

JUNE 1961

ATTACK

TAC Attack June 1961 Bum Steer



BUM STEER



TACTICAL AIR COMMAND ATTACK

GENERAL F. F. EVEREST COMMANDER TACTICAL AIR COMMAND
LT GEN J. E. SMART VICE COMMANDER

FOREWORD

As the new fiscal year approaches, operations of the current year should be reviewed for areas that need improvement. Those found should be given special attention when future plans are outlined.

On any such review, the maintenance and improvement of individual pilot proficiency usually is included among the areas needing additional attention. This is particularly true for CRT programs. Improvement in this area can generally be made thru close monitoring and control of flight operations, by requiring that conscientious and thorough evaluations be made during required proficiency and instrument flight checks, and by using mission cards which require pilots to utilize every minute of every flight.

Closely related to proficiency is instructor pilot qualifications. Careful selection of conscientious instructor personnel, using high criterial standards, will also result in an increase in the overall proficiency of assigned pilots.

If these two areas are properly emphasized, a good foundation will be furnished for an improved operation during the coming year.

THOMAS D. ROBERTSON
Colonel, USAF
Director of Tactical Evaluation

Editor - Major Karl K. Dittmer

Assistant Editor - Major James G. Swensen

Art and Production - T/Sgt Heinz E. Hirsch

Use of funds for printing this publication has been approved by Hq USAF.

Articles, accident briefs and associated material published in this magazine are non-directive in nature. All suggestions and recommendations are intended as helpful and remain within the scope and intent of existing directives.

Information used in briefing accidents is extracted from USAF Forms 14 and may not be construed as incriminating under Article 13 of the Uniform Code of Military Justice. All names, dates and places used in accident stories are fictitious. Air Force units are authorized and encouraged to republish the material contained herein; however, contents are not for public release. Written permission must be obtained from Hq TAC

before material can be republished by other than Air Force organizations.

Contributions are most welcome as are comments and criticism. We reserve the right to make any editorial changes in manuscripts which we believe will improve the material without altering the intended meaning. Direct correspondence with the Editor is authorized.

COVER PHOTO

TM-76B MACE, tactical missile, is launched from Air Force Missile Test Center.

THIS ISSUE

OLD TAT	1
DEAR JOHN.....	4
AIR MUNITIONS	6
BUM STEER.....	8
TAC TIPS	10
TWO OF A KIND	12
DETONATION.....	13
CHOCK TALK	14



JUDGING FROM ALL the activity around base operations, June and the end of the fiscal year have again arrived. Ah yes, 'tis the season for brides, rice, thunder bumpers, and that last minute scramble for flying time by members of the desk set. Only the rice is predictable and then only if it isn't cooked by a brand new bride.

TAT acquired a bride a good many years back, along with a few bumps on his head. Since rice, except for the liquid variety, is hardly fitting fodder for even an old tiger, we'll confine our discussion to the other purely flight items. First, we'll take the least pleasant area – the last minute scramblers.

Some won't start scrambling soon enough and will have to meet a board. A good percentage of these will try to blame the ops section. Frankly, most ops sections bend over backward for these birds. They send out reminders, they make aircraft available for last ditch max efforts, and sometimes they are magnanimous enough to assume part of the blame for a failure. This business of meeting minimums is the responsibility of the individual pilot. All ops is obligated to do is to make aircraft available – reasonably available. If either party cancels excessively, then the other has reason to squawk. The secret of meeting minimums gracefully is to spread 'em out and work on 'em some each quarter – getting everything done as early as possible. By doing this, you don't have so much trouble competing for aircraft, and are able to maintain a

better overall proficiency – which is the reason for most of this jazz in the first place.

"But – I can't find the time," this group wails in a minor key. To this we say, ding dumb dang it! Take the time! Use flying to break the monotony of your workweek – you may even actually increase your output by doing this. And that's like having your cornpone and eating it too.

Now for thunder bumpers. You've heard a heap about penetration speeds and altitudes, hazards, hail, ice and such. There's a heap of fiction mixed with fact on the subject and we aren't about to palm ourself off as an expert. To the younger throttle benders – do as us older troops and stay clear of 'em if you can. *BUT, IF YOU DO FUMBLE AND FALL INTO ONE, DO IT GRACEFULLY. DON'T GO IN SHAKING LIKE A LEAF EXPECTING TO GET SMASHED AND BASHED OUT OF YOUR YOUTH.* TAT has been thru at least half a dozen storms at 25,000 feet, supposedly a so-so altitude as far as turbulence goes, without encountering anything worse than a series of moderate bumps. On one such trip a good buddy followed us thru, at the same altitude, just 15 minutes behind, and had an exceptionally rough flight. He was flying the general's T-bird, which was nicely painted and polished, and this may have had something to do with it. Our roughest encounter was at 35,000 feet and resulted in a battered nose and peeled paint. We were flying our wing commander's machine and his

reaction was worse than riding thru the storm. What we are trying to say is this: Stay out of 'em because some are hairy and real mean and can cause a great deal of damage to your bird. But if you do get into one, you'll have an easier, safer time if you relax, and don't fight the aircraft or the storm - you may even find that St Elmo's fire is quite pretty.

THUMBING THRU COMBAT CREW, one of our slicker rivals, looking for something to adapt... steal that is... when we saw a short article entitled "Don't Do Anything." Reading, we found the author subscribed to one of our pet theories. He recalled that at almost every place he had been stationed, accidents or incidents had occurred because some pilot had taken a wrong action in response to a minor aircraft malfunction or abnormal indication. In each case there would have been no accident had the pilot merely continued flying the aircraft without hitting switches. For example, he cited an A-20 pilot who lost an engine on take-off and feathered the good engine. A B-25 pilot who made the same mistake as he extended flaps on a single engine approach. A B-47 jock who retarded throttle to initiate a take-off abort, then reapplied takeoff power... We can add a few of our own, such as a fighter pilot who shut down his engine because the tachometer broke and indicated zero RPM, numerous troops with sick engines who stopcocked, then immediately tried air-starts. (Most of these could hardly be called "minor malfunctions," however.) Troops who stopcocked or ejected after eyeballing false fire warning lights, or aborted takeoffs because of vibration induced because their tires were deformed after a day or two of sitting in one spot on a cold ramp... You get the idea and can undoubtedly name others.



The point is, our birds are fairly well-equipped to take care of themselves. In fact, many will transfer themselves from failed normal systems to alternate systems. They have a pretty high degree of reliability... so when things start to go wrong, the pilot

generally has ample time to analyze the symptoms, confirm that an actual failure has occurred, determine what action is necessary, often by referring to a check list, and then taking action.

This isn't always true, particularly for certain emergencies in single engine machinery. There are emergencies that must be planned for in advance. But even then, planning must include that all-important confirm-your-trouble-before-you-act step. For other emergencies, when you are not sure, you can try doing like the guy sez and don't do anything! The trouble might just go away!



EVEN THO IT HAPPENS fairly often, most T-bird pilots still get just a little shook when the canopy descends like a guillotine after they've pushed the switch to the part-closed position. This little surprise should be eliminated after maintenance sections modify the system as per T O 8D1-4-6-507... however, this old tiger will still keep his hands off the rails whenever the lid is in motion.

