

APRIL 1962

ATTACK



HOWDY POT-NER



ATTACK

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COVER PHOTO

One of the F-110's
currently being evaluated by TAC.

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*Men think they may justly do that
for which they have a precedent.*
—Cicero

angle of attack

Commanders! Have you ever talked air discipline or flight safety to your pilots and then had the feeling that they didn't get the full meaning of what you had said? Communicating the full intent of our words is a continuing and frustrating problem, and we can never be certain whether we have conveyed to others exactly what we mean.

If we tell our pilots to fly safely, what do we mean? How many ways can it be interpreted? What is generally considered safe by one pilot may be considered quite dangerous by another.

How can we be sure that everyone understands exactly what we mean? Here's one method that might be considered. At your next meeting with your pilots, simply say: "As your commander, I'm going to fly with each one of you on your next flight. In fact, I'm going to be with you on every flight from now on. Every time you brief, do it as though I were there. Every time you preflight, do it as though I were giving you a standardization check. When you are on the gunnery range, perform as though I were in the scoring tower and when you are in the traffic pattern, fly as though I were in mobile control. Perform all your flights as though I were there and as though I were going to critique the mission."

However, before such a philosophy can be successful, you must establish high standards and then maintain these standards through example. Remember, what your subordinates do is determined by what you do.

Colonel James K. Johnson
Chief
Office of Safety



WHA' HOPPEN ?

THREE F-84F PILOTS were out on the prowl for night time on a nice summer night marred only by high scattered clouds. Visibility was above ten miles. For convenience we will call them Blue One, Two and Three.

The aircraft were serviced with full internal fuel plus 150 gallons in each 450 drop tank for a total of 5500 pounds—enough for two hours with plenty of reserve.

During start, taxi and take-off, Blue Two noticed his forward fuselage fuel indicator remained at 1100 pounds instead of dropping to the usual 800-900

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pounds.

While climbing all pilots reported drop tanks feeding and after level-off all reported drops empty. Just before Blue Two called, "drops dry," Blue Three noted some fuel vapor trail from the scupper drain of Two's aircraft. No sweat. This usually happens when the drops feed out.

Shortly after level-off, Number Two experienced a rough engine. He moved out to one side and pulled G's several times to see if the roughness was caused by a loose tailpipe. Since these maneuvers produced negative results he tried re-adjusting the throttle. His engine ran unusually rough at any setting other than 86% RPM. He could stay in reasonable formation at that power setting so decided not to bother Lead with tails.

After his external tanks indicated empty, Blue Two switched to total fuel and noted 3700 pounds on board. Fuel flow was 2300 PPH---one hour and 34-minutes 'til flame-out. No sweat!

On the second fuel check Lead reported 3100 pounds, Two had 2900 and Three had 3000.

Just prior to the third fuel check Blue Two noticed that his fuel gauge seemed to be stuck at 1500 pounds. Lead gave his fuel as 2000 pounds, Three had 1900 and when Two called 1500 the startled leader turned immediately for home plate. They were almost there when Blue Two flamed-out. He had time for one unsuccessful air start attempt (in the normal system) before

he ejected. He landed unscathed near the fireball wreckage of his F-84.

In his statement to the investigators Two said his total fuel indicator stayed at 1500 pounds for about seven minutes before the flame-out and that he had monitored his fuel gauge every 30-seconds after realizing it was stuck. He said that he switched the fuel selector to "all tanks" prior to the attempted air start and could not remember seeing any fuel warning lights until the engine coasted down and the generator and inverter lights came on.

The final conclusion of the investigators was that fuel mismanagement led to starvation and flame-out. They reasoned that since the fuselage tank indicator didn't show the normal drop during takeoff, the drop tanks must have been pressurized and feeding. Their computations proved that had this been true and had Blue Two inadvertently turned off the drop tanks at the time he intended to turn them on, they would have contained 1500 pounds of fuel. Without this fuel he would have flamed-out exactly when he did. That piece of the jigsaw puzzle certainly fitted the slot but did the color match the picture?

It appears the Board started their investigation with the preconceived opinion that the pilot malpositioned some switches. This in itself is not bad providing every effort is made to disprove all other possibilities. In view of pilot and witness statements there are other possibilities that should be con-

sidered. Although the Board may have covered them they did not mention it in their report. They should have.

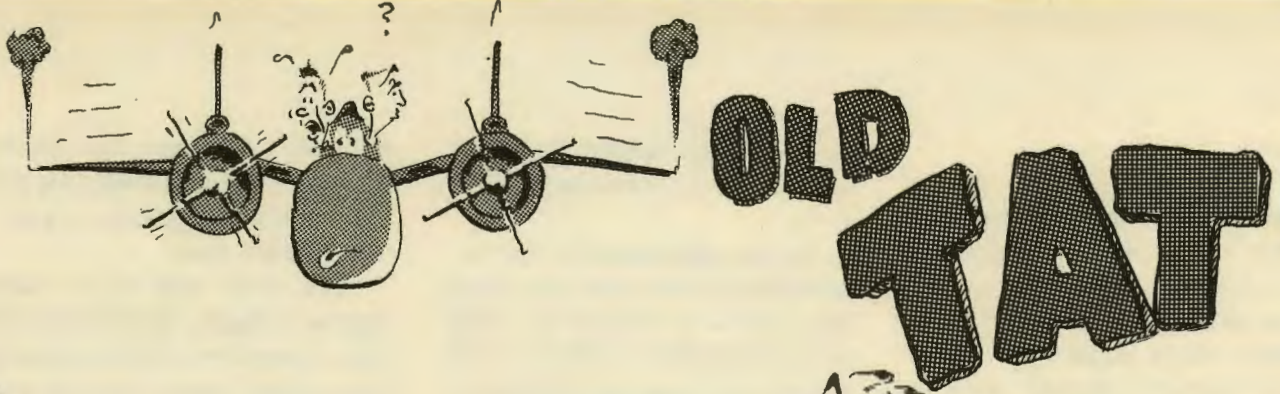
The pilot told of a rough engine in flight. This could have been caused by a defective main fuel control, and it was not sent in for a teardown inspection. During the shuffle it had become misplaced.

Since most of the flight was after dark it is doubtful that a main line fuel leak could have been seen by either of the other two pilots. However, the fuel checks show an increasing spread between Blue Two's fuel and that reported by the other pilots.

Consideration should also be given to residual pressure in the drop tanks which usually causes them to feed for a time after the switches are turned off unless they are vented by actuating the IFR switch.

Regardless of the Board's conclusion Blue Two made at least two serious errors. In the first place he took off in an aircraft that had an obvious fuel system discrepancy. Secondly, he did not advise his flight leader of any indications of trouble until too late for the leader to evaluate them.

Experience is said to be the best teacher but in cases like this the teacher's salary is much too expensive to allow for a make-up session. To gain from this costly experience and to prevent similar accidents, pilots and boards must check every angle to accurately determine WHA HOPPENED!!!



A RIGHT GOOD FRIEND of ours—a bird watcher from 'way back—wrote us about a C-119 incident. Seems the C-119 aircraft commander feathered one engine because it coughed once and then lost torque. A successful one fan landing followed. After landing, the carburetor intake screen was found to be blocked with ice.

Our friend remarked that this incident reminded him of a debacle some years back where several people and another C-119 were lost because of carburetor ice. In both cases, an engine was shutdown needlessly.

What he said next is so close to our own beliefs we'll be lazy and quote him word for word. He said, "I am firmly of the opinion that many twin engine pilots suffer from chronic featheritus which occasionally leads to chronic death. I maintain that the engine has only one mission in life and that is to keep the bird in the blue. Barring fire or obvious internal failure there is seldom a reason to shut it down as long as you can get more thrust than drag."

The crux to this is telling when you have more thrust than drag and the possibility of inducing a fire. Deciding separates the men from the boys. However, our friend's premise is well-founded and holds equally true for most single engine jets and the lads who have stopcockitus. We say "most jets" because the F-104 doesn't follow the rules when its engine decides to compressor stall.

Quite often, jet engines which have partially failed can be persuaded to run at reduced settings for quite some time before they let go altogether. However, the critters will grind to a complete stop and refuse to relight if stopcocked. For this reason TAT has a general rule for handling engine trouble, other than complete flame-out. Watch gauges and try to keep temperature in limits reducing power. If unable to control temperature or if the fire warning lights come on, stopcock. Once stopcocked, forget about restarts and concentrate on the next decision . . . the decision to make a flame-out landing or to eject. If low when trouble starts, leave power full on until a safe ejection altitude is reached and then try to cope with the trouble. F-104 pilots should pay no attention to this rule since low altitude compressor stalls can give all the indications of a partial failure, complete with low and fluxuating RPM, overtemperature, etc. . . and you correct a stall by shutting down and restarting.

SHORTLY AFTER hop off, with the casters on the way up, a U-3 pilot found that the cabin door of his machine was open. Since there was plenty of runway left, he decided to land straight ahead, put the gear handle back down, and concentrated on making a smooth landing . . . then came the awful sound of aluminum rubbing concrete. He didn't give the gear time to extend, or chec

see if it had extended and locked. Nuff said, or
ll we say something about checking to see that
rs are secured?

COMING OFF the range, Harry Hardluck pushed the throttle into AB and let the old century dog waddle up into position on the rest of the flight. He put the throttle inboard but nothing happened. He pulled the throttle back and AB cut out at about 80%. Forward of 80 it'd relight.

