal weight of the store and vibrations in flight were enough to cause the release.

All load crew and pilots in the unit were given a special briefing on checks they were supposed to make, including the difference between a completely engaged tumbler and one that is not locked.

JUST A BIT LOW

During engine preflight prior to takeoff, the F-100 pilot noticed EPR was .07 lower than it should be for the temperature and pressure reported. He aborted the mission, altho the needle appeared to be only a little bit below the acceptable range index.

On the trim pad, with target EPR 1.99, the max obtainable reading was 1.85. When the engine people took a look at their hardware, they found a 16-square-inch piece of intermediate compressor case missing and 30 inches of cracks in the case near the dummy bleed valve.

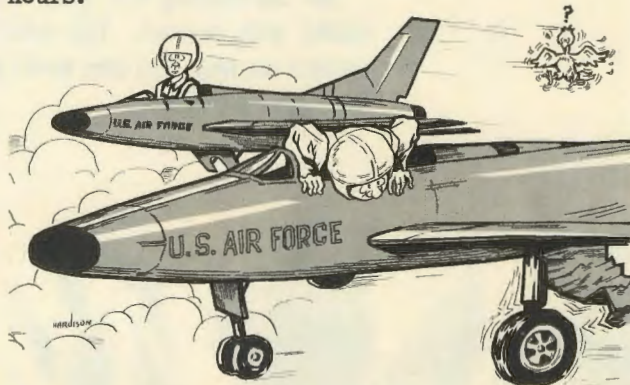
The bird had no previous history of low EPR or insufficient thrust, but there was no question about the pilot's good judgment. EPR is the only reliable indication of the thrust you are getting from a twin-spool engine. The old single-spool indicators of fuel flow and rpm can fool you.

WRONGWAY STRETCH

The F-105 pilot was Number Four in a four-ship flight for landing. The pattern looked normal until Three extended his pattern and Four had to go wide to give him room. On final Four was a little slow. His safe speed was slightly above the triangle. He became concerned that he would touch down before the 1000 foot mark... and Mobile was watching!

TAC ATTACK

He raised the nose by easing back on the stick in an effort to bring the big bird up to the prescribed touchdown point...but he didn't add power in time. Increased angle of attack produced sink instead of stretch, and he dragged the aft section on the runway. After writing up the hard landing in the 781, the pilot surveyed the damage: dorsal fin, tailhook, lower speed brake petal, gang drain...148 man-hours.



WHAT'D HE SAY ??

They had briefed for a formation landing after they completed the air-to-air gunnery mission. As the two F-100s descended toward the field, Lead looked over at his wingman and glanced back at his airspeed. They were still well above pattern altitude. Lead looked back at Two again and gave him the signal for speed brakes... Two lowered his landing gear! Their speed had been 70 knots above gear lowering speed.

Although they didn't see the right main gear door fairing door fall off...it was missing when they landed and taxied in.

NORMAL ?