A TROOP WHO EARNs most of his pay check eyeballing assorted TAC units wandered into our shop the other day to scrounge a free cup of coffee. He shoved the debris off one corner of our desk, sat down on the cleared spot, and chinned a bit. Among other things he said, "TAT, do you think you could give three instrument checks in two hours and 40 minutes?"

We reckoned that this would be rather difficult since we habitually used a T-bird for such chores.

"Well," sez he, "Could you give a man an instrument check in 40 minutes?"

"We calculated that it would be almost impossible even if the fella was a real pro and was able to from one required maneuver to the next with

wasted motions.

"I keep running into this sort of thing," he said. As a matter of fact, one IP did give three pilots instrument checks on a 2 plus 40 mission. Each pilot logged 40 minutes hood. To me, this indicates real poor supervision."

We just shook our head so he went on to say that this is just one example of many. He also said that a lot of troops still log credit for both a VOR approach and a GCA approach when making a VOR letdown with GCA pickup. "This," he said, "is cheating on the system."

Old TAT had to agree, particularly since he was waving a half-filled coffee cup over the art work for one of the articles in this flying fish wrapper. Like most of you, we have been guilty of that sin in the dim past . . . But, even without the threat to our art work, the man's right. After all, the only important phase of an approach is getting close enough to plunk the machine onto the air pasture and if you take a GCA pickup, you don't have to outguess the omni station and calculate times to station, so you really are not doing the work a "V" approach requires.

A T-BIRDMAN FOUND his engine grumbling, rumbling and vibrating during an instrument approach. Breaking off the approach he entered the landing pattern and was soon on the runway neither bent nor

battered, even though the engine flamed out somewhere between base leg and final.

A nicely handled emergency, tarnished somewhat by bone dry tips and fuselage tank. Main wing and leading edge were sloppy full. Off hand, TAT would say that this was one of the old school gangloading-is-for-sissies cult . . . caught in the act because the liquidometer float arm stuck and gave a false fuel reading on the fuselage tank gage and kept the low level light from glaring in his eyeballs. But he isn't alone. In another aircraft, two more T-birdmen found their engine surging followed by a loud silence at 800 feet on downwind, in no position for landing on the concrete.

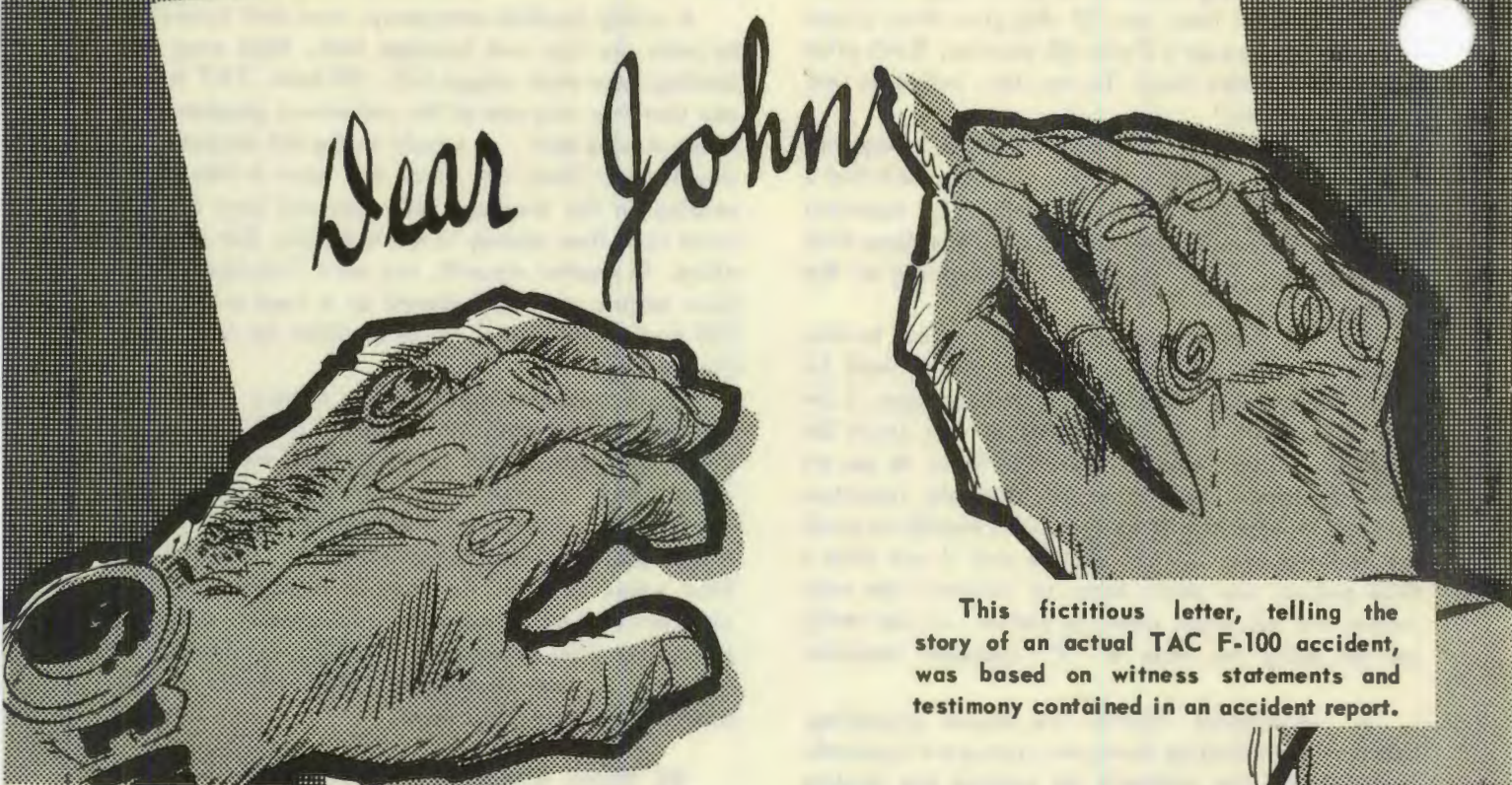
These troops couldn't get the canopy to jettison so rode the bird down into a plowed field lopping off a few tree tops in the process. Both were injured. Once again, everything was as dry as an all gin martini . . . except for the leading edge and wing tanks. Switches were not gangloaded . . . one of the first steps in both the engine vibration and low altitude airstart procedures. Incidentally, dropping the rollers prior to crashing would have softened the impact . . . and is one more step left out of still another emergency procedure.

WE WERE DISCUSSING mission cards the other day — more accurately, some of us were cussing them while others discussed them — The whole session boiled down to just a few crystal points, and for the most part everyone agreed on those points. We agreed that the cards are a useful tool, helping to make some individuals fly productive missions when they'd otherwise goof off and accomplish little or nothing. They can do this for a checkout program, a tactical training program or for a lethargic CRT program.

To be successful, such cards must be well-planned, complete enough to fill the time allocated for the mission, yet brief enough to keep someone from tooling into another aircraft while looking up what to do next.

No matter how you slice it, the cards are also a crutch, support for a program which really honestly should not have to be supported. But in the same sense and for the same reason 60-2 is a crutch. If every pilot took proper interest in his flying we wouldn't need a regulation to specify flying minimums. We wouldn't need gimmicks like mission cards to prod 'em into making productive use of flying time — but pilots are human and even the best of humans get lazy from time to time, so there you are with a problem, a cause, and a possible cure. And with that TAT will scat. ●





This fictitious letter, telling the story of an actual TAC F-100 accident, was based on witness statements and testimony contained in an accident report.