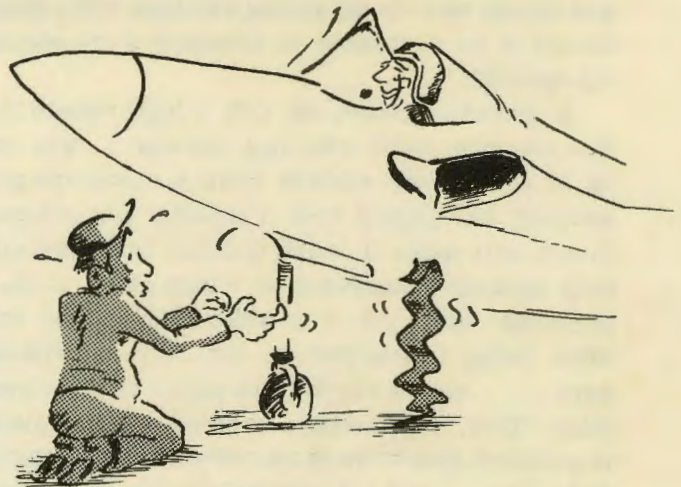
Homeplate was about 150 miles away—(That's a 26-hour and 50-minute walk if you meet the new physical criteria). But no sweat, there were two closer air patches and fuel was about 13,500 pounds. Harry headed home. At 15,000 he relit the AB and climbed to 30,000 came back to 80% coasted, relit, etc., etc.

Thirty miles from home, fuel was down to 2,600 pounds, altitude was 8,000 feet. About ten miles out Hardluck extended speed brakes, selected AB and lowered the rollers... a wee bit later he raised speed brakes to hold 220 to 230 knots. Five miles out he lowered the flaps and slowed to about 180. Forward fuel was indicating pounds... then 200... then he was gliding. landed just a little less than a mile from the pad. Forward fuel was still reading 200 pounds and total fuel was about 700. Apparently the engine had sucked air from the forward tank and, poof, flame-out.

At the thirty-mile point Harry should have been worried... it took him almost 11,000 pounds to scoot 120 miles. According to our computer--which we carry and use on almost every flight--that's about eleven miles for each 1,000 pounds of fuel... The boss's Caddy does better'n that! Harry should have known at this point that fuel and distance were coming out ridiculously close... gear flaps and boards would have been better left tucked in until the runway was in the shade of the old aircraft.

The malfunction, which isn't too uncommon with F-100s was caused by failure of the AB adapter switch.

Oh yeah, from the security of our swivel chair we ran thru this one again. He'd have arrived with quite a bit more fuel had he cruise climbed it in



THIS ONE would have been funny if it hadn't cost so cotton pickin' much dough this close to income tax paying time. Seems an F-105 pilot pulled up at the refueling pit with the mill at idle. The assistant crew chief fetched the gear pins from the nose gear well, installed the nose gear pin and tossed one of the main gear pins towards--of all people--the regular crew chief.

The pin hit short, directly under the left intake. The streamer unrolled and remained suspended for a long, long moment, as if performing the Indian rope trick, then disappeared into the intake.

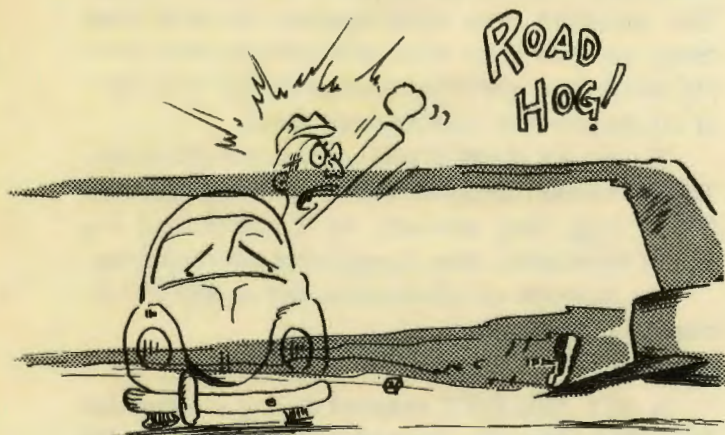
One moment of indiscretion and an \$89,972.21 case of indigestion.

A JET AIRLINER crashed during a scheduled transition mission. According to witnesses, the big jet made a normal lift-off, rotated to an extremely nose-high climb, banked steeply to the left, rolled to a vertical right bank and fell thru. Evidence indicated a stall while practicing a take-off with number three throttled back on the roll and number four throttled back at or immediately after lift-off. At the risk of getting our curly head lopped off, we're going to make a couple of choice comments concerning this one. First, we want to make one thing quite clear. We favor practicing for emergencies--but, the practice should be practical.

The airliner in question was powered by four engines... four engines that seldom come unglued. These engines are far enough apart to preclude one engine shooting out another with bits

and pieces that fly off during a failure. Why, then, should it be necessary to practice a two engine out takeoff?

If someone comes up with a legit reason for this practice, we'll rear back and ask . . . why not do it at a comfy altitude from a simulated go-around? The higher true airspeeds and reduced thrust will make it more difficult to do and will help burnish procedures to a high gloss. It isn't perfectly safe, but it is safer than pulling two after being committed on the roll at altitude zero . . . unless the two are pulled in the simulator. This, incidentally, is an even better place to practice situations which are almost impossible to handle . . . and a double failure like this would be almost impossible to handle when the bird is fully loaded.



THE LAUNCH WAS a success until shortly after lift-off with gear on the way up. At this time considerable thrust was lost, according to the pilot, and the machine settled back to the runway and proceeded with some of the most enthusiastic sliding we've ever read about . . . it slid into the barrier, engaged the cable with one pylon and dragged 350 feet of chain before grinding the cable in two. Released, it continued off the runway into a blast fence, over a perimeter road, thru 75 yards of timber across a four-lane highway . . . knocking a bumper guard off a surprised motorist's automobile . . . and proceeded into a cemetery where it demolished a concrete block maintenance shed.

The pilot decided to evacuate, since his sled was on fire with the canopy glass shattered. He tried to remove his chute but neglected to unfasten one leg strap and his underarm life preserver fouled the harness. As a result, the firewell kit snagged him as he clambered over the side. He fell and was left hanging upside down in the flames. Fortunately he was able to escape, but received first and second degree burns.

We have no word on the cause of this accident at this writing . . . but from the distance traveled it appears to us that the engine was developing quite a bit of power during the abort. The pilot said he retarded the throttle to idle shortly after his aircraft settled back in. TAT would bet that it jarred forward again during the wild ride.

The pilot had the right idea when he unbuckled before evacuating . . . right idea, poor execution. We hope you never have to do as he did, but if you do a little pre-practice (as required by TAC reg) will help make your rapid exit more dignified.—Why practice a simple chore like this? Well, a smash like this has a tendency to unscramble the coolest of wits. When this happens, all that's left is plenty of adrenalin and reflexes. If the reflexes ain't properly conditioned they don't hack the . . . too well. . . . Ho Kay?

THE PILOT had a rep for being professional. He earned the Select Crew Award, and was always trying to improve his ability . . . but he crashed during an IFR penetration. Ran into the ground wings level--while descending from 20,000 to 3,000 feet. He was supposed to report passing 10,000 but failed to call. Altitude of the crash site was 1,895 feet.

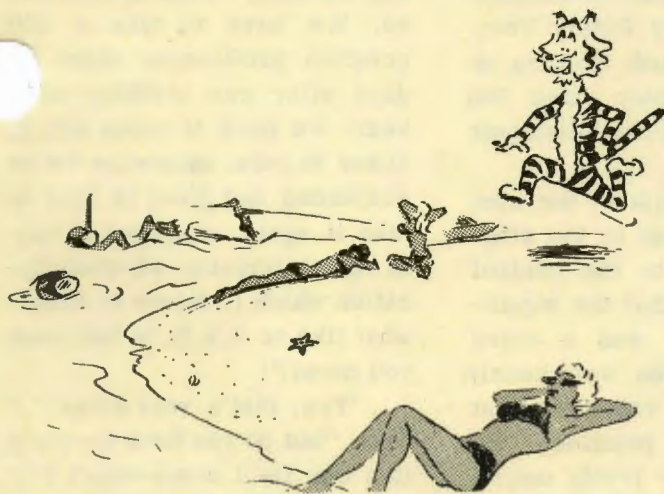
By comparing fuel gauge readings with consumption data for the route, the Board decided that he was at the proper altitude before he descended.

His zero lanyard was connected, which would indicate that he knew he was below 10,000—where pilots of this outfit normally hooked the bailing wire. From this and other bits and pieces of information the board decided that this troop either failed to interpret flight instruments (the altimeter) correctly, or had an unreasonable altimeter lag. Icing, etc, was not a factor.

Their guess is as good as ours. Altimeter

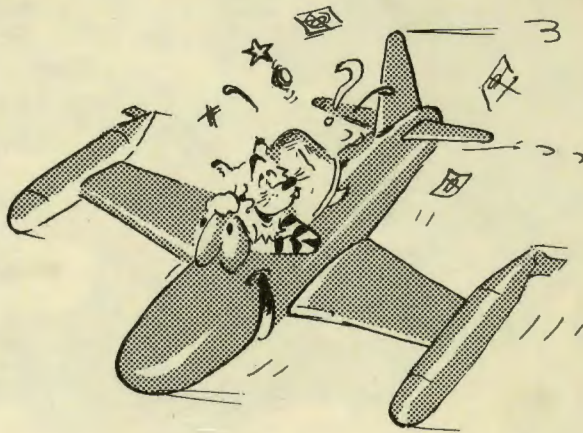
WILL lag during very fast descents ... but we've never had one lag a thousand feet.

We did get distracted during a descent one day and forgot to report at 5,000 as directed and overshot our level off altitude of 2,500 by a good 800 feet. It certainly surprised us how fast the altitude went by during the "moment" it took us to glance at the letdown plate to check on something. Also, two or three times we've had trouble getting the bailing wire hooked to our chute release and poked thru considerable altitude before we succeeded. Could this have been this lad's last act? Possibly not, since he was pretty sharp and your Old TAT admits to being somewhat short of red hot. It is a thought, tho'. Another possibility is that he had developed the habit of maintaining a constant rate of descent until almost at his desired level off altitude ... a practice that looks sharp and precise ... but which leaves no margin for error ... a little distraction at a crucial point and 'tis all she wrote. By the way, even the best can get distracted if they aren't careful.