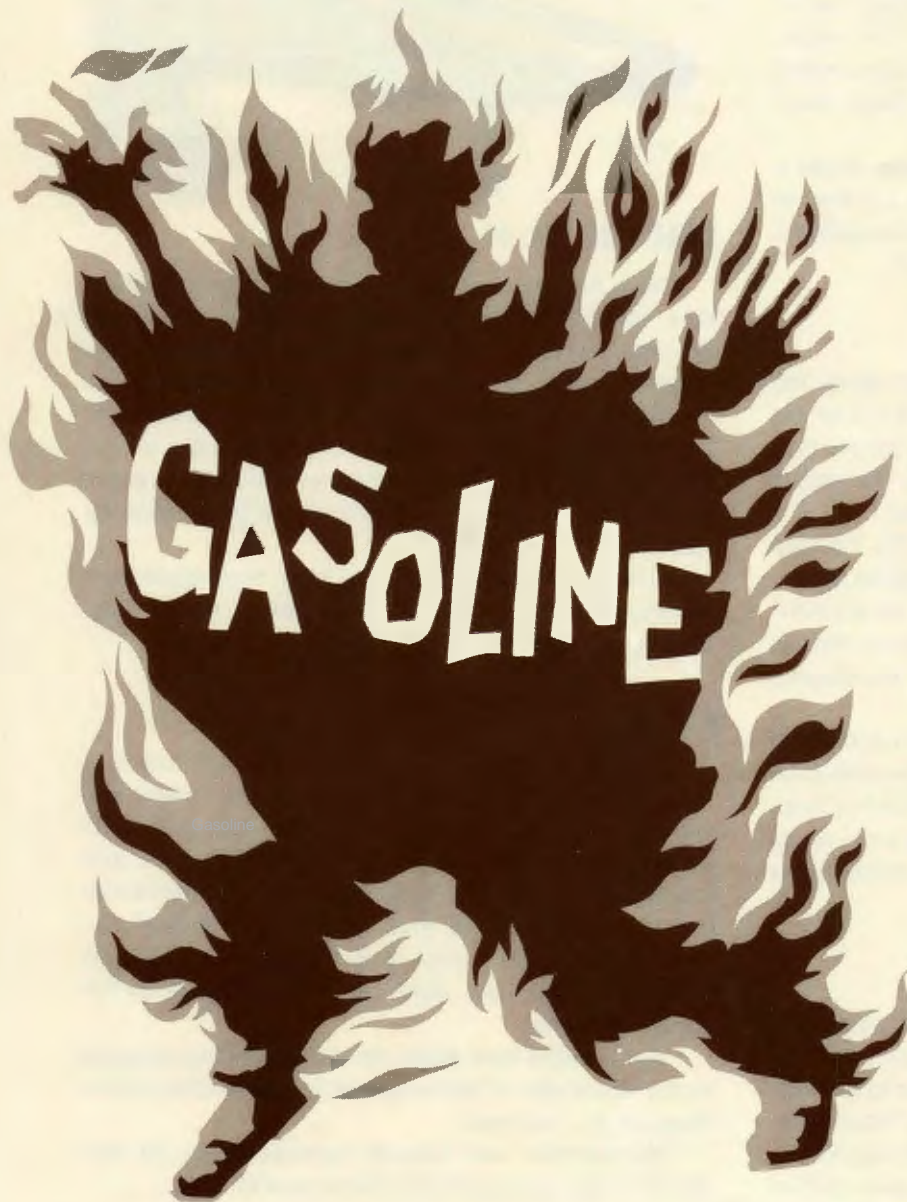
A pair of herders in their Hundred-F made a TACAN penetration to a field away from home and executed a missed approach. They went VFR and entered traffic for a normal overhead pattern and landing. Airspeed in the pattern was about normal for their weight... maybe even a little high for final approach. The flare looked normal to the IP in the front seat, but their tail skid contacted a donut on the BAK-9 barrier.

The tailskid tore loose and caused enough damage to the underside of the airplane to classify the whole thing as an incident.

The barrier was located approximately 50 feet short of the approach end of the runway.

This is a true story. It happened just this Fall. The airman involved was unable to work for two weeks as a result of the injuries he received.

We are printing this story, with the names changed, because it's loaded with lessons. The unfortunate thing is that none of these lessons are new. And they aren't just for people who like motorcycles. The lessons concern...



It was one of those quiet Saturday mornings when the normal bustle of a duty day is gone from everything around the base. About ten o'clock Tom met his friend Larry Walters, who had ridden out from town on his motorcycle. They talked of things to do and places to go for a while, and finally decided to head toward Smallsville... might stop at Sidney's cycle shop.

Neither of them knew it until they were on the highway, but the road surface had recently been oiled. Not only was it terribly slippery, but the oil splashed up on them as they rode. No matter whether they slowed down or speeded up, they were soon covered with the black, sticky stuff. It seemed like an awfully long thirty miles.

When they reached town, the cycle was hardly recognizable. Sidney helped them try to clean the bike with his steam rig, but there was nothing they could do about their clothing. Even Tom, who had been riding the buddy seat, was covered from his shoes to his sweater. There was nothing to do but head back home and get cleaned up.

When they arrived at the

trailer, Mrs. Walters, Larry's mother, offered to clean Tom's sweater for him. After she took it inside, the two boys started cleaning the motorcycle again.

Mrs. Walters looked around the trailer for something to use on the oil-spotted sweater. She couldn't find the cleaning fluid she usually kept under the sink, so she started out to the shed to get some gasoline. Seeing that the boys were already using it, she explained that she needed it. They soaked their rags and gave her the two-gallon can.

She placed the sweater in the kitchen sink, poured some gas over it, and put the partly-filled can on a small table between the sink and the butane stove. She left the cap off the can. The pilot light on the stove was burning...

About five seconds after Mrs. Walters placed her hands in the sink, both the sweater and the gas

can burst into flames with the sound of a muffled explosion!!

Mr. Jack Walters, who had been in the back of the trailer, rushed into the kitchen and saw his wife frantically trying to beat out the fire on her arms. He grabbed the burning can, threw it out the open door, and ran back to the bedroom to get a blanket. He returned in a second with a bedspread which he wrapped around his wife.

Tom and Larry were working on the bike about three feet from the door of the trailer. Without thinking about it, Tom had wiped his hands on his trousers several times. The oil and gasoline were mixing into an unbelievable mess!