DEAR JOHN:

I had a real hairy one the other day and thought I'd better drop you a line to squelch any rumors you might have heard.

As you know, I'm flying as an IP in the F-105 transition program out here. Things have been rocking along pretty good until I get this one flight where I'm scheduled to chase a pilot on his initial check-out, *from the back seat of a hundred F no less*. As usual, we had to wait about 30 minutes with our engine running before the 105 got ready to go. In this heat this is a mite uncomfortable, but that's the way it goes.

Eventually we rolled about 15 seconds after the 105 and the major in the front seat wasn't too happy with our bird. He said something about it being a real dog — nothing specific and I just passed it off as one of those comments. I did notice that he honked the nose a little high on the takeoff roll, which may have been the trouble.

We climbed on out and completed the airwork without incident, but the major did give the AB and speed brakes quite a workout trying to maintain position.

We made the usual practice landing pattern at altitude and then returned to the base for a couple of

patterns and landings. We followed the 105 around for a touch and go, used AB to catch up on the gear around and then turned a short initial with the 105 scheduled to make a full stop. As luck would have it, there were four F-100's ahead of us flying a hung bomb pattern and we had to delay the break and fly a long downwind. We didn't have any trouble staying with the 105 until the major put the gear down turning base . . . we started to drop back and he had to use nearly full military. Then it happened. The cockpit filled with thick white smoke and we couldn't see much of anything. I went to 100% oxygen, but don't know what the major did. He said that we had real trouble and that we'd better land behind the 105. I couldn't have agreed more.

He took a little extra spacing during the turn to final, but was still a little too close. He got the gear and flaps down and extended the speed brakes, but at about 200 feet we socked into the 105's jet wash. The major brought in power and said we'd better make a closed pattern — and for me to get ready to bail out. I rogered this and told him to use ram air, but he didn't answer.

We started a climbing turn toward a downwind. I couldn't see out too well, but noticed that the airspeed was pretty low — about 160, I think. O Barney Smith was on mobile and he told me late

that we were really low and slow with the bird practically standing on its tail. I heard three or four people on the radio tell us to bail out or to get out we were in trouble.

At 500–600 feet I was beginning to get a little skeptical about our chances and asked the major if I should eject. He told me to go ahead, so I pulled both seat grips and the canopy went up a little and then disappeared. A bunch of stuff from the cockpit flew out past my head, and I squeezed the trigger and was gone. I tumbled a few times and then realized I was still holding to the seat. You know, I've read about guys doing that, but I never thought much about how easy it would be to do it yourself. I guess you just hate to let go of anything solid. Anyway, I forced myself to let go and kicked the seat away from me. The chute opened almost immediately and the shock was surprisingly light.

I looked around, saw the aircraft hit and explode and about that time I touched down. I think the chute only swung once before stabilizing and the touchdown wasn't bad at all.

The major apparently didn't have time to eject or encountered some other difficulty 'cause he went in with the bird. Too bad too; he was a real fine guy. He was pretty well-qualified – had over 2000 hours of jet time and nearly 400 hours in the hundred. He got most of his time instructing out here.

The accident board concluded that the utility hydraulic system had failed or malfunctioned, but all us hangar flyers have discussed "what I'd have done" or "what the pilot should have done" and we've come up with some points we think are worth pondering.

In the first place we all think that the major goofed when he didn't declare an emergency and that

he used pretty poor judgment when he established such close spacing behind the 105. If he were normal though, he was probably a little clanked up – I know I sure was. There was a parallel runway that could have been used and I still don't know why we didn't try to land on it.

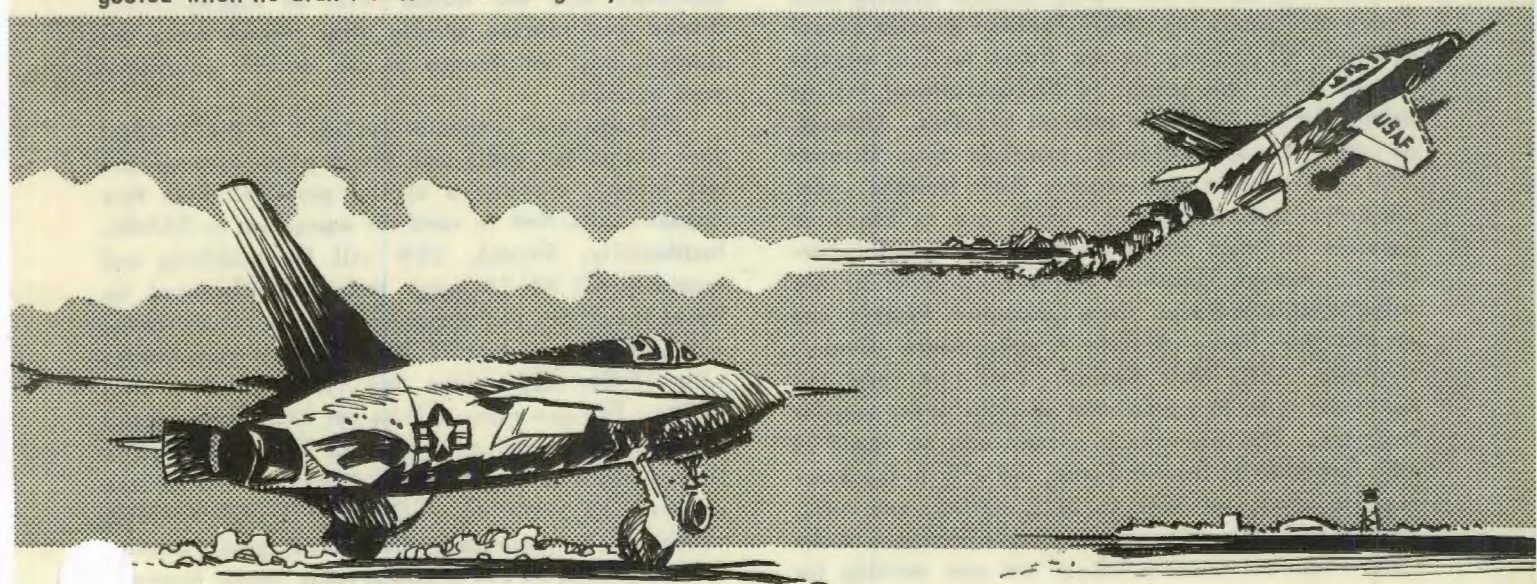
The smoke in the cockpit was pretty thick and, as I said before, I told him to use ram, but the board found the ram air scoop and lever in the closed position. They also found the bleed air valve open. If he hadn't complied with these two items of the eliminate smoke procedure, then we wonder if he complied with any of the others. If he hadn't used 100% oxygen as called for, the smoke could have gotten to him.

When he started that go-around, he didn't drop the external tanks or use AB. With all the different ways we have of dropping tanks, it looks as if at least one of them would have worked. We used AB just a few minutes before during the first go-around, so it should have worked again, no sweat. Also, his trying to make a climbing turn at such a slow air-speed just doesn't sound like what a good pilot such as the major would do. Maybe he was having one of those substandard days we hear about . . . or perhaps his proficiency was low. After all, he only flew 25 hours in the F-100 during the last 90 days and five in the last month.