WARM WEATHER is on the way and skin divers, water skiers, bird watchers and other sportsmen will soon be headed back to the beaches. No, Old TAT isn't making a pitch for ground safety—far as we're concerned the exercise will do you good, work some of the fat off you and wash off some of the meanness. However, if you're a scuba fan, we have a wee word of caution. Several recent blurbs in Navy safety pubs warn Navy scuba divers not to fly high too soon after diving. The Navy sets 30 feet or deeper as the

diving depth and a cabin altitude of 18,000 as the airborne altitude, with 12 hours as the delay. Soooo ... if you go below 30 feet on scuba, (or in a pressure tank), best not fly above 18,000 feet until after 12 hours have ticktocked by.



WHILE GIVING an instrument check, Old TAT watched his victim's holding pattern entry with a great deal of interest. The troop under the bed sheet was quite sharp and would certainly use the new precision entry.

Why all the interest? Well, near as we could tell from watching our position over the ground, we were being pushed about by a horrendous wind ... something over 150 knots. Our hero in back was aware of this wind, but since we'd been working in the local area he had been given little opportunity to really pinpoint its direction and velocity.

He used the proper entry procedure ... and the wind made a shambles of it. It was almost 90 degrees to the holding heading and he ended up driving toward the station 70 degrees off the proper heading. On his next pattern he threw in a 30 degree correction while going outbound, and did a little better. He really needed a 45 degree correction.

When you run into winds like this—or even less severe winds—you begin to wonder just how necessary it was to tie down the entry quadrants to other than cardinal headings ... particularly since the odd-ball arrangement tends to cause confusion and make it necessary to study overlays or use other aids when one's attention really belongs on the business at hand.

TAT



AS A PILOT with some 18 years experience in herding the birds through the sky I finally decided to learn something about air traffic control. I figured the best place to get straight answers was from the controllers themselves. But first I wanted to know something about their background. So, my first step was to contact the administrative section of the local AFCS organization and check into the prerequisites and training requirements.

I learned that an airman accepted for controller training must be mentally above average. He must pass a flying type physical, successfully undergo physiological training, complete with rapid decompression in the pressure chamber, and after 21 to 23 weeks of schooling at Keesler AFB, Mississippi, is assigned to the field. However, before

being qualified as a controller he must pass batteries of exams plus the Facility Rating Test. Actually, so much training is required that only about two years of a four-year enlistment are productive.

Wishing to talk to the men who were closest to the situation, I went to the control tower. I found that the supervisor on duty was a zebra striped type who was keenly alert and highly experienced at all controller positions. He didn't talk very freely until I convinced him I was just a pilot with a professional interest.

It was mid-afternoon on a clear day. VFR traffic was light and hardly anyone was operating on an IFR flight plan. Yet, as I searched for an opening question, my attention was frequently distracted by one of the many speakers blasting out. I tried to identify the speaker

each time—impossible. I finally decided the only solution I have for that problem would be to gangload the buttons and answer on all frequencies...yet the controller seemed to have no trouble. He was undoubtedly well qualified.

I searched for common ground on which to start my line of questioning. Remarking on the similarity of our job requirements, the pre-entrance physical, annual physical, the fact that controllers are placed on DNIC (duties not involving controlling) for the same reasons we are declared DNIF, I asked the Sergeant if there were any other areas of parallel.

That seemed to break the ice. He said, "Yessir, I believe so. We have to take a 200 question proficiency exam 30 days after our birthday each year. We have to make 96% in order to pass, otherwise we're suspended and given 15 days to take it again. A second failure is an automatic re-classification which I believe is somewhat like an F.E.B. Is that what you mean?"

"Yes, that's very close," I said, "but do you have anything like our field check-outs? For instance I've just moved here PCS and although I've got enough time in a T-bird I could fly it backwards, I still had to have a field check-out. Do you have requirements like that?"

"Sir, I'd like to answer that," said one of the controllers.

"Go right ahead."

"Well, Sir," he said as I

scanned the area like a combat
fighter pilot, "I worked
tower for over four years
during a previous tour. I re-
turned PCS a month ago and
although the equipment is the
same, I'm working under super-
vision until I am re-facility
rated. I believe that's similar
to your set up isn't it?"

"As a matter of fact it is,"
I said, then remarked to the
Sergeant, "Pilots have certain
emergency procedures in the
Dash-One which are printed in
BOLD FACE PRINT. These we
must memorize. We are also
subject to no notice stand-eval
checks which may come at any-
time. Are you subject to
pressures like this?"

It was then he told me about
the facility rating exam and
their weekly or semi-weekly
pop quizzes. He explained that
their BOLD FACE PRINT con-
sisted mainly of information
which pilots in the area might
suddenly need due to adverse
weather or an emergency. The
controllers must know almost
everything about each air
facility within a 50-mile radius.
This includes bearings to and
from other airdromes, runway
headings, navaid frequencies
and call letters, field ele-
vations, length of runways,
types of approaches available,
and other such data. All instru-
ment penetrations and
approaches for the home drome
have to be memorized so that
this info can be given to a pilot
immediately. I was impressed
by finding their program so
safety center as well as
oriented toward service to
lots.

A common bond between
controllers and pilots was now
obvious but I still wanted the
answers to a lot of other
questions. For instance, we're
bound by ATC procedures and
instructions. Just who is ATC?
So I asked, "Is ATC just the
center alone?"

"Negative," said the Ser-
geant, "It is any approved
traffic control agency such as
Approach Control, GCA and
Departure Control. Some GCI
sites furnish radar information
to centers but are not qualified
control agencies. They do con-
trol interceptor aircraft but this
is strictly under a MARSA
agreement, an agreement where
the Military accepts responsi-
bility for separation of air-
craft."

My line of thought was in-
terrupted by a garbled blast on
tower's ground control fre-
quency. Some pilot on a local
was requesting the tower to call
the Dental Clinic and cancel an
appointment for him. His trans-
missions were broken and it
took several to get the message
across. His call came just as
the controller was reaching for
the mike to deliver an IFR
clearance.

Since that seemed an
appropriate time I asked, "Can
you give me some other reasons
why departure clearances are
often late coming through?"

"Certainly sir," he replied.
"You see Ops usually sends the
information on your DD 175 to
the center, by teletype. When
the center receives it they con-
sider it as a proposed flight.
We are not allowed to request

your clearance from them until
you call from the cockpit. It
takes the center a few minutes
for computation, planning and
coordination. From there on the
amount of traffic definitely
determines your release time
and therefore the length of the
delay."

His explanation satisfied
me. I realized that until automa-
tion was complete I'd still have
to spend some wet, cold minutes
in the cockpit waiting for my
release time.

He brought out two points
concerning clearances that are
worth remembering. First, if
you're airborne and need a
clearance, contact the center
direct. They'll answer a radio
before they will a telephone so
why relay through some other
agency? Second, departure
clearances, like takeoffs and
landings (except for emergen-
cies) are on a first come first
served basis. For example, if
three different clearances go to
center at the same time, the
pilot who calls first gets first
clearance regardless of the
proposed departure time on his



DD 175.

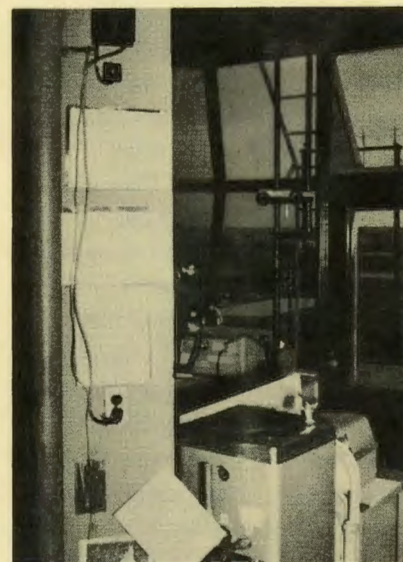
The talk of delays brought to my mind the new holding pattern entry procedures. I asked the approach controller what he thought of them. He picked up a bundle that contained 31 templates and said, "Sir, these templates cover the airspace that must be protected for different type aircraft holding at various airspeeds and altitudes. We'll be using them with this new system. With all the extra work for the controller, they must have surely made it easier for the pilots." I just cleared my throat and kept a straight face.

Since one of my main objectives on this foray had been to dig into common problems, I asked the Sergeant to tell me what he thought his most important problems were. He'd had much experience and I figured he had seen a few near misses. He unhesitatingly replied, "Sir, if the pilots could only remember to keep us advised of their intentions, it would do more than anything else to help us plan ahead and safely expedite traffic. We're not griping, because we're a

service organization and that's what we intend to give . . . But, such things as unannounced touch and go's from GCA when cleared for full stop sure do make a mess of our planning. We have no problem fitting in short initial approaches, simulated flame-outs and the like if we're given a little notice. Just give us the word ahead of time and we'll clear the way."

One controller emphasized the Sergeant's point by telling about a flight of four century birds that were cleared direct to a radio fix 90 miles south. Weather was 2500 overcast, tops unreported. After takeoff they made one circle for join-up and another to line up exactly over the home fix. Eight minutes after takeoff they called departing the fix for a climb on course. They had remained VFR until they departed on course and couldn't understand why he, as the departure controller, was so shook. Then he advised them of the T-33 he had released for the same route of flight five minutes after they were airborne. As controller, he had used legal separation time and a can't catchem fudge factor but

because the flight leader fooled around without advising anyone a dangerous situation was created.



Controllers face many other problems, such as blind spots from the tower that effect both ground and air movement but one of their biggest is that of training new controllers. At least they are embarrassed most often with this one. Like in training a student to fly you've got to let him use the mike in order to learn how. You can tell him exactly what to say beforehand but when he pushes the button you never know what's coming out. All you can do is quickly correct his mistakes.

I left the tower feeling that I had a better understanding of Air Traffic Control procedures and I was proud to have these troops on the team. They are professionals and believe it or not, they can spot a professional pilot from a few radio transmissions and a landing or two.



Captain Thad May, TWA, on

IMPROMPTU D.R.