When they heard the muffled explosion inside the trailer, both boys looked up, looked back at each other, and then realized what had happened. Tom had just started to stand up when the flaming gas can

came thru the door. It hit him just below the belt. The fire splashed across him, igniting the oil-gasoline mixture on his clothing. It rapidly spread down to his thighs where he had been wiping his hands.

Tom took off running across the yard, the flames streaming out behind him.

Larry was about two steps behind Tom and tackled him before they had gone ten steps. Larry rolled him in the grass until the fire on his clothes was out.

Mr. Walters rushed Tom out to the base hospital where he was admitted with second degree burns on the upper abdomen, upper legs, and inner thighs. He lost fourteen days' duty time.

Mrs. Walters was treated at a hospital in town for second degree burns on her forearms and thighs. She was released later that day.



SURVEYS OF PLACES



During safety surveys of multi-engine operations, our team has come upon many instances of crew and passengers not wearing seat belts when they should. Worse, we have found that pilots are not always briefing their passengers on when seat belt use is mandatory. There have been enough fatalities over the years from persons being thrown around inside aircraft during a crash to cause some thought on the subject. We've had enough broken bones from clear air turbulence and thunderstorm penetrations to believe that the subject is important.

Even ground operation requires seat belt use. Sudden brake application has resulted in some severe head cuts for passengers

impatient to get their baggage after landing. Brief and use seat belts!

We check arresting barriers every time the survey team visits a base. One base had not been inspecting their runout pits to insure that sump pumps were operating properly. There were water marks right at the lower tape level. However, when the lid to the pit weighs over 100 pounds and the handle is broken off, regular equipment checks are easily discouraged.

We visit some TAC units on non-TAC bases. In one such unit, the host-command inspectors had written up our personal equipment section for using oxygen cylinders in a building that didn't have explosion-proof light switches. This unit's solution was to eliminate the oxygen cylinders!! In the same section two masks (serviceable) had no attachments, other masks had cracker crumbs in them; packages of cookies and other items such as flashlights and batteries were found in mask bags. In addition, LPUs were improperly maintained and survival kits were short 13 different items. This was a unit that didn't use masks and other P.E. on a regular basis, and their lack of training was horribly apparent. You can believe that a new personal equipment officer was promptly assigned.

We came across a better mousetrap for safety in the hands of a safety officer on one base. A polaroid camera! This safety type would cruise the local airpatch in his safety truck with the big white sign showing. When he came across a violation of safe working practices, he'd stop, take an instant picture, get the names of the people involved and their organization, and depart.

He got some interesting pictures: work stands with no guard rails, people using fork lifts to repair hangar doors... like in place of maintenance stands, yet; people working on slippery roofs without safety equipment; trucks parked within three feet of aircraft... with no chocks; aircraft jacked up on the flight line during wind warning conditions; and loads of other goodies.

Within about a week he'd flood the base with ozalid reproductions of the photo with a little caption identifying the unit, the date, and what was happening. He said that for a while he got some pretty irate phone calls from commanders... howling about how bad he was making them look in front of the boss!!

It didn't take long for the moral of the story to sink in around the base. Now it takes him days of travel to find just one worthwhile photo. Every time he cruises the line side rails are up, aircraft

are properly grounded, vehicles chocked, and everyone is doing what they should be doing. He says his flight line people have almost run this scheme of his out of business.

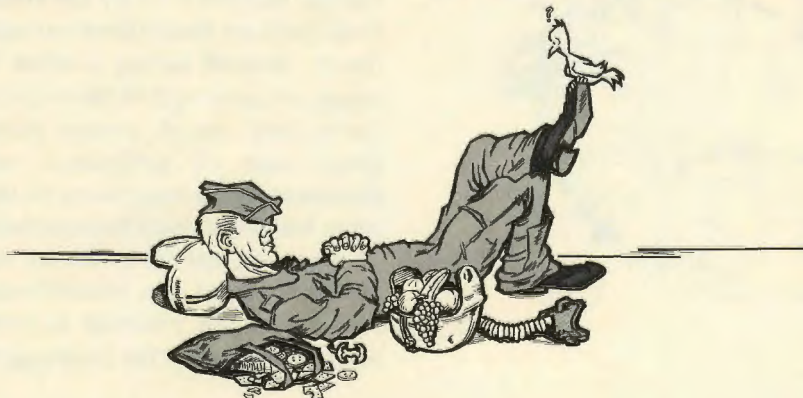
But he keeps his eyes open and prints enough pictures each year to let the troops know he's still around. It's a most effective system because nobody wants the kind of recognition they get when these photos are spread around the base.