Well, it's easy to see what should have been done after the excitement is over, but there's one thing for certain I'm darn glad I left the bird when I did and I'm real happy that I read all those items about turning loose of the seat handles.

Write when you get time.

Digger ●

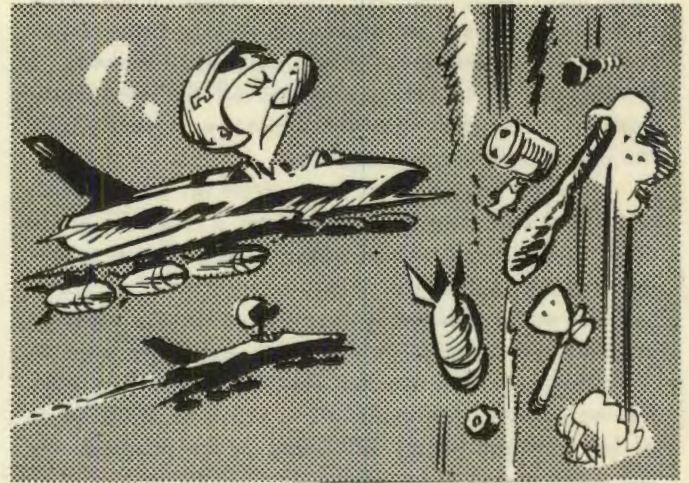


AIR MUNITIONS

Air Munitions

THE MISSILE AND TAC. In previous issues we discussed some of the abbreviations and definitions as used in the missile field, gave a description of the launch area for one of our weapon systems, and reviewed the evolution of a weapons system. Now it is time to take a look at this command's background and position in the expanding field of missiles. In 1945, right after World War II, research and development were started on several types of missiles. One of these was the TM-61A Matador. The first Matador, as the XSSM-1, was launched in early 1949. In 1951, the 1st Pilotless Bomber Squadron (PBS), the forerunner of today's tactical missile squadrons, was activated under the Air Research and Development Command. Two years later, the responsibility for the training and procedures for this unit and for a second unit, the 69 PBS, were assumed by TAC in conjunction with ARDC. The same year, March 1953, the first Matador was launched by a completely Air Force team. In early 1954, the 1st PBS was deployed to an overseas theater to become the first operational missile unit in Air Force history. On 1 September 1954, the 11th PBS was activated at Orlando AFB, Florida, by Hq Ninth Air Force and was assigned the operational testing of the TM-61C. This was the beginning of the program that eventually developed into the school for Air Force tactical missile men. Today at Orlando the USAF Tactical Missile School conducts all training for Air Force tactical missile crews. Also, the school is the operational testing agency for all Air Force tactical missiles. Although no missiles are actually launched from Orlando AFB, the missile men receive their training under simulated field conditions, which are as close as possible to what would be found in theater operations. Actual launches are accomplished at the Atlantic Missile Range, Cape Canaveral, Florida, and at the Air Force Missile Development Center, Holloman AFB, New Mexico. TAC has been and continues to be in a prominent position in the missile business. The experience gained can be found in other branches of the Air Force, not only in the overseas theaters, but also in SAC, ARDC, and AMC. Many people who learned the missile business in the USAF Tactical Missile School are now working for

these commands. Thus, the contributions TAC has made will continue to have a marked effect on the ever expanding field of missiles.



MN-1A TRAINER RELAY. If you maintain or use the MN-1A Bomb Dispenser, don't turn the selector knob counterclockwise. The selector switch has a stop to keep you from doing this, but if you persist and twist backwards hard enough, the stop will give and the detent will slip on the shaft. When this happens, the rotor contact will stop at intermediate positions and the trainer will be unpredictable. Bombs may release shortly after trainer doors are opened, may not release at all, or may go two or more at once.

Old age and numerous cyclings of the selector knob cause the shaft and detent plate to wear and get sloppy, creating a similar problem. When this happens it is time to send the equipment to SAAMA. Incidentally, SAAMA, DSW will be modifying and repairing all MN-1A relay boxes manufactured by Royal Industries and Republic Aviation. Modification will be replacement of RF-20-NC28 time delay relays with TF-06-NC28 relays and 10N4 rectifiers with 10J2's. The new relay will be set for a three second operating time and will cool in 20 seconds. The 10J2 rectifier is more ruggedly made and will be less affected by vibration. TO 11N-PD (MN-1A)-1002, which has recently been distributed, gives detailed info on packaging and shipping relay boxes; however,

the TO is being revised to include a wiring modification which should help keep the K-106 bomb relay from chattering and causing multiple bomb releases. The wiring mod will also apply to boxes manufactured by EMTEX.

FIELD LEVEL MAINTENANCE FOR THE MN-1A.

Several units have asked SAAMA for authority to repair MN-1A bomb dispensers at organization level. Field level maintenance to keep MN-1A bomb dispensers operational is authorized and desired. However, relay boxes, ejectors and actuators should not be repaired at field level since they require complicated tests and without these tests operation of the trainer will have to be limited. These items should be replaced with new or serviceable assemblies. In addition, rewiring is not recommended. Source coding of parts and assemblies has been completed and will be included in revised TO 11N PD (MN-1A)-2. The new source code of the MN-1A components will help field organizations determine authorized field repairs. Trainers with structural damage requiring sheet metal work beyond field repair capabilities should also be returned to SAAMA (DSW).

MN-1A SOLENOIDS. When requisitioning a solenoid or ejector assembly for the old style MN-1A trainers manufactured by Royal Industries or Republic Aviation, be sure and requisition cable assembly, MN-1A P/N 60B95816, FSC NOCM 1195-588-8441. This cable has an electrical connector and terminal lugs to adapt the latest solenoids to these trainers. Old type solenoids having an attached electrical cable are no longer available thru supply.




UNLOADED? After removing two 275-gallon tanks from an F-100 one of the maintenance men noticed that the push-away pin for special weapons stores on the left intermediate station was extended. He tried unsuccessfully to retract it by pushing it in with his hands. He then decided to do the job electrically and then made a too quick check of the left pylon to see if it was not armed with cartridges or failed to

check it at all. Next he reached into the cockpit, turned on the battery switch, and without warning anyone, pressed the intermediate auxiliary release button with one hand and possibly the emergency jettison button with the other. Unfortunately the left intermediate pylon contained cartridges which violates USAF and TAC regulations. Also, a captain was inspecting a captive GAR 8 attached to the pylon. The captain was lucky, he only had his feet under it at the time it came crashing down. Had he been leaning under it, he would have joined his ancestors. Technically, this accident resulted because the involved airman failed to make certain that there were no cartridges installed in the pylons, neglected to clear the area, and then attempted to retract the push-away pin without trying to find out why it was extended. (The special stores unlock handle was pulled out.) He was not an armament man . . . and apparently in an attempt to get the aircraft ready for flight as quickly as possible, he exceeded his area of responsibility and knowledge. This is not uncommon and is usually induced by the pressure of an excessive work load, which means that supervisors may very well have created the true cause of this accident.

ALUMINUM ROLLERS FOR MJ-1. MOAMA has a limited number of smooth aluminum rollers for the MJ-1 bomb lift truck. These rollers may be substituted for the knurled rollers and should be used when handling thin skinned stores. Part number of the aluminum rollers is T1F92B. Stock Number is 1730-713-4591. Four of the rollers are required to make a complete set. Until additional rollers are procured MOAMA requests that units requisition only the minimum needed.