From Cruise Flight Level to Touch-Down

If the air traffic controller was not providing radar vectoring, then who was responsible for the plane's navigation?"

"The pilot." These were the last words from the government, spoken by FAA official Wayne Hendershot at the close of the UAL/TWA accident hearing in Brooklyn, New York recently.

And how might he feel?

The official investigation resulting in issuance of the "Probable Cause" is for the officials. Nevertheless, small groups of pilots in hotel lobbies around the country are busy doing a little constructive analysis of their own. We don't mean in second guess the deceased pilots, but we see a new threat to our security, so we instinctively try to imagine all possible factors which might contribute, and then devise our own safeguards.

One obvious fact emerging from this accident is that one of the victims was not where he thought he was. We are the first to defend the pilot against those who imply "pilot error." Not because he's from our group, but because we have traveled this road too, and we know how easily we can be led astray by a combination of erroneous indications from our radio navigation equipment. Cross-checking is our trade mark, but there are rare occurrences in which two erroneous signals can add up to a "cops-cats" situation.

Progress is an inevitable product of our society, and I'm sure we pilots would not trade the Flight Path Deviation Indicator for a static "dud-da." However, we can never gain something without giving up something, and so it is with our modern VHF radio navigation equipment. The integrity of the low frequency range and an air

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driven gyro, crude as they were, did nothing on circuit breakers, transformers, and dime-store fuses.

The weird behavior of the sometimes fickle Radio Magnetic Indicators and Flight Path Deviation Indicators is too well known to us all to warrant further mention here . . .

... It's ironic in this modern age of atom bombs and digital computers that our most useful tool may be found by reaching back 200 years for a science used by Captain Cook—Dead Reckoning. It's also ironic that this science requires only our simplest and most reliable instruments—compass, airspeed indicator and clock.

Does this mean we must clutter the cockpit with mercator charts, dividers and plotters? No. But there is a way by employing a sort of Impromptu D. R. (permit me to coin a phrase.)

When used over long distances with infrequent fixes, one must be meticulous for success with D. R. However, over short distances, a Bob-tailed approach is amazingly accurate.

Simply stated, Impromptu D. R. is the art of following the progress of your plane by latching onto a heading, monitoring the clock as you proceed from fix to fix, and protecting yourself with a shrewd guesstimate of your next fix. This technique is intended to replace the tendency to chase the needle and assume you are there when it swings.

If you are familiar with the

local area (distances) and have a general knowledge of current winds, this can be done without bothering with charts and computers. If not, it is certainly good insurance to delegate this responsibility to your first or second officer.

A preflight study of weather and winds will have prepared you to make an intelligent guess at ground speed even though you may be descending and varying your true airspeed. Using this ground speed and working in increments and multiples of increments shown below, ETA sufficiently accurate to double-check your radio navigation instruments can be obtained. By adding your personal touch of intuitive interpolation and establishing the habit of practicing when VFR, you can convert this science of navigation into a highly precise art. And then, if those radio signals don't agree with your D. R., suspect the radio!

I recall an instance a number of years ago, of being cleared

from New Brunswick to Flatbush with a restriction cross Flatbush at 3000 feet, then descend to 1500. It was winter-time, and we were on the gages. A neat reversal of the ADF needle signaled Flatbush! We were tooling along at a fast clip because of a high descent rate, but a quick check with the clock indicated a ground speed of around 500 mph and therefore alerted us to the erroneous needle swing. It later developed that high speed and ice had stripped us of a sense antenna.

Since this incident, I have found comforting security in keeping track of my position by this art of Impromptu D. R. In spite of all this electronic gear, it's still the best tool we have to safeguard us from erroneous radio signals and human error from the ground controller. In fact, Dead Reckoning is the only pure method of navigation. All other methods, such as radio, indicator, pressure pattern, celestial, inertial, etc., are merely aids to D. R.

ETA BY D. R.

Ground Speed (Mph) — 160 (assumed) Positive Control from FL 240 through 500. For procedures, see write-up above or Flight Information Manual.

Distance (Miles):	Times (Min.)
6	2
7	2
8	2
9	2
10	2
11	3
12	3
13	3
14	3
15	3
16	3
17	3
18	3
19	3
20	3
21	3
22	3
23	3
24	3
25	3
26	3
27	3
28	3
29	3
30	3
31	3
32	3
33	3
34	3
35	3
36	3
37	3
38	3
39	3
40	3
41	3
42	3
43	3
44	3
45	3
46	3
47	3
48	3
49	3
50	3
51	3
52	3
53	3
54	3
55	3
56	3
57	3
58	3
59	3
60	3

or: 133 or 134

or: 500 approx 8

or: 600

EVANSVILLE (CH 100M) 113.200 RVV

LOUISVILLE (CH 108) 114.6 (100)

INDIANAPOLIS (CH 100) 113.9 (100)

— Flight Safety Foundation, Inc.

Mental Dead Reckoning

Pilots Safety Exchange Bulletin 61-103 (May) featured an article authored by Captain Thai May on the subject of aircraft navigation and the value of dead-reckoning in this modern age. The article enjoyed considerable favorable response, and among the letters was one from a former navigator on all-weather fighters for the RAF. Following is a portion of this letter, plus four interesting rules-of-thumb.

"I was delighted to see someone advocating the use of 'mental D.R.' because, in my opinion, it has been very much neglected lately. I flew as a navigator in the RAF where mental D.R. was at times essential to our operations. Here are some rules-of-thumb which may be of interest:

1. Flying at 20,000 feet the reading on the Mach meter can be directly interpreted as your true airspeed in (nautical) miles per minute flown.

e.g. 0.6 Mach at 20,000 feet is 6 nm per minute = 360 k.

At 40,000 feet the IAS is

TAC ATTACK

almost exactly one-half true airspeed.

e.g. 250 k IAS at 40,000 feet is 500 k TAS.

3. To compute time for distance to go, there is a simple technique which avoids the use of tables. The idea is to convert your known (or estimated) ground speed into miles per minute flown.

e.g. Distance to next fix: 72 nautical miles
Ground speed: 360 k

$$\frac{360k}{60} = 6 \text{ Miles per minute}$$

Time for 72 nm: $72 \div 6 = 12 \text{ min.}$

If you are flying at some speed which is not an increment of 60 k, there is a method of getting around this to avoid mental computations of fractions of miles per minute.

e.g. Ground speed: 270 k
This lies halfway between 4 and 5 mpm (240 & 300k)

Distance to go 20 nm

Time at 4 mpm = 5 minutes

Time at 5 mpm = 4 minutes

Since 270k lies between the

two speeds, the time for 20 nm is 4 1/2 min.

This may appear a bit complex at first sight, but after a little practice I found it effective.

4. Also useful is the '1 in 60' rule. An angle of 1 degree subtends a distance of one mile over a distance of 60 miles. From this it follows that at 30 miles, the distance off for one degree is 1/2 mile, etc.

e.g. You are flying an airway for which the VOR radial is 270 degrees. Your VOR is in fact indicating 260 degrees (TO), and by D.R. (or DME) you have 30 miles to go. You want to know your position relative to the airway centerline:

30 miles = 1/2 mile for 1 degree

$$\text{VOR error} = 270^\circ - 260^\circ = 10^\circ$$

$$\text{Track error} = 10 \times 1/2 = 5 \text{ nm}$$

In this example the rule is, of course, subject to VOR errors, but apart from this it is accurate up to angles of 15 degrees over 60-mile distances."

Any comments, pilots?



this

or

this



ABOUT THE ONLY time men pay any attention to style changes is when they write the check to Milady's Hat and Dress Shoppe. However, it looks as though a good percentage of us are going to be concerned with a style change of our own. Like in writing the check for the little lady's foray, there isn't much choice. It's either Lean and Mean or Stout and Out.

In keeping with the President's interest in physical fitness the Air Force is starting a program designed to trim personnel to a fighting weight. This will cause some grumbling but before YOU start, search for the possible advantages. In other words, try the program from a dietetic standpoint and utilize the time you'd like to spend grumbling at gainful exercises.

There's no need to pour over a lot of facts and figures (pun intended) to realize the benefits of a trim physical condition

nowdy, POT-NER

Just the point of less foot pounds of work expended should readily appeal to you, particularly if you're lazy. If you slim down to about 10 pounds below maximum desirable, you will use much less energy during working hours.

The serious side of the page points to the many advantages of the new look. You'll be in better shape to make a successful bailout if you have to use the do-it-yourself method, and will stand a much better chance of surviving should you bailout when the wind is brisk and the terrain rugged, to name but a few. These things are worth considering. Less strain on your utility pump and a greater life expectancy are additional points in your favor.

However, slimming down is only part of the program. It takes exercise to really condition your body and keep your muscles in tune. This also helps to balance the calorie budget.

Calories you consume in excess of what you need are like the boll weevil—they gotta have a home. So, Potner, they usually settle in form of fat and in the area of the waistland.

As you read the bathroom scales tomorrow morning, take a look at your profile in the mirror. The two readings will give you a clue on whether you can expect trouble with the new physical fitness rating test. If your weight is well within limits and the profile trim, try 21 fast pushups. After completing them if you can recite the first verse of Paul Revere in one breath you're in, if not, you're in trouble.

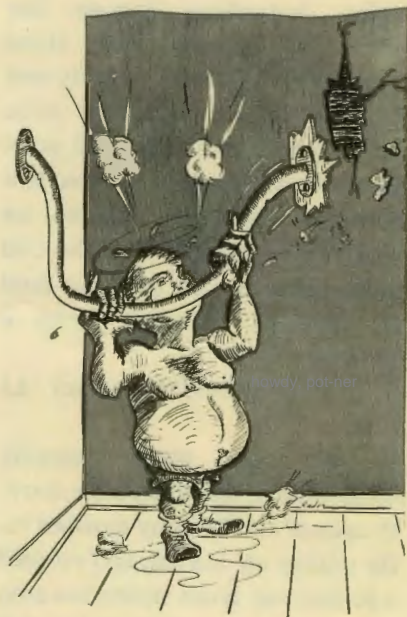
For those of us in trouble there are two natural resources available to help meet requirements for the elite. Diet and discipline.