With winter coming on, a couple of items on snow and frost removal seem in order. We have found units pouring salt on icy ramp areas. It is effective in removing ice, but unfortunately, failure to clean up the salty residue leaves an excellent corrosive for aircraft wheels and fuselage. You all know what salt water or spray does to car finishes. Now imagine the inner workings of the gear on your bird after a salt slush bath. TIG Brief No. 25, Vol XV, spelled this out in their 6 December 1963 issue... the problem is still with us.

While we're on the subject, snow, frost, and ice removal is upon us. We have lost aircraft because of snow banks along the side of the runway, loss of lift and resultant crashes from failure to remove frost, and numerous varied accidents from ice on taxiways, ramps, and roads. An early look at equipment, removal plans, and briefings for all personnel on this subject is indicated. Phailure to do so could result in the loss of a Phantom.

See you next month.

LT COL PAUL L. SMITH
Chief, TAC Safety Survey
Team





CHOCK TALK

oops!

The F-100 pilot got a hit on his first dive bomb pass, but all the rest of his attempts were called "no spot." On join-up leaving the range, his flight leader told him all his bombs were gone. And there were two rods extending from the area where the B-37K bomb rack should have been!

After landing, the armament folks discovered that the external store ejector cartridge had been installed in the rear ejector breech instead of the forward one. In this condition, with the armament selector switch in Bomb Single, the pilot jettisoned the rack when he pressed the bomb pickle.

oops, again

The pilot waited with engine running while the crew chief made final preflight checks on his F-100. When he tried to pull the left drop tank safety pin it would not budge. He decided to remove the pylon panel to see what the trouble was. But as the panel came off, the tank dropped to the ramp. Happily, the tank was not seriously damaged. The pilot shut down, collected his gear, and went back to operations.

Altho maintenance investigators made exhaustive checks on the jettison system, they were unable to find a malfunk that could have caused the trouble. Best guess is that sometime between the last flight and this one, somebody in the cockpit accidentally hit the emergency jettison switch. This would cause the tanks to rest on the pylon safety pins. When the crew chief removed the pylon panel, the pin pulled out and the tank was free to fall.

get it straight

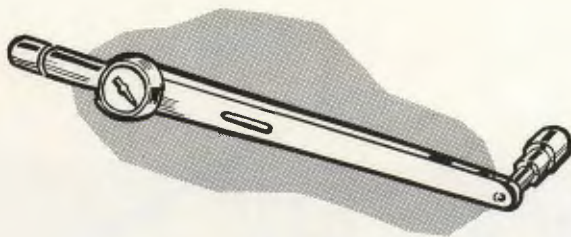
The Gooney was on an FCF when number one engine started backfiring shortly after takeoff. The pilot saw cylinder head temp and manifold pressure dropping. He tried assorted emergency procedures to restore power, but his efforts were to no avail. The engine got rougher. He feathered the mill and called it a day.

Maintenance troops found at least two gallons of water where avgas should have been. The bird had been on the ramp for ten days in the rain. It had been parked at an angle that put the fuel sump drain higher than the lowest point in the tank. When the crew drained sumps on preflight, they missed the water in the tank.

brake the B-5

Pushed by thunderstorm winds, the B-5 work stand gathered steam as it rolled. Well below liftoff speed, the work stand could not clear the C-130 and hit old Herky at station 245. Dented, buckled, and collapsed sheet metal and formers required 135 manhours to repair. Typically, the B-5 stand came out of the scrape unscathed.

The investigator found the work stand's brakes worked properly and concluded that the unattended stand would not have traveled if someone had used them. He also suggested the stand be tied down if it must remain outside when a storm's brewing. And, of course, timely storm warnings must reach all hands!



gatlign torque

An overseas Phantom flyer fired two short bursts from his SUU-16 gun with about one minute between them. On the third burst it felt as tho the gun fired only one round and stopped. He made one more attempt to fire in Auto-Clear. The gun didn't fire so he shut off his switches and came home.

Investigators on the ground found the diffuser assembly of the gun missing. When the diffuser separated from the barrel assembly, one barrel disengaged from the rotor and jammed between the bearing retainer and the mount gimbal. The gun had fired 495 rounds... 74 on this mission. The unit involved is now being more careful about checking torque values on the diffuser assembly before gun missions... in accordance with the tech order.

safety inspection ?

The flight of two F-104's taxied to the maintenance inspection area before takeoff. One NCO and three airmen were checking the aircraft as they came thru... two of them to each bird. While they were going over the lead aircraft, the airman in the nose gear area felt something tugging on his pockets. At the same time, the man in the main gear area heard a noise and thought he saw a puff of smoke from the tailpipe. They completed their inspection, showed the pilot his two pins, and watched him taxi out to await his wingman.