RECEIPT OF CLASSIFIED PROPERTY. Several organizations are not keeping an up-to-date list of their personnel who are authorized to receive classified property. These lists should be kept up to date and distributed at least twice a year. Additional revisions may be needed if there have been very many changes in personnel. Paragraph 9b(9), Section 1, Revised Volume VII of AFM 67-1 tells the story.

BATTERIES, PAC-1S RADIAC SET (SANUS). TAC units have reported several battery leaks in PAC-1S Radiac sets. Until the cause can be definitely determined, all PAC-1S instruments that contain activated batteries should be stored left side up. This will place the battery vent caps up and the electrolyte will be less likely to leak out. To help SAAMA (SANUS) find the cause, all such leakage should be reported to them. Reports should explain the conditions which existed at the time and give the most probable cause of leakage. ●



BUM STEER

IN THE CONTROL TOWER at Abner AFB two airmen finished reinstalling the ID260 UHF/DF set. The taller of the two, a S/Sgt, turned the set on and checked to see that the needle worked. Satisfied, he turned to one of the tower operators and remarked that the set was ready for use. The tower operators were quite busy with heavy incoming traffic and barely acknowledged him. The senior controller made a mental note to check the set out as soon as traffic thinned. This wouldn't be for some time and the direction finder was to be needed before that...but he didn't know it at the time.

The radio maintenance men collected their tools and the tall one signed the tower visitor's log. Glancing at the tower clock, he jotted down 1615 as his time out. He would have just enough time to get back to the shop and smoke a cigarette before quitting for the day.

Some distance away at another air base four pilots pre-flighted their F-100's. The number two man walked over to the leader. His aircraft had 1000 pounds more fuel than had been planned for. The leader had noted the same discrepancy. A quick recomputation indicated they would be able to get airborne with this load. The leader looked at his watch, it read 1617. He made his decision and said, "No sweat, we'll have no trouble . . . anyway, it might come in handy." Little did he realize how right he was.

Exactly two hours later the flight arrived over

the TACAN station serving Abner AFB. Approach control gave them an expected approach time of 1837. The flight leader asked for a fuel check. Three and four both had about 2200 pounds while he and number two had 3000. He requested an immediate penetration and was given a revised time of 1829. At 1823 approach control cleared them for an ADF penetration.

The flight leader left the TACAN on a NW heading, when ten miles out he turned to the west and started down, switching to the Abner tower frequency as directed by approach control. The leader, number three and number four all had their bird dogs tuned to the beacon located near Abner AFB, even tho they used the TACAN station for their high altitude fix. Number two had an aircraft equipped with omni but didn't have the Abner omni frequency selected.

All three radio compass needles were fluctuating badly and no one received a good ADF signal. Still, at 10,000 feet the flight leader made a turn to 180° which was approximately the inbound heading to the field. (The correct heading for this leg of the published letdown is 164°). On completing the turn he continued descending to between four and five thousand feet and asked Abner tower for a GCA frequency. The tower gave him a discrete frequency for Abner GCA. The leader asked for the channel number, without realizing that his radio was not set to this frequency. The tower then gave him the local channel number. As could be expected, the leader failed to make contact. Returning to the tower channel, he asked for a DF steer. Meanwhile, GCA switched to channel 1 to offer assistance, but was unable to paint the flight.

The tower operator used the UHF/DF set, obtained a bearing on the flight, and told them to steer 020°.

Suspicious, the flight leader asked him to repeat. He did, still giving 020°. Thinking he had overflowed Abner, the flight leader turned to 020° holding until he saw the lights of a small town with a



railroad yard. At this time the number two man asked the tower for the VOR frequency.

While the flight circled the town looking for the airfield lights, number two tuned in the VOR and advised the flight leader that the heading to the VOR was 210°. The flight leader asked for another steer and was told to steer 030°. He decided to use this instead of the VOR bearing . . . and very shortly afterwards the flight found themselves among mountains. Making an emergency pullup all four pilots climbed their machines to about 7000 feet. During the confusion flight integrity was lost, but all continued flying to the northeast.

When three and four were down to 400 pounds, four spotted a split rotating beacon and the lights of a airstrip. He headed for it, giving three the approximate bearing. He set up his pattern with 150 pounds of fuel left and made an approach completely unaware that he was barely missing mountains in the immediate vicinity. During his landing flare, he was momentarily blinded by the reflection of his landing lights on the runway and allowed his machine to porpoise. The nose gear sheared and the aircraft slid off the runway, breaking the wire to the lights along one side of the runway. The pilot of the number three aircraft saw the lights go out as he was making his approach and decided to abandon it. He couldn't tell whether or not the number four man had cleared the runway. Contacting a nearby GCI site, he tried to make another nearby field, but flamed out before reaching it. His ejection was successful.

After the flight broke up, number two continued on the 030° heading for a short while, then decided to trust his omni, and eventually located Abner AFB. He called lead and told him the steers had been in error. By this time the lead pilot had made contact with GCI and was headed for Abner too. He landed there with 150 pounds of fuel left.

In reviewing this accident, the mistakes that were made become painfully apparent. Any single one of these errors would not have had an adverse

effect on the outcome, but when they were added together, they cost the Air Force two expensive aircraft . . . and came very close to costing much more.

The first error was committed by the people who established the procedures for re-installing and checking out the UHF/DF equipment following maintenance. The procedure required a check to see that the needle would home, and did not require a check to see that it would home accurately. The check for proper homing was supposed to have been made by tower personnel.

Tower personnel erred when they accepted the set and used it without assuring themselves that it was operating correctly. Although the tower operator eventually suspected this equipment, he didn't get suspicious in time. The tower personnel were exceptionally busy both prior to and during the emergency, which is not uncommon, and is the reason that the equipment should be completely checked by the maintenance crew.

The flight leader erred when he used the VORTAC for an ADF penetration. In addition to this, he modified the ADF penetration pattern. This caused him to lose confidence in his approach and resulted in his having to rely on outside aid.

He was also somewhat late in realizing that he was lost. Had he admitted to himself that he was confused, he would have climbed to the emergency altitude for Abner, and would have avoided the near miss with the mountains. In addition, GCA would have been able to paint the flight, and may have been able to vector them to the field while they still had fuel left.

Number two failed his leader by not monitoring his omni set during the letdown, prior to the flight getting into difficulty. Had he done this, he may have been able to influence him into ignoring the faulty steers. In addition, the flight leader failed to monitor his TACAN set after departing high station . . . which again, should have caused him to realize that he had not overflown the field.

But all of this is Monday morning quarterbacking, to keep from getting into a similar fix, pilots should monitor all available navigation facilities during every letdown. In addition, they should follow the published procedure. By doing so, they will be more confident of their position and less apt to be led astray.

Tower operators and GCI operators must insure that their equipment is working correctly and that they have made positive identification of the aircraft being worked. Obviously, nothing is more disheartening than to try giving someone assistance only to end up sending them into a trap. ●

TAC TIPS



IMPROPERLY INSTALLED DIPSTICK. Inflight emergencies continue to be caused by improper installation of the oil dipstick cap. In two recent inflight emergency reports, the involved pilots stated that the dipstick could be removed by rotating it to the right and pulling. This is an incorrect assumption. The dipstick cap will rotate indefinitely to the right but will not unlock when turned in this direction. This indicates the need for some pilot education on this subject.