Before starting a diet, check with the Flight Surgeon. Chances are he has one prepared for you. It will be sure

and safe but don't expect an overnight miracle. The discipline you can start immediately with a minimum of three quick table push aways a day.

There are other things you can do during the course of your regular weekly routine. For instance you might try parking your car a little further from your desk each day and doing a little brisk walking. Use more self labor instead of devices such as power lawnmowers, power sanders and power toothbrushes (don't laugh, they're available).

If you'll follow these simple instructions and plan some exercise into each day you'll find the rewards gratifying.



Chances are you'll keep drawing that check with the fly pay coupon attached and before you know it you'll be part of the new look, be fit to fight, and Pardner, that's the main reason you're being paid, isn't it?



THE OLD SARGE stared out the rain-streaked window, ignoring the paper work piled on his battered desk. On days like this he didn't mind the paper work quite so much. There's nothing like a firm soggy rain to dampen one's enthusiasm for working out on the line on the big iron birds.

As he was about to return to the paper war, a young Tech came splashing across the street and up the walk. Head down, he was so thoroughly wet that he didn't hurry, or even attempt to avoid the small pond that always formed in the low spot on the walk. Instead, he waded thru the middle. The Old Sarge grunted and said out loud to himself, "Tommy with a problem."

"What's that?" asked Lt Green.

The Old Sarge merely nodded his head toward the door. It opened and Tommy sloshed in. He pulled off his cap and worked a folder out from under his rain coat and strode toward the Old Sarge's desk, then saw that Lt Green was watching him and mumbled, "Good morning, sir."

"It sure is." Lt Green replied, "We could sure stand some moisture tho."

Puzzled, Tommy looked

again at the Lt, only to find him intently reviewing a 781 from the stack on his desk.

"Coffee?" asked the Old Sarge, shoving a chair toward the younger man while he filled the visitor's cup. While Tommy added sugar, the Old Sarge opened the Form 781 his visitor had laid on the desk and checked thru the more recent entries. "UHF intermittent . . . unless I miss my guess, this is the second time it's been written up, right?"

Tommy nodded. "Yes, it was written up yesterday afternoon and we checked it out. It worked, but we replaced a weak tube and signed it off. Then on this morning's mission, it turned up bad again. We've been checking it and can't find anything wrong. It checks out. The radio man wanted to replace it with a spare and write it off, but I thought I'd better check with you first."

The Old Sarge nodded his approval. "Now you're learning. You did right."

"Frankly, I was afraid it might go out on the next flight... and I didn't want another one of your lectures."

The Old Sarge grinned, "How'd you check it?"

Tommy looked puzzled. "We just pulled it, and bench checked it, you know . . ."

"No, I mean did you check it in the bird?"

"No. We found a weak tube, tho', and thought that was it."

The Old Sarge scratched his head, "I'd bet that the aircraft system is causing your trouble. After all, it checked out on the bench, but didn't check when the pilot tried it on the aircraft system . . . It might be that you have moisture in the antenna cable or a cannon plug. I don't know where you'd find moisture today, but don't release it until you run it down, O.K.?"

"I was afraid you'd say that."

"I don't have much choice." the Old Sarge mused, "After all, the pilot really needs a good radio in weather like this, and it's up to us to give it to him."

We sincerely hope Lt Green will recover in time to be with us next month. As we go to press, his condition is critical. The diagnosis . . . near asphyxiation from the Ole Sarge's promotion cigars. Yes, that worthy has now reached the grade of top zebra and we're here to congratulate him, despite the cigars.

—The Ed

TAC TIPS

SUPPORT PAD.

There has been some concern about the Lumbar Support Pad expanding enough to malposition a pilot for ejection when the canopy is jettisoned and pressurization lost. Folks out at George AFB, California, ran an evaluation and found out it ain't necessarily so.

A representative F-100 pilot was strapped in a like-type ejection seat mounted inside a low pressure altitude chamber. He wore complete flying equipment including BA-15 back pack and MXU-22/P Lumbar Support Pad and was subjected explosive decompression from 8,000 feet to 500. This was a change from 10.91 PSI to 5.5 PSI in 1.58 seconds. The pilot said he definitely felt the support pad expand and thought it might have moved his lower spine forward to an improper ejection position.

Another run was made with a stationary measuring device in the seat with the subject (an aviation physiologist). The pad was given fifteen pumps---the average number pilots claimed they used for comfort. This time the decompression was equivalent to the change from 12,000 to 35,000, a pressure change of 5.89 PSI. The measured forward movement of the subject's spine under these conditions was 7/16ths of an inch. Present ejection seat criteria allows a maximum of one-and-a-half-inches forward movement.

Conclusion?? The MXU-22/P Lumbar Support Pad isn't dangerous provided it is pumped up less than 15 squeezes and the decompression differential does not exceed 5.89 PSI in 1.58 seconds. At least it proved that way for the individual tested . . .

DESCRIPTIVE QUOTES.

These extracts from OER's taken from U.S. Army files came to us by way of Williams AFB and although they don't apply directly to aircraft accident prevention they might have some in direct ramifications:

"Can express a sentence in two paragraphs any time."

"A quiet reticent officer. Industrious, tenacious, careful and neat. I do not wish to have this officer as a member of my command at any time."

"His leadership is outstanding except for his lack of ability to get along with subordinates."

"In any change in policy or procedure, he can be relied upon to produce the improbable, hypothetical situation in which the new policy cannot work."

"Needs careful watching since he borders on the brilliant."

"Open to suggestions but never follows same."

"Is keenly analytical and his highly developed mentality could best be utilized in the research and development field. He lacks common sense."

"Never makes the same mistake twice but it seems to me he has made them all once."

REPORTING FOR SAFETY.

Undetermined findings in aircraft accidents point clearly to the need for greater emphasis on Incident Reports, Operational Hazard Reports, Unsatisfactory Reports, trends in maintenance deficiencies, etc. Such tools, when properly used, point the way to before-the-fact accident prevention.

TAC TIPS

TRAGEDY OF ERRORS.

From a report of a Civil Aircraft Accident . . . Due to fuel mismanagement, number 3 and 4 engines ran the number 4 tank dry. The crew was unable to restart either engine, feathered them and elected to land at a nearby airport. Both pilots were qualified captains (aircraft commanders) with the one in the left seat being technically in charge. As the aircraft approached the field he obtained clearance to land on runway 33, meanwhile the pilot in the right seat turned toward runway 02 and put the gear selector to the down position. The landing gear didn't extend, due to mismanagement of the hydraulic system, and a go-around was attempted. During the go-around number one failed due to overboosting. The crash occurred shortly afterward.

Crew coordination is extremely important during an emergency. When more than one qualified aircraft commander is on board, it is even more important than normal to establish who is in charge and to outline the general rules for handling possible emergency situations.

RED LINED.

Some overseas units have painted MA-1A tail hook cables a bright international orange in the belief that the more visible cable will furnish pilots an additional reference and help prevent short landings. It should also remind pilots that the cable is available and to lower the tail hook if they need the barrier.

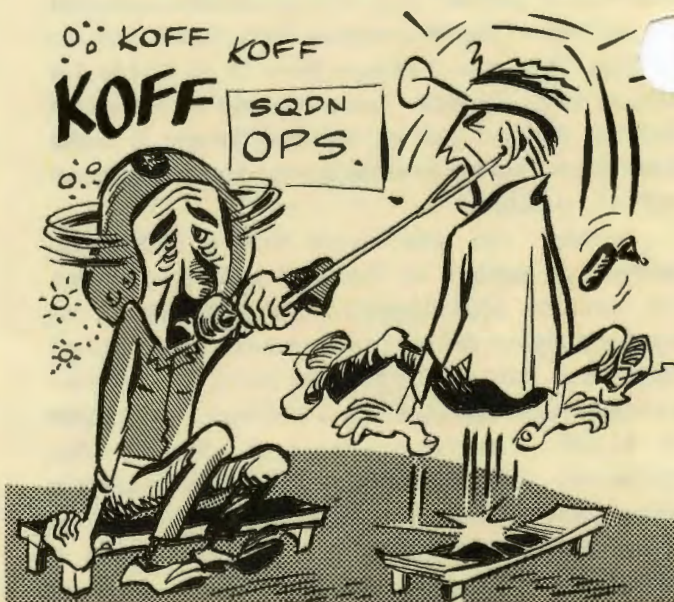
A MAINTENANCE OFFICER SPEAKS TO PILOTS.

My only contact with most of you is through Forms 781. Actually, the majority of you pilots do an excellent job of filling out the forms, however, I have noticed a tendency for a few of you

to become slightly negligent. You wait until you return home from an extended cross-country flight to list all the discrepancies that have accumulated since your departure. You may not think that this is a bad practice . . . that it expedites your trip, but according to the write-ups I've found some of these discrepancies are grounding ones that often existed from the first leg of the flight. It looks rather ridiculous and not very smart to continue a flight with these grounding discrepancies existing on your aircraft. Besides being foolhardy, it's not legal.