When they returned to their standby position, the two airmen discussed what they had seen and heard. They decided to count the pins they had collected from the birds they checked that afternoon. They came up one short!

On hearing this, the NCO ran to the lead aircraft as it was about to take the runway, signaled the pilot, and had him return to the line.

Engine Shop people who checked the bird after shutdown found extensive damage to the compressor section.

The airman inspecting the nose area had been

carrying a pin from another aircraft loose in his pocket. Reverse flow at idle sucked the pin thru boundary layer outlet ducts and into the engine.

transition troubles

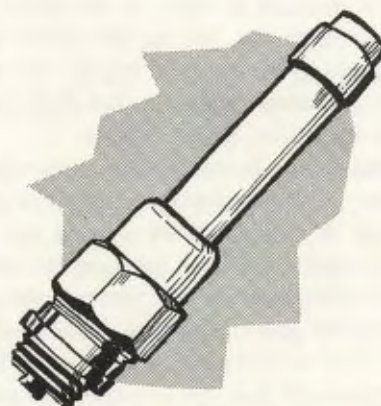
The A-1E pilot was cruising at 8000 feet on a local transition mission when his R3350 backfired severely and carb air climbed to full hot. He tried an assortment of power and mixture settings... and managed to keep it running intermittently (still backfiring) with the primer. Finally over destination at 5000 feet he set up a precautionary landing pattern. The backfiring was just short of shaking the engine off the mounts, so he shut it down and dead-sticked successfully.

Power plant types found a failed carburetor... and the pilot's report of severe backfiring decided them to change the engine because of possible internal damage.

swinger

The Gooney Bird had been cruising at 6000 feet for about an hour when the crew noticed number one engine vibrating more than usual. Engine instruments all looked good, but the trouble continued until the shaking and rattling prompted them to shut down and feather. The single engine landing was uneventful.

On the ground, the crew uncowed the bad engine themselves. A spark plug swinging on its lead wire told them what the instruments couldn't. When they re-plugged the hole in number two cylinder, the Gooney ran good like a good goon should. And when they arrived back at home plate, the crew had some words for the engine conditioning type who had failed to properly torque the plug.



READING and WRITING

by Col R. J. Broughton, Jr.
Chief, Flight Safety Div.
Hq. TAC

"I know you believe you understand what you think you said, but I'm not sure you realize that what I read is not what you thought you wrote." (old Safety Proverb)

Or, to put the subject another way, do you really think the words you use in Accident, Incident, and progress reports are the same as those being read... with the same intent?

Still confused? Welcome to the club! In these days of required courses in readable writing and high educational standards, you wouldn't believe the extent of the problem. Classic is the series of progress reports of an accident that go like this:

Progress report number one - Board formed.

Progress report number two - Investigation continuing.

Progress report number three - Investigation complete.

Would you bet the final progress report will say "cause undetermined"?

WOULD YOU LIKE SOME MORE
EXAMPLES?
TRY SOME OF THESE:

CASE "Tire blew out... cut by rock on taxiway." Corrective action, "Continued emphasis on FOD." We ask, continued at what level? Obviously past emphasis was less than enough.

CASE "Door fell off in flight." Corrective action, "Door hinge pin bent on ends so it would not fall out." UR submission, "Not required." So we ask, if the pin falls out of one door, why not fix all pins? Or did someone forget to bend the one that failed?

CASE "Engine caught fire during taxi... returned to ramp where fire truck extinguished fire." Cause, "Unknown." Corrective action, "None." Do you wonder who is kidding who... or even whom?

CASE "While towing aircraft, tow vehicle struck pitot boom." (with the tow bar attached, honest!!) Corrective action, "Tow bar specified in T.O. will be used." Would you ask "when was the T.O. read"?

CASE "Drag chute lost in flight." Cause, "Wrong hook assembly installed." Action, "New hook installed." On this one, why ask?

CASE "FOD to compressor during FCF." No cause stated, no TDR requested. We ask... what do you know that you won't tell?

CASE "FOD during engine start, probably from gravel blown by another departing aircraft." Corrective action, "Close inspection of aircraft parking area for possible FOD material." ... or maybe don't park jet aircraft on gravel?

CASE "Pilot noted rise in oil pressure, then pressure fluctuation. Landed safely from precautionary pattern." Cause, "Undetermined at this time... this constitutes closing action." Should we ask... aren't you even going to try to find the cause?