HOW TO RUIN A CANOPY. Immediately after the pilot locked the canopy of a T-bird the cockpit started pressurizing at an abnormal rate causing discomfort to both occupants. The temperature control was placed to full cold to minimize the pressure, but this had no effect. The pilot then unlocked the canopy and the whole works blew upward approximately 8 to 12 inches, the drive chains broke, and the canopy fell back onto the cockpit rails.

Moral: Under similar circumstances, the cockpit dump valve should be manually dumped prior to unlocking the canopy.

CLOUD PENETRATION. Aircrews are misinterpreting paragraphs 33 and 37E, of AFR 60-16 by assuming that penetration through a broken or overcast cloud condition while on a VFR or VFR on top clearance is permissible so long as the penetration or descent is accomplished off airways and outside a control zone. PARAGRAPH 33 SPECIFICALLY STATES THAT UNDER VISUAL FLIGHT RULES AIRCRAFT WILL NOT BE FLOWN CLOSER THAN 1000 FEET

VERTICALLY NOR ONE MILE HORIZONTALLY TO ANY CLOUD FORMATION EXCEPT WITHIN A CONTROL ZONE. PARAGRAPH 37E SPECIFICALLY STATES THAT ON-TOP FLIGHT CONDUCTED ABOVE CLOUD TOPS OF MORE THAN FIVE-TENTHS CLOUD COVERAGE MUST BE CONDUCTED UNDER INSTRUMENT FLIGHT RULES. Aircrews should be rebriefed on the provisions of AFR 60-16 as pertains to the conduct of air operations under visual and instrument flight rules.

THUNDERSTORMS. Destructive forces in the form of turbulence, hail, and downdrafts have been encountered in thunderstorms at almost all altitudes. It must be concluded then, from the standpoint of aircraft accident prevention, that there is no good thunderstorm penetration altitude.

CHECK LISTS. Obviously, there is no substitute for intelligence, knowledge, and good judgment. However, with the introduction of emotional and distraction factors, a pilot's immediate memory is subject to failure during certain phases of the flight. No matter how superior a pilot's knowledge may be, when certain situations exist, memory cannot be trusted . . . hence, the check list!

—USN Approach

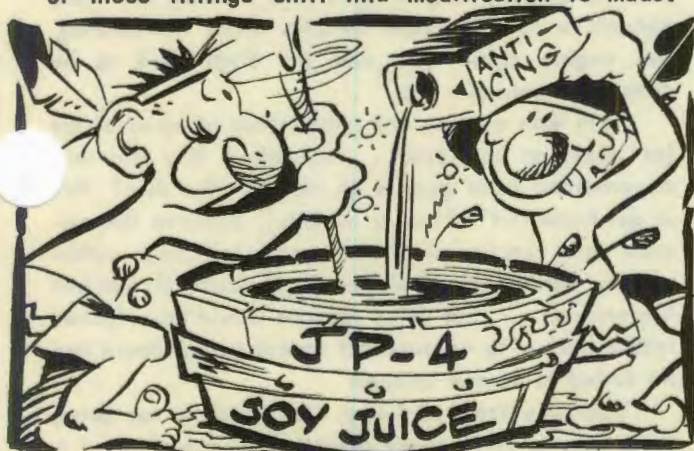


IN FLIGHT PLAN? Suggest that all pilots contemplating TACAN cross-countries either learn

to fly with their knees or make alternate 21A's using low frequency stations... Flight was planned using TACAN stations all the way. Prior to takeoff, was given climb-out to Henderson TACAN. Problem number one...where is Henderson? Problem two... some printer forgot to put Henderson on the high altitude chart. Problem three...some idiot pilot forgot to check aircraft for the presence of low altitude charts. Solution - look in the enroute supplement. Problem four...What heading to choose to get to 38°45'N, 82°02'W. Solution - Head that-away. Problem five...TACAN does not work. Solution - fly with knees while manipulating charts, supplement, 21A, pencil, Indianapolis center, and such, while figuring low frequency flight plan. Alternate solution - pre-plan on the ground.

-166 TFS Pilot's Home Companion

VERTICAL STABILIZER H-43B. An H-43B lost a vertical stabilizer when the stabilizer attaching plate (P/N 11333) failed in flight. An ECP has been proposed to reinforce the attach fittings. An interim T O has been issued requiring preflight inspection of these fittings until this modification is made.



JP-4 FUEL ANTI-ICING ADDITIVE. Because of the reported success of Phillips 55 MB anti-icing fuel in B-52 and KC-135 aircraft, the fuel heat exchanger to prevent fuel system icing in T-33 aircraft has been deferred. T-33's are currently being added to the test program. If these tests are successful, AMC will present a proposal to USAF for utilizing a jet fuel anti-icing additive in all jet aircraft JP-4 fuel.

IFR REFRESHER LECTURES. Squadrons returning from lengthy deployments should receive lectures and discussions covering the flight publication system and recent revisions to Air Force and FAA instructions. These lectures should prove very helpful in reacquainting pilots with current flight rules.



UNIQUE METHOD. A unique method of insuring that all pilots are in proper flight clothing prior to flight was recently put into use by one organization. One evening during night operations, a pilot was selected at random and dumped into the hills to spend the night with the clothing and equipment he was wearing at the time. Needless to say, this proved very effective. How many of your pilots could pass this "acid" test?

-USN Approach

TIDBITS. "It took me 17 years to need my survival gear, but it was worthwhile carrying it all that time to have it when I needed it."

-USN Approach



TWO



OF A



KIND

A C-47 DEPARTED TUCSON for Memphis, cruising at 2050 RPM. Near destination, the pilot recalculated fuel available and decided he could make Sewart – provided the existing tail wind held. There was some argument against this from the crew, but the pilot overruled them. Nearing Sewart, fuel was becoming critical. Possibly the winds slackened (as they have a habit of doing when they are counted on for help) or perhaps the pilot's fuel computations were faulty. Anyway, despite low fuel, the pilot requested traffic information and seemed intent on making a normal traffic pattern. Apparently he didn't want anyone on the ground to realize that he had goofed and was in a minimum fuel situation with a gooney bird! Fortunately, other members of the crew persuaded him to request a straight-in approach. While on this approach, number one engine coughed, sputtered, and quit. While the pilot was busy trying to restart it, number two quit. The pilot rocked the wings and managed to slosh some residue fuel into the pump sumps. He was then able to get one engine back into service just long enough to permit a safe landing. After the landing, the engine again quit and the flight had to be completed behind a tug.

This was a close one reminiscent of some of the jet missions in Korea.... but why? Why did this experienced pilot gamble an aircraft like this? Was it get-home-itis? This is doubtful, because the aircraft was stationed further east, but well within gooney bird range of Memphis. Undoubtedly he had his reasons... but these reasons would have looked rather hollow to an accident investigation board had he failed to scrape through.

Everyone isn't as lucky. Just prior to our going to press, a preliminary report arrived telling of a 300-mile T-33 flight to a Gulf Coast airfield which ended in a flameout and crash. The pilot took off with full internal fuel, but with the tips empty. This would have been sufficient fuel, except the preliminary report stated that he conducted the flight at 9500 feet! At this early date, it is apparent that this pilot failed to properly plan the flight and violated AFR 60-16 by not allowing himself an adequate fuel reserve.