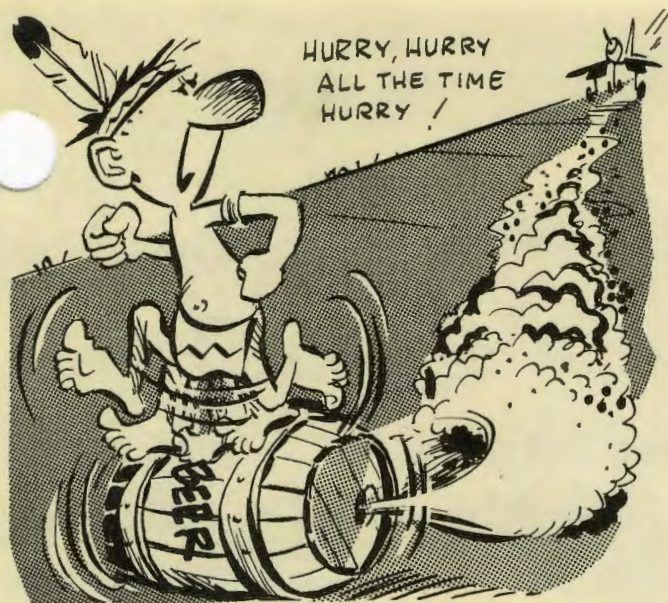
You should write up discrepancies and have them corrected as they occur. If you do have work performed on the aircraft while at other bases, please have the information entered in the forms. It helps us keep track of quality control and maintenance practices here at home. We want to follow-up when follow-up is required. If you have trouble writing up discrepancies, drop in to see me and I'll give you a quick briefing. Yours truly for better maintenance and safer flying.

—Lt Green.



ACCIDENT PREVENTION.

Commanders! What would the Flight Surgeon find if he examined all the pilots in your organization after they flew today? Would they all be in top physical condition, or would they have been flying with various physical ailments? It's worth checking!



COCKED NOSE GEAR.

Just before rotating to takeoff attitude, an F-105 pilot felt the nose dip and start to shimmy. He completed his takeoff and retracted the gear but received an unsafe indication for the nose gear. His wingman reported the nose gear strut stuck at a 45 degree angle with the wheel itself cocked sharply to the right. The pilot extended the gear and received a safe indication; however, the nose wheel remained cocked.

While he burned fuel down to 2000 pounds, the fire department foamed the runway from 2500 to 5000 feet. After touching down 700 feet from the threshold at 160 knots, he lowered the nose gently into the foam and deployed the drag chute. Speed was 130 knots at this time. The aircraft overran the foamed area at 90 knots and veered sharply to the right. The pilot countered with left brake and the nose wheel centered.

A nicely handled emergency. The pilot asked for foam and used it to good advantage . . . although the foam strip could have been laid a bit longer. In emergencies induced by nose gear problems, the pilot should ask for a foam strip that is fairly narrow, to permit him to straddle it with the main gear. This holds true provided the main gear are not set too close together. Using this technique a pilot can have unrestricted braking and should be able to bring his machine to a complete stop with the nose wheel still in the foam. A broken O-ring in the nose wheel steering follow-up tube assembly allowed air to escape from the nose strut, causing the malfunction.

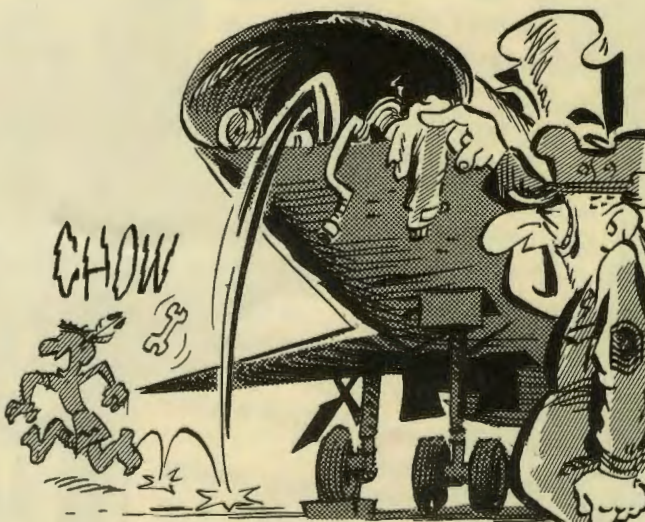
TAC ATTACK

TANKS A BUNCH.

When it came time to land, an F-100D pilot couldn't persuade the right main gear to come down. He elected to land with all four external tanks on but empty, speed brakes extended and nose and left main gear down and locked. He made a good landing and thanks to the tanks, damage was minor. Shaft assembly P/N 223-33331-2 broke, jamming the aft door lock on the right main gear door.

EVERYONE FOR OHR'S.

Many bases are emphasizing Operational Hazard Reporting by pilots only. Every effort should be made to enlist the cooperation of all personnel in submitting these reports. Operational Hazard Reports turned in by maintenance, operations, installations, AACS, supply, and transportation personnel, etc. can be a source of valuable information for use in the accident prevention program.



LITTLE ERRORS.

Surprising as it may seem, most of the maintenance errors that cause aircraft accidents are not committed on a complicated maintenance operation. Instead, they are simple things such as a tool left loose in the aircraft or a bolt left unsafetied. Many, many times, such 'little' oversights are created when one man starts a job and leaves it for another to finish.

Ghostly Gab

INDIRECTLY, THE NEW physical fitness program is the reason I'm here. No, I'm not trying to get excused from the program. I think it's a fine thing. In fact I've made it a habit to walk two miles every evening just before I retire. Furthermore, I've almost speeded up to the required time interval.

The far corner of the salvage yard happens to be exactly one mile from my doorstep and I turn around there. I'm telling you this to explain why I happened to be near the salvage yard at midnight . . . I know it was midnight, because I had just checked my watch and was starting to return. That's when I heard the voices.

They were clearly coming from the salvage yard and my first impression was that someone was doing a little moonlighting. How wrong I was! I found that out when I got close enough to hear.

Who was talking? I'd rather not say, instead, I'll relate the conversation as accurately as I can and let you judge for yourself.

The following story is a fictionalized account of an actual aircraft accident. Cause factors and the history of flight are accurate and were extracted from the accident report.

The speaker, whoever it was, spoke quite bitterly, "The way they treated me! It was shameful. A line going from my utility hydraulic manifold to my hydraulic system transmitter broke, right at the B-joint. Really, at the time I wasn't worried. My pilot was capable and as he put it, the emergency was no sweat. He put my gear down with the emergency system and brought me in slick as a whistle."

The conversation intrigued me, so I made myself comfortable by the fence, and listened. He, or rather it, continued.

"I was certain that my troubles were over. This line had been worrying me for quite sometime, shuddering and shaking everytime my pressure fluctuated. They sent a hydraulic specialist out and altho he followed T.O. 1-1A-8 to make the repair . . . I soon grew worried."

At this point a different voice answered the first, speaking low and obviously trying to soothe the first speaker. It said, "Well, if the hydraulic specialist followed T.O. 1-1A-8 why did you become worried?"

The first speaker answered, "He made up a new line for me and installed it exactly like the old one! He didn't try to find out why the failure occurred. He didn't check the T.O.'s on me. He just patched up the line."

The second voice answered, "Well didn't the inspectors check it?"

"Oh sure," replied the first speaker . . . "but he just looked to see that both ends were connected up tight, and that's about all. I could have told him that I was headed for trouble. The hydraulic specialist didn't flare my new line correctly and tightened the B-nut 'way too tight. That line was over 50 inches long and was only supported by two brackets. All the other birds have three brackets holding the line, two of them have four!"

I could tell that the first speaker was getting more and more agitated. Apparently the second one was trying to get it to talk, to get the bitterness out of its system. I must have been listening to some sort of psycho-analysis. Anyway, the second one said, "Now calm yourself, I'm sure they'll be able to fix you and you'll live to retire out at Tucson yet . . . what happened next?"

"Well," the first speaker replied in a calmer tone of voice, "the test hop was alright,

and so was the next flight. But on the next one we took off on a wet nasty day and my new line broke, right at the B-nut. We had just gotten to altitude and my pilot headed right back toward home making all kinds of radio calls . . . I just knew he was going to bring me in heavy on fuel with the runway all slick, and sure enough he did."

The second voice interrupted, "Didn't he drop your external tanks?"

"No he didn't" the first replied, "If he had just thought to turn them off and depressurize them when he first started home he could have dropped them just before he landed me . . . and could have gotten rid of a whole lot of weight. But he didn't. He didn't even drop them on the runway after the drag chute failed."

"The drag chute failed?" The second voice asked, "How terrible."

"My pilot did pretty well in a way. When it failed he pulled my nose up so high my aft end rubbed the runway. When I couldn't stand it any more I brought my nose back down. My pilot immediately started braking, but he had trouble keeping me straight on that wet, slick runway and soon used up all my emergency brake pressure. The tanks kept the barrier from catching me . . . and, well, the next thing I knew I was out in the mud, with this crowd of people standing around looking sad and wondering what could have happened."

The first speaker sighed making one of the saddest

sounds I've ever heard, then continued. "Why did this have to happen to me? If that mechanic had only wondered why my line broke in the first place and had made an attempt to correct the condition instead of being satisfied with just fixing the break . . . If the inspector had just done the same thing . . . or if the pilot had just planned for this emergency a little better and had punched off my tanks . . . or had conserved my emergency system . . ."

The second voice broke in and said, "But the pilot's handbook is vague . . . it doesn't really give the pilot honest advice on what to do with your tanks when it looks like you'll hit the barrier . . ."

"True" said the first speaker, "but the squadron knew my handbook was vague, they should have insisted on a clear answer. My dad would have given 'em the right procedure if they'd only asked him."

That's when I sneezed, and both voices stopped . . . I waited for several minutes, but they never spoke again. All right doc, you asked me what had been bothering me lately. I know it's hard to believe, but so help me, I've told you the truth. Frankly I've been afraid that I've gone off my trolley. Perhaps it's the diet or all the exercise. Now wait! You don't have to phone for the straight jacket squad, I'll go quietly. Oh? You're dialing the safety office . . . you think I can help with the new accident that has everyone so puzzled . . .

RECOGNITION

CREWCHIEF OF THE MONTH

T/SGT GERALD J. BACKER of the 4529th Organizational Maintenance Squadron, Nellis Air Force Base, Nevada, has been selected as the Tactical Air Command Crew Chief of the Month for the exceptional manner in which he has performed his duties as an F-105D Crew Chief. During the period of the nomination, Sgt. Backer maintained a high incompletion rate for his aircraft which resulted in it flying 30 sorties for a total flying time of 37 hours. This was more than any other Nellis AFB F-105 flew during the same period. This feat is particularly noteworthy considering the fact that his aircraft was on the ground for several days due to an engine change. Sgt. Backer's outstanding performance is denoted by his capable management of personnel and equipment and by his desire to excel.