CASE "Aircraft towed to trim pad, but was offset six inches. To reposition, pulled it forward ten feet... wing passed over 20-ton jack. While backing into position, jack struck and punctured wing." Action, "Towing check list being revised." How can you ask an intelligent question here?

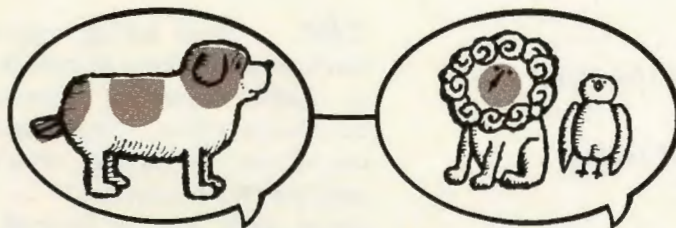
CASE "Engine oil pressure kept increasing, and could not be controlled... engine eventually backfired and failed, so mission was aborted (41 people on board two-engine type)... safe single engine landing." Cause, "Unknown, undetermined." We ask in the name of any of the 41... wouldn't it be nice to find out why?

The stories you have just read are true, and lead only to more questions, more pleas for information, and more attempts to solve problems that may or may not exist.

What do you suggest we do to identify our current problems... and find true solutions?

What would you do with reports like these? ➤

THE HUMAN TRANSACTION



"I have a pet at home"

"Oh, what kind of a pet?"



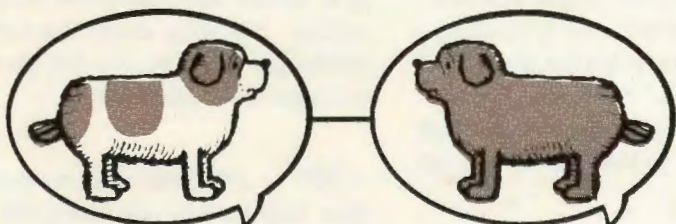
"It is a dog."

"What kind of a dog?"



"It is a St. Bernard."

"Grown up or a puppy?"



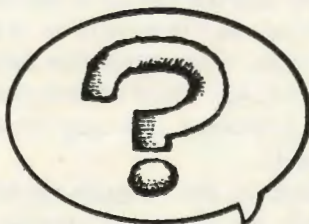
"It is full grown."

"What color is it?"



"It is brown and white."

"Why didn't you say you had a full-grown brown and white St. Bernard as a pet in the first place?"



"Why doesn't anybody understand me?"

It is sometimes useful to think of human communications as "transactions." In the sense we mean here, a transaction involves the interaction of the observer and what he observes. This can take place between ourselves and the world-outside-our-skin. Or it can take place between two or more human beings.

When we communicate with each other, it is useful to keep in mind that our common words may not evoke the same image in someone else's mind as they do in ours...

Knowing this, we can help improve our communications by being as specific as possible in the way we use words...

And, if you are on the receiving end, it often helps to ask questions.