Unlike the gooney bird pilot, his errors cost him his life.

Remember these two flights the next time you find yourself glossing over a flight plan just because your flight is short, or skimping on the required fuel reserve. Then, regroup, plan the flight right, and don't take that chance. ●



DETONATION

DETONATION IS A SINISTER WORD. It implies destruction and disaster, and rightfully so because it is "spontaneous and practically instantaneous combustion after the ignition event." Sometimes it is defined as abnormally rapid combustion replacing or occurring simultaneously with normal combustion.

Whichever definition is preferred, detonation is very hard to identify with certainty in an aircraft engine. It is likely that its presence will be pronounced only by an increase in cylinder head temperature and a loss of power. However, its ultimate effect will be a terrific increase in overhaul costs when (and if) the engine reaches overhaul.

Detonation can result from any of the following:

- The use of fuel with a lower than recommended octane rating.
- Excessive use of carburetor heat.
- Prolonged ground-run-ups when the ambient air temperature is unusually high.
- Premature use of high ratio supercharging.
- Inadequate cylinder head cooling due to poor maintenance of cylinder air deflectors cowling, and/or air seals.
- Improper ignition timing.
- The abusive use of horsepower (overboost).
- Possibly the greatest offender, leaning of fuel mixture beyond the point of normal combustion.

Detonation is one of the greatest enemies of pistons. When an engine is permitted to detonate, its pistons are subject to many hundreds of sledge hammer blows per minute. The mutilation that results is visible at engine overhaul in the form of cracked and dished piston heads.

In a detonating cylinder the temperatures rise to

abnormal heights. The alloys from which the cylinder head and pistons are made were not compounded to withstand this amount of heat. These high cylinder head temperatures can cause the piston head to soften and the ring lands to warp. Warped ring lands will result in stuck piston rings. When the top ring is no longer free to rotate, a path for the burning gases is open down the side of the piston at the now stationary ring gap. An area of local overheating is created and the ring land continues to soften. The ends of the top ring flutter against the ring land until the ring breaks and a top ring land failure is born. It is likely that this failure will be laid at the door of piston design or some metallurgical weakness but the real culprit is detonation.

Broken rings and cracked, dished, burned and scuffed pistons are not the only results of detonation. The excessive temperatures induce stresses into cylinder heads, and these stresses result in cracked heads and an unusually high rejection rate at engine overhaul.

Exhaust valves, seats, and valve guide bosses erode and burn when they are subjected to the higher than normal temperatures. The effects of detonation are cumulative. An engine that is permitted to detonate for only short periods of time does not escape unharmed. Each period of detonation adds its measure of damage. Frequently an engine fails in normal operation as a result of the damage it received while detonating many hours previously.

Compromises must sometimes be made in order to satisfy the demands of power, range, cooling and economy, but, whatever your problems, the solution must be reached without detonation. **THERE IS NO COMPROMISE WITH DETONATION. ●**

—FSF, *Aviation Mechanics Bulletin*

CHOCK TALK

TEFLON HOSE. When Teflon first came into being some years back, it was used mostly for back-up rings and gaskets in hydraulic components. It did quite well, being chemically inert and able to withstand temperatures from minus 65 to plus 500 degrees F. Recently the manufacturers extruded this material into a tube and braided a stainless steel wire cover for it to provide strength and protection... and teflon hose made its debut. Like nylon hose, it immediately became popular and many wonderful properties were attributed to it. Aircraft manufacturers, searching for an inert hose to handle higher pressures in areas of high temperature, were quick to adopt it for hydraulic and engine lubrication systems. It has proven itself superior to rubber hose, and mechanics can expect to find it used more and more.

Although it performs very well, Teflon is not a super hose. It has some characteristics that demand understanding and attention. For example, Teflon assumes a semi-permanent set after it has been exposed to high temperature and pressure. Therefore, once the hose has been used, mechanics must be careful not to bend it or twist it too much. If they do, it will kink and severely weaken the tube wall. The weak spot, hidden by the braided wire cover, can remain undetected until it fails completely. This failure can easily occur in flight.

One fighter unit experienced numerous failed hoses in the utility hydraulic system. Failures were in the engine accessory system to one particular hose and were being caused during maintenance hydraulic checks of the system. The problem hose

was being bent and twisted too much when it was disconnected from the aircraft pump and reconnected to the heavy, unsupported lines on the hydraulic mule.

A simple adapter was made that attached to part of the aircraft and held a fitting where the hoses were joined. With the adapter, sharp bends and twisting were avoided and the problem disappeared.

Teflon hose, like any other piece of equipment used on aircraft, has definite limits which should not be exceeded. If these limits are exceeded, failure will result. Maintenance men should understand and appreciate that although Teflon is strong and tough, it can't stand abusive handling. Here, then, are four simple rules for handling Teflon hose:

- Don't exceed bend limits.
- Don't exceed twisting limits.
- Don't straighten a bent and set hose. Avoid bending opposite to set plane.
- Don't hang or support objects from hose.

These same rules also apply to other aircraft hoses currently being used.

F-105 DIAGNOSTIC TEAM. Back in January, the first diagnostic team was placed at Nellis on a 90-day test basis. The team was furnished by MOAMA and utilized Republic technicians. To achieve an Air Force capability, a Nellis technician team was formed to train and work with the depot team. At the end of the 90 days, the Nellis team was 70 percent capable of accomplishing the desired briefing of aircrews and pin pointing of malfunctions in the integrated system. Since the MOAMA team was highly successful it will be used for an additional 60 days. Meanwhile, headquarters USAF approved the diagnostic team concept and approved sufficient manpower spaces for upgrading within each base programmed F-105's. Each team will consist of one 32290, one 30171, a 42373 and a 43171. To date the Nellis test has proven that these teams will be able to substantially reduce the normal A&E workload, as well as the workload of the instrument technicians assigned to the CAM squadron. Fringe benefits accrued to date are:

- Aircraft systems are being peaked to the best possible conditions.
- Many discrepancies are being found which are not noted in the Form 781, but which



would have affected ability of the aircraft to perform the assigned mission accurately.

- A determination that these systems require a 100 hours periodic.
- Periodic inspection work cards have been rewritten to eliminate unnecessary items and provide a realistic review of each system and assure integration of the complete weapons system.
- Discrepancies in F-105 A&E TO's have been identified and necessary changes recommended.
- Necessary procedures have been established for checking electric ground power equipment prior to use on the aircraft, due to critical power requirements.

Plans have been established for FTD and factory training of all future team members except for the aircraft maintenance man.



O-RING SEAL, P & W ENGINES. Some units maintaining J57, J75 and T-34 engines have been substituting seal P/N AN 124018, S/N 5330-291-7380 for seal P/N 261151, S/N 0245-2840-559-8673. Options for P/N 261151 are Seals P/N 246729 and P/N 246746. All of these seals are the same size and configuration but the AN 124018 seals are made of Butal rubber which is limited to a maximum temperature of 212°F and must carry a cure date. On the other hand, the 261151 seals are made of Silicone Rubber and plastic, are resistant to synthetic oil and will withstand temperatures of 400°F. They require no cure date. Obviously, the AN 124018 seals should not be used since they will cause oil leaks and eventual loss of oil particularly during periods of extended operation such as on long range flights. All seals on hand should be screened to make certain that no P/N AN 124018 seals have gotten intermixed with the P/N 261151 seals. Color and appearance cannot be used to tell one type seal from the other even though most AN 124018 seals are black and

most 261151 seals are red or white. Each manufacturer uses a different color and the depot has stocked some 261151 seals that were dull black.