Maintenance Man of the Month

MAINTENANCE MAN OF THE MONTH

For his superior performance as NCOIC of the Production Analysis Section in the 464th Troop Carrier Wing at Pope Air Force Base, North Carolina, T/SGT CLIFFORD S. DULEY has been selected as the Tactical Air Command Maintenance Man of the Month. Because of his excellent knowledge of maintenance and maintenance documenting procedures, Sgt. Duley was assigned as Technical Advisor on a Ninth Air Force Advisory Assistance Team during the recent reactivation of Air Reserve Units at Charleston and Barksdale Air Force Bases. On another occasion he accompanied and assisted an Advisory Team on a visit to the Rhode Island Air National Guard. He has received letters of appreciation from the Commanders of these units for his outstanding contributions during these visits. His effectiveness and resourcefulness was demonstrated recently by the efficient way he implemented the new changes in AFM 66-1, AFM 171-4, T.O. 00-20A-1 and Aircraft Field Maintenance Shop Code Books.



PILOT OF DISTINCTION



Lt. Paul D. Lambrides of the 615th Tactical Fighter Squadron, England Air Force Base, Louisiana, has been selected as the Tactical Air Command "Pilot of Distinction" for the quarter ending 31 January 1962. Lt. Lambrides was participating in a night refueling mission in an F-100D aircraft. He had just departed the tanker after taking on a full load of fuel and was flying at 22,500 feet. Suddenly, and without warning, the aircraft pitched up violently, stalled, rolled inverted and entered a spin. Lt. Lambrides jettisoned the external stores, followed correct spin recovery procedures and regained control of his aircraft at 16,000 feet. After checking slow flight characteristics, he made an uneventful landing at England Air Force Base. A bearing damaged during installation by the depot, caused the control torque tube to bind and allowed full nose-up trim to be stored in the artificial feel bungee. Sudden release of the nose-up trim caused the pitch up and subsequent spin. Because Lt. Lambrides had the skill and presence of mind to take proper corrective action and regain control of his aircraft during this nighttime emergency, investigators were able to inspect his aircraft and determine the exact cause of the incident. When other aircraft in the unit were checked, four were found to have a similar condition existing.

FM DEPUTY IG FOR SAFETY NORTON AFB CALIF
TO TAC LANGLEY AFB VA

BT

UNCLAS AFICS 03-090 FOR GEN SWEENEY FROM MAJ GEN GRIFFITH. 314 TROOP CARRIER WING, SEWART AFB, TENNESSEE AND 170 TACTICAL FIGHTER SQUADRON, CAP. APRT., SPRINGFIELD, ILLINOIS, SELECTED FOR USAF FLYING SAFETY AWARDS. PLAQUES BEING ENGRAVED. WILL BE FORWARDED FIRST CLASS MAIL IN APPROXIMATELY TWO WEEKS.

BT

07/2349Z MAR RJWZNF



RAGGED MAINTENANCE.

Complete loss of oil pressure on one engine of a business aircraft caused the pilot to make a single engine instrument landing. This is not one of the most comfortable occurrences in aviation.

Investigators found the oil screen completely covered with a coating of fibrous material. More of the stuff was found on removal of the sump plug. A shop towel 12 inches square had lodged partly in the oil pump and partly in the oil intake line.

The mystery of how a towel of this size could have gotten into the oil intake line has not been solved. It is reasonable to suppose that somewhere, sometime it was purposefully stuffed into the filler neck.

Airplanes and maintenance procedures can be made goof proof, but no one can make them damn fool proof.

—FSF Aviation Mechanics Bulletin

SAFETY PROGRESS.

Another unit doing its best to improve safety and prevent accidents had a few pair of high visibility gloves made up by the parachute shop. The gloves will be used by crew chiefs and alertmen for giving taxi signals to aircraft operating on the ramp and in adjacent areas during the daytime.

UPSIDE DOWN AND BACKWARDS.

While on a test hop over an undercast, the pilot of an F-86L became disoriented when he attempted to return to the base by homing on the VOR. He knew his approximate position, but the VOR seemed to give an erroneous indication. After landing he found that the ID-250 instrument was installed upside down with the index at the bottom of the instrument. This caused the No. 2 needle to indicate 180 degrees out of phase, and the heading of the aircraft was at the bottom of the instrument, rather than the top. "Considerable effort," the reporting officer states, "was required on the part of the technician to install the instrument in this manner. However, he proved it could be done."

—Interceptor

NEW AIRCRAFT – OLD PROBLEM.

As the engine of an F4H was run up to check for engine fuel and oil leaks, a mechanic walked too close to the aircraft and was sucked into the intake. His jacket, glasses and sound attenuating equipment were ingested before the engine could be shutdown. The man was fortunate and escaped with his life. The aircraft was less fortunate and received substantial damage. In addition the engine had to be overhauled. GROUND SAFETY INTAKE SCREENS WERE NOT BEING USED.

GROWING PAINS.

Old age is finally catching up with the Gooney bird! The center wing lower attaching angle got tired and broke on one recently, causing a major accident. As a result of this accident, T.O.s 1C-47-522, 522A and 522B were published to require an inspection of the attaching angle on all versions of the good bird (C-47, C-53 and C-117). Pilots were warned to observe gross weight limits and to avoid areas of known turbulence whenever possible. When unable, they are to observe proper technique and keep speeds as low as possible.

Meanwhile, a permanent fix is in the mill. This will be T.O. 1C-1-610, and will be accomplished at depot level.

NOISE.

The good Lord provided the ass and the elephant with ear flaps that can partly close the external ear canal and thus muffle sound. Alas, man was not so favored (Alas? Ed.). A loud noise need not rupture an eardrum to produce harmful effect. It can raise intracranial pressure, tip up perspiration, stimulate muscle contractions, dry up the flow of saliva, and shut off the gastric juices. Thus noise actually interferes with digestion . . . but enough is enough. Doctors are concerned about smog and stench in the atmosphere. It is time to recognize that noise can also be a health menace.

Be certain that all your flight-line personnel use ear plugs, ear protectors or noise suppression helmets.

—Hot Dope Sheet

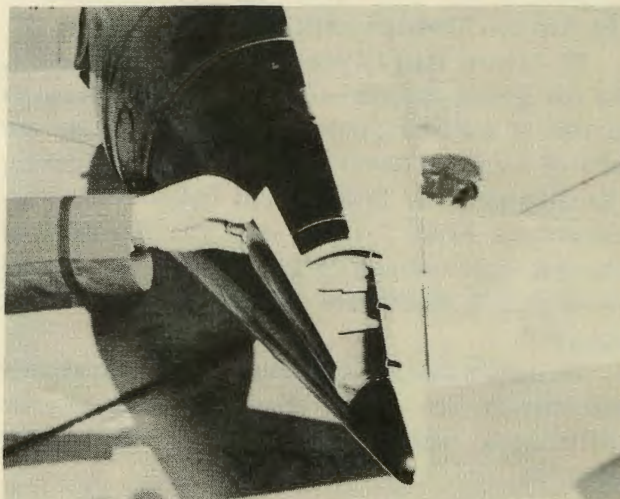
INDIVIDUAL RESPONSIBILITY AND MOTIVATION.

The attitude of maintenance and supervisory personnel greatly affects the number of maintenance errors. Every man must take pride in his work and be personally responsible for its quality and completeness. Such a state of mind is closely associated with morale. Action to establish it is urgently needed and must be undertaken at command levels and at each level of maintenance supervision.

TCTO RECORDS.

SAC units no longer maintain DD Forms 829-1 for the airframe for B-47, B-52, B-58, KC-97 and KC-135 aircraft. Instead, they use the AFLC-K75 Reports. This is indeed a profitable return from their 66-1 data. This is the goal of TAC, but is a goal that cannot be attained until units insure the data submitted to their AMA is correct.

AFLC wants to provide us with current, complete, and accurate K-75 reports. It is necessary for us to help them by pointing out machine errors or omissions. The way to do this, without losing our tempers, is outlined in paragraph 6-4, T.O. 00-35D-1, 1 October 1961, and TAC letter "Clarification of Paragraph 6-4, Section 6, T.O. 00-35D-1," dated 19 February 1962.



FOREIGNER IN THE COCKPIT.

A recent visit to a TAC base revealed that over two-thirds of their T-birds didn't have a tip tank modified to carry the gear and tip tank safety pins. Without this mod the pins must be carried in the cockpit or left at home. Whether in a flight suit pocket or on the floor beside the seat, tip pins are dangerous and foreign to the cockpit. If placed on the left of the seat they could obstruct the gear lever—if placed on the right they could obstruct the canopy jettison T-handle or short out the seat adjustment switch. Estimated cost of this modification is less than ten dollars per aircraft—at this price, why wait?



PUBLICATIONS UP-TO-DATE.

It is imperative to use up-to-date technical information for operating, servicing, and maintaining aircraft and equipment. Since equipment and methods are constantly being changed, technical publications can become obsolete in a short period of time. Regular schedules for revisions, changes, and re-issues of T.O.'s are maintained and you should check periodically to see that you have the most recent ones.

To insure that current publications are used, the Air Force periodically publishes and issues a series of indexes giving the number, title, and date of each publication. Two of these indexes, The Handbook of Indexes and Publications Requirements (T.O. 0-1-01), and The Handbook of General Publications (T.O. 0-1-02), are issued monthly. All others are issued quarterly, or as required.

To insure that you are using the latest available information, you should check the dates of your publications against the indexes at regular intervals.

Keeping your technical publications file up to date is well worth the effort since this will give you the latest information and help insure that your work is always done correctly.

TCTO DATA CODES.

AFLC advises that the next change to T.O. 00-20A-1 will contain the following instructions:

When a supplement is issued to a TCTO and additional maintenance work is required, a new AFTO Form 212 will be required. This will provide input data code numbers for configuration accounting. When no additional work is required by the supplement, an additional AFTO Form 212 is not required.