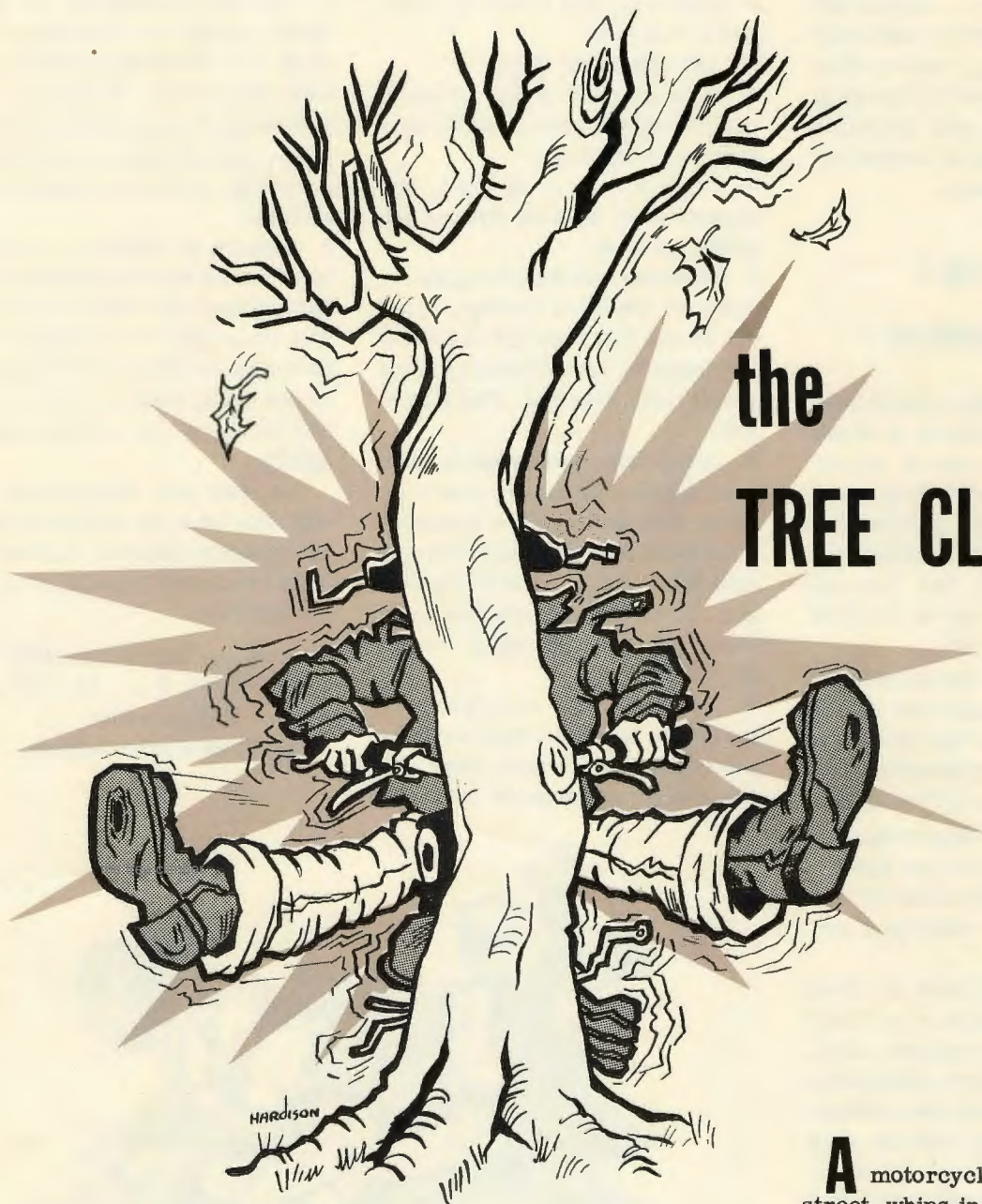
Assuming that "everyone knows what you are talking about"...

and assuming you know what others are talking about without asking questions to make sure...

...are two common causes of communications failure.

Common words do not have meanings — Only people do.
And sometimes they don't either.

Reprinted from Kaiser Aluminum NEWS.



the TREE CLIMBER

two-wheelers are in, but
a TC can spoil the action.

A motorcycle races down the street, whips in front of a moving car, and dodges around the corner. The driver has owned his wheels for little more than one hour.

"That man's a natural tree climber," one of the startled spectators exclaims. "The dealer tried to tell him..."

This new rider, however,

didn't tangle with a tree. He tried a telephone pole instead.

But by any standard, he's a TC ... tree climber. He's turned on ... an eager beaver ... a show-off. He's an overconfident newcomer to two-wheeling. Bent spokes, scrapes, and bruises will be a way of life with him until he learns about cycling. And he started out to learn the hard way.

GREAT FUN ! LEARNED IN MINUTES !

The light-weight, simple two-wheel cycle is definitely in. If you want to run with the In Crowd, you'd better do something about getting yourself one. And because of their simplicity, these machines are really fun! You can learn to operate one in minutes!

But here's the rub:

You can learn the mechanical actions of operating a new bike in a very short time. But that alone will not equip you to safely meet all the challenges of driving one.

It takes time. Time to develop balance. Time before you can anticipate what the machine will do. Time to develop automatic reactions.

It takes experience to make the bike an extension of yourself ... to make each maneuver, start, stop, or emergency completely coordinated between man and machine. As with any vehicle, only practice can give you the automatic reactions and road (or trail) experience you need to be good with a motorcycle. And experienced guidance can reduce your learning time and increase your success and safety and enjoyment.

If you're not a TC, here are some common sense guide lines for new riders:

- Make certain your dealer or the rental agency ... or the friend who loaned you his bike ... has given you instruction in depth. Also make sure that friend is qualified to instruct!
- Ask questions! Think!
- Give yourself plenty of practice before you venture out on busy streets or highways.
- Drive slowly! At night, decrease your speed five or ten miles per hour.
- Wheelies and figure-eights ... fancy or reckless driving ... can get you up that tree. Or in a ditch! Responsible, experienced cyclists rarely play this way. Why should you?
- Avoid the temptation to take your girl ... or anyone else's ... for a ride until you've mastered your machine. Why hurt someone else too? Riding double demands fast, automatic reaction and a firm, experienced hand on the handlebars.
- Although your machine is small, it has an impressive power-to-weight ratio. That hidden power can deceive you! You