SHINE?

A new paste will soon be available to use when cleaning or polishing the aluminum on your bike. Look for it on the Qualified Products list. It will be known as MET-ALL 1187, and will be available as soon as the Bureau of Naval Weapons Engineering finishes the latest revision to MIL-P-6888A (ASG).

WHEN DISCOVERED CODES.

The "When Discovered" codes contained in certain work unit code manuals are incomplete. T.O. 00-25-06-1-1, 1 October, is one example. AFM 66-1 contains the full and current list of "Action Taken," "When Discovered," and "How Malfunctioned" codes. The codes listed in AFM 66-1 should be used in the event you find omissions in a work unit code manual. AFLC advises us that these codes books are in revision to insure that all code contents are complete.

F-105 CANNON PLUG COMPRESSION TOOL.

When you install or remove pylons on the F-105, use the authorized tool. Access to the arm is limited and if you don't use the special pliers (FSC 5120-772-4750) or if you misuse them, you'll damage the cannon connector outer shell. This can result in the internal spring retainers being damaged, improper connector seating, and bent or broken pins. Then the stores will fail to release or will fall off when they're supposed to stay on. The pilot will have to abort his mission, you'll have to work overtime trying to find the trouble, the stores might fall in your back yard and kill your chickens . . . and we'll all lose a lot of money.

STUCK STICK.

After finding that control stick movement was restricted, an F-101 pilot from another command returned to his home base and made an uneventful landing. A quick check disclosed accumulated rubbish in the stick well. After this debris was removed normal movement was regained. This is an old item that apparently needs repeating from time to time. Is this area being kept clean in your aircraft?

TAC TALLY

1 FEB-28 FEB

JANUARY TALLY ACTIVE UNITS

UNIT	ACDTS*	INCDS
831 AD		8
832 AD	1	5
4 TFW		2
108 TFW		2
113 TFW	1	7
117 TRW		
121 TFW		1
122 TFW	1	
131 TFW		2
401 TFW		6
354 TFW		1
4510 CCTW	1	4
4520 CCTW	1	2
837 AD		2
839 AD	2	2
64 TCW		1
435 TCW		
442 TCW		
464 TCW	1	
4505 ARW	1	1
4400 CCTS	2	1

JANUARY TALLY GUARD AND RESERVE

UNIT	MAJOR	MINOR
140 TFW	1	1

Conscientious Reporting

MAJOR ACCIDENT RATE

TYPE	1962	1961
ALL	17.9	10.6
F-105	0	0
F-104	36.5	27.2
F-101	83.3	0
F-100	16.1	16.7
F-86	77.8	0
F-84	15.4	45.7
B-66	0	0
T-33	0	0
KB-50	52.6	15.9
C-119	0	0
C-123	22.4	22.4
C-124	0	0
C-130	0	0

ACCIDENT FREE

(MAJOR & MINOR)

JET

ACTIVE	MONTHS		ANG
474 TFW	11	39	123 TRW

CONVENTIONAL

ACTIVE			RESERVE
4430 ATG	39	63	434 TCW
314 TCW	31	54	302 TCW
		52	94 TCW

*MAJOR AND MINOR

ATTACK

*PROJECTED



Here's the latest word for Jet and Turboprop pilots on logging penetrations and approaches in column G of the Form 781, part 1.

* Use 'A' for a precision approach and 'B' for a non-precision approach.

* What's a precision approach? That's a PAR

or ILS approach that gives glide slope information. All the rest, including ASR, are non-precision. Check 60-3 for the definition.

* You can log both a precision and a non-precision on the same approach provided the final phase is completed with GCA or ILS. The condition must also be logged. Use 'H' for hood and 'W' for weather. For the landing itself use 'L' for landing on a hard surface and 'Z' for water landings.

* No strict rules have been laid down on when to log a weather penetration. Theoretically, if you punch thru a cloud, it's a 'W' penetration.

* Conventional aircraft pilots will not log the 'W' or 'H' symbol. Instead, they will log only 'A' and 'B' symbols with 'L' or 'Z' for the landing itself.

* Conventional pilots can also log a precision and a non-precision approach on one letdown provided the letdown is terminated with precision final.

* Procedures for breaking down and logging flying time remain the same.

DATE	CREW CHIEF	ORGANIZATION	LOCATION	ACFT, T/M/S	AIRCRAFT SERIAL NO.					
4-1-62	SMS TIDY	SAMPLE								
LAST NAME—FIRST NAME—INITIAL GRADE—SERVICE NO. (ORGN & STATION IF TRANSIENT) PRINT PLAINLY		USE AS DIRECT- ED LOC- ALLY	ENTER DUTY SYMBOL IN UPPER LEFT BOX AND FLIGHT CONDITION SYMBOL IN UPPER RIGHT BOX. ENTER TIME FLOWN IN LINE THEREUNDER.		TYPE & NO. LANDINGS & APPROACHES PER INDIVIDUAL	FLIGHT DATA & TOTAL NO. OF LANDINGS	TIME			
A		B	C	D	E	F	G	H	I	
331290215A Easey, Bobby E. 2 ND Lt			P W	P			W B A L	TO Paul AFB	LANDING 06:20	
Lt Easey made a TACAN penetration, GCA approach and a full stop landing. His approach was in weather.			:30	1:45	:	:	1 1 1 1	FROM Bobbins AFB	TAKEOFF 04:05	
								MSN SYM 0	TOTAL LDGS 1	FLIGHT 2:15
4123A MEAN, IRA R. CAPT			P H	P			H B L	TO LOCAL	LANDING 09:00	
Capt Mean made a UHF/DF penetration, a low approach under the hood, then completed his flight with a VFR landing.			1:55	:05	:	:	1 1 1	FROM LOCAL	TAKEOFF 07:00	
								MSN SYM 0	TOTAL LDGS 1	FLIGHT 2:00
A0676759 EAGER, NATE O. MAJ			P H	P			H B L	TO LOCAL	LANDING 11:20	
Maj Eager made a RAPCON penetration, ADF approach under the hood, then landed from the ADF approach.			1:00	:10	:	:	1 1 1	FROM LOCAL	TAKEOFF 10:10	
								MSN SYM 0	TOTAL LDGS 1	FLIGHT 1:10
41240A TIGER, TIRED A. MAJ			P H	P			H B A L	TO LOCAL	LANDING 15:00	
TAT made a VOR penetration, ILS approach, entered the GCA pattern following his ILS low approach followed by a full stop landing. He flew his instruments under the hood.			:20	:10	:	:	1 1 2 1	FROM LOCAL	TAKEOFF 14:30	
								MSN SYM 0	TOTAL LDGS 1	FLIGHT :30

Letters to the Editor

DREAM DOCK.

Just read your fine article titled "Dream Dock" in the February issue of the TAC ATTACK. This is undoubtedly a sharp outfit, and my hat is off to them. But, with all the emphasis placed on fluid contamination, why didn't they cover the quick-disconnects? (Page 15) Shame!

SSGT E. E. DALES

Sarge, apparently your eyes are as sharp as the dream dock. The photos used in Colonel Anken's article were taken some time ago—back before anyone realized the full importance of capping off lines immediately after they are parted. However, you can be certain that the 108th follows this procedure at the present time... they're too professional not to.

EVERYONE'S HOLDING PAT!

... After studying the procedures set forth in 'Holding Pat' in the January ATTACK, I believe Major Hayden has an excellent knowledge of the new procedure and his entry is well taken. However, I believe my technique is somewhat easier from the pilot's viewpoint.

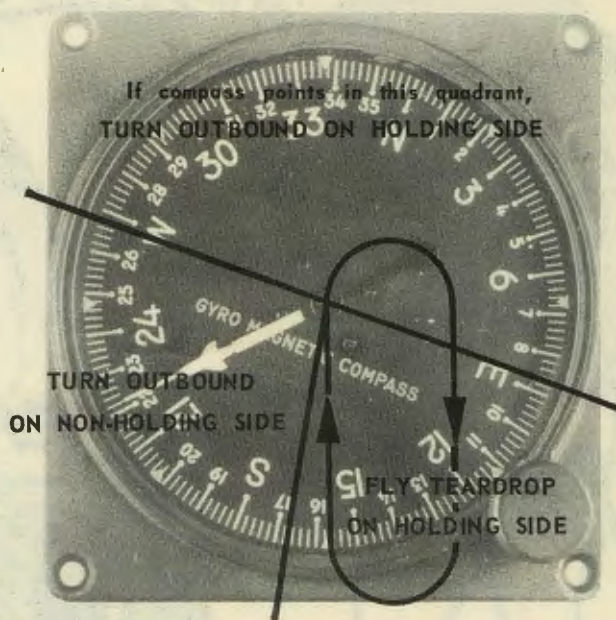
As with Major Hayden's system, the holding pattern is visualized on the directional indicator

dial, only I prefer to place the inbound heading at the top of the instrument. The fix is in the center and the holding pattern and quadrant arrangement is visualized as shown on the diagram. Entry turn instructions are determined from whichever quadrant the heading pointer is in when you are tracking inbound to the station. This system reduces the number of mental calculations and make it unnecessary to visualize the pattern upside down.

I believe that the fewer times a pilot has to turn the indicator, make mental calculations or visualize anything upside down, the less chance he has of making a mistake, getting vertigo or becoming lost.

Captain Joe C. Boyer
622 AFR Sqdn

STANDARD PATTERN



... It looks to us like you have a winner Capt Boyer. We've had good success using a revision of Major Hayden's system. We put the inbound heading at the top of the directional indicator and visualize the aircraft at the point of the needle, flying down the needle instead of up it... but like you say, we have to visualize the pattern upside down. Thanks for getting us right side up!



Princess

ANN

SAYS



CAP

all **OPEN LINES**
during **MAINTENANCE OPERATIONS**
CHECK T.O. 44H3-1-3