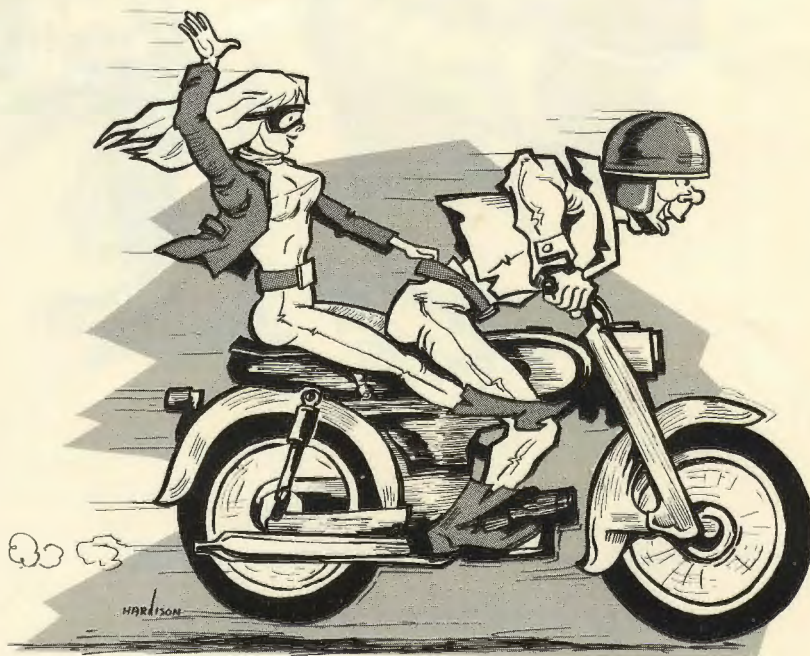
are not riding a motorized bicycle or a scooter. Yours is a precision, highly responsive unit. Treat it with respect!

- Develop confidence in your ability before you ride long or far. True self-confidence comes only with experience. It comes with knowledge of your abilities with a particular machine. And complete knowledge of that machine's capabilities!
- Beware of fatigue ... particularly during the excitement of your first hours and days of cycling. The pros know they must slow to an easy pace after five or six hours on the road, trail, or track. Peak efficiency on a bike passes quickly.

As you gain experience, you will also gain an appreciation of the dangers involved. You will be better equipped to judge your own capabilities.

Now, go get on that bike and get to know it... it's fun! It's IN! But do it sensibly.

Don't be a tree climber.



letters...
to the editor

Reference the Better Mousetrap Department on page 12 of the September 1966 TAC ATTACK. The article on flare containers was excellent except that a few pertinent details were missing such as who designed it, who built it, and what materials were used. TSgt Lennard W. Lee, of the Sheet Metal Shop, which is under my supervision, labored long and hard to produce the item. It's true, Sgt Kearney conceived the basic idea and deserves a lot of credit for it, but I believe in giving credit where credit is due.

Sgt Lee was given a work order and a rough set of plans from which to work. He used his own ingenuity to construct a suitable and acceptable product. He used galvanized metal, not aluminum as you reported, because aluminum was not capable of withstanding the weight and force imposed on the proposed container. Sgt Lee put in many hours on this project...many of them during off-duty time.

He made flights with it during its infancy and went TDY to England AFB to explain its construction to the people there.

I realize it's impossible to include names of all persons involved in a project, but the key individuals should be recognized.

MSgt John W. Rose
Fabrication Branch Sup't
4410 FMS, Hurlburt Field, Fla.

How right you are! Kudos to TSgt Lennard W. Lee for some clear thinking, professional workmanship, and extra effort. And thanx for setting us straight, we obviously were not fed the whole story.

Again, congratulations, Sgt Lee... we're proud of you!

—Ed.

do YOU think that...

SEAT
BELTS
SAVE
LIVES ?



TORQUE (Tôrk)

torque (tork), *n.* 1. The fluctuating or uniform turning moment exerted by a tangential force acting at a distance from the axis of rotation or twist. 2. *Mech.* that which produces or tends to produce torsion or rotation; the moment of a force or system of forces tending to cause rotation. 3. *Mach.* the measured ability of a rotating element, as of a gear or shaft, to overcome turning resistance. 4. *Optics.* the rotational effect on plane-polarized light passing through certain liquids or crystals.

TORQUE 'WRENCH', A WRENCH
WITH A DIAL WHICH SHOWS THE
AMOUNT OF TORQUE BEING APPLIED.
USED FOR PRECISION AND ACCURACY
IN ASSEMBLING AIRCRAFT
COMPONENTS.