KB-50 LIFE RAFT. TO 1B-50-570 will modify the KB-50 raft compartment with a device to hold the raft in should the doors come open in flight. Apparently it is easier to tie the horse to the stall than it is to lock the stable door.

TIRE TIP. Pilots of aircraft equipped with a dual wheel nose gear have reported excessive vibration during the takeoff roll when tire tread patterns were different. Matching tire treads may not be required, but it is worth trying should a similar situation be encountered.

MAINTENANCE OF EQUIPMENT DURING ROTATIONAL TOURS. It is imperative that all equipment temporarily assigned rotational units be maintained in the best possible condition. Pylons and adaptors must be maintained in a combat ready status. Training items such as the MN-1A dispenser and launchers must be maintained in fully operational condition to assure a combat crew training proficiency. When a unit departs a rotational base, all such equipment must be left in a fully serviceable condition. This will allow the incoming unit to start training with minimum delay.

T-BIRD TAIL PIPE. A new heavier tail pipe, stock number 1 ALC 1560-690-3143 is now available. Many units don't recognize the new pipe since they haven't heard that it is interchangeable with the old one. When installing one of the new pipes retain two each: AN 380-2-2 pins, AN 320-4 nuts, 72780-1 washers and 728339-1 bearings. In addition, keep one 608014-85 blanket, one - 84 and one - 83 blanket. Blankets will be installed with a 3½-inch overlap to cover the doubler at the forward end. Due to the extra

weight of the new pipe an allowance will have to be made in Chart C and E of TO 1T-33A-5. Add 15 pounds to the basic weight at an arm of 414 inches. This is a change of 612 inch pounds movement/1000 and moves the CG aft about .3 inch. Reweighing the aircraft is not required.

F-100 CONTROL LINKAGES. After numerous conferences and a small paper blizzard, SMAMA has agreed to have F-100s in the FY 62 IRAN inspected to insure that castellated nuts are installed on the remaining control system components. This will get rid of the self-locking nuts on bungee rod assemblies, horizontal stabilizer rod assemblies and rudder feel bungees and is in accordance with the 1F-100-4 parts catalog. This should help end a long standing problem area. However, TAC maintenance people will have to do their part and guard against using self-locking nuts to replace a castellated nut and cotter pin removed from a control system component . . . They must also make certain that no one installs a castellated nut finger-tight and then goes home or to chow without properly torquing it and installing the cotter pin. Good inspection should locate such errors, but if they are permitted to occur, eventually one will slip through the inspection system and an aircraft will be lost. ●



Working conditions should meet standards compatible with good aircraft maintenance. Fatigue which results from excessively long periods of continuous duty and which is aggravated by poor lighting, excessive noise, and inadequate ventilation leads to errors.



"IN THIS BUSINESS," the old Sarge said, "pride is a necessary thing . . . yet it can be dangerous." It was after five and he had his chair tilted back enjoying a pipe full of Old Barnsmell while shooting the bull with Captain Lewis. Captain Lewis, one of the better test pilots, was a thickset muscular man in his middle thirties. He had alert grey eyes which glinted from beneath heavy brows.

Shifting a stubby dark pipe, he nodded agreement. "You can say that again. Particularly for pilots. Take Johnnie Bingham for instance, without pride he'd never have run up a string of kills during the war . . . yet his pride killed him when he tried to save a bird he shoulda' stepped out of."

"That's right; only I was thinking more from a maintenance standpoint," replied the old Sarge, half-hidden by acrid smoke, "but it runs the same way. The people who take pride in their work invariably do the best work . . . but no matter how

good they are, they're bound to make a mistake from time to time . . ."

"That's the chief excuse for keeping you inspectors on the payroll," interrupted Lewis.

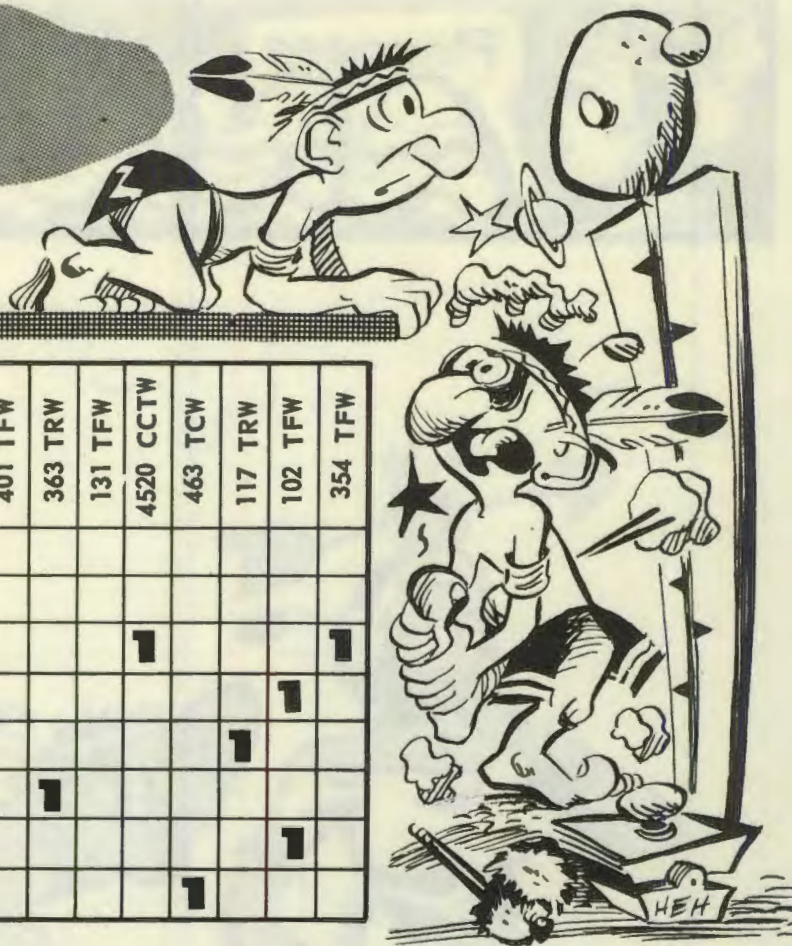
"True," replied the Sarge, "but an inspector can't catch everything no matter how good he is and that's what I'm driving at. When a mechanic makes a goof, he's gotta be man enough to swallow his pride and admit it; he can't afford to do otherwise. I remember one time I dropped a screwdriver into a fuel tank . . . a rather easy thing to do . . . but a goof nevertheless. I reported it, of course, and we had to defuel the bird and actually remove the tank to get the darn thing out."

"Seems to me," mused the Captain, "that it takes more pride to report a goof than it does to try covering it up."

"Possibly so, sir . . . but doesn't that hold true for you pilots, too . . . particularly when you run into a situation that cold logic tells you can't be salvaged? We're both on the same track. We have to take pride in our work, but at the same time the work is so critical and so demanding we can't afford the luxury of false pride."

"Agreed. Say, Sarge, what you smoking in that thing...I've been hunting for something a little more solid than most of this trash they sell." ●

TAC TALLY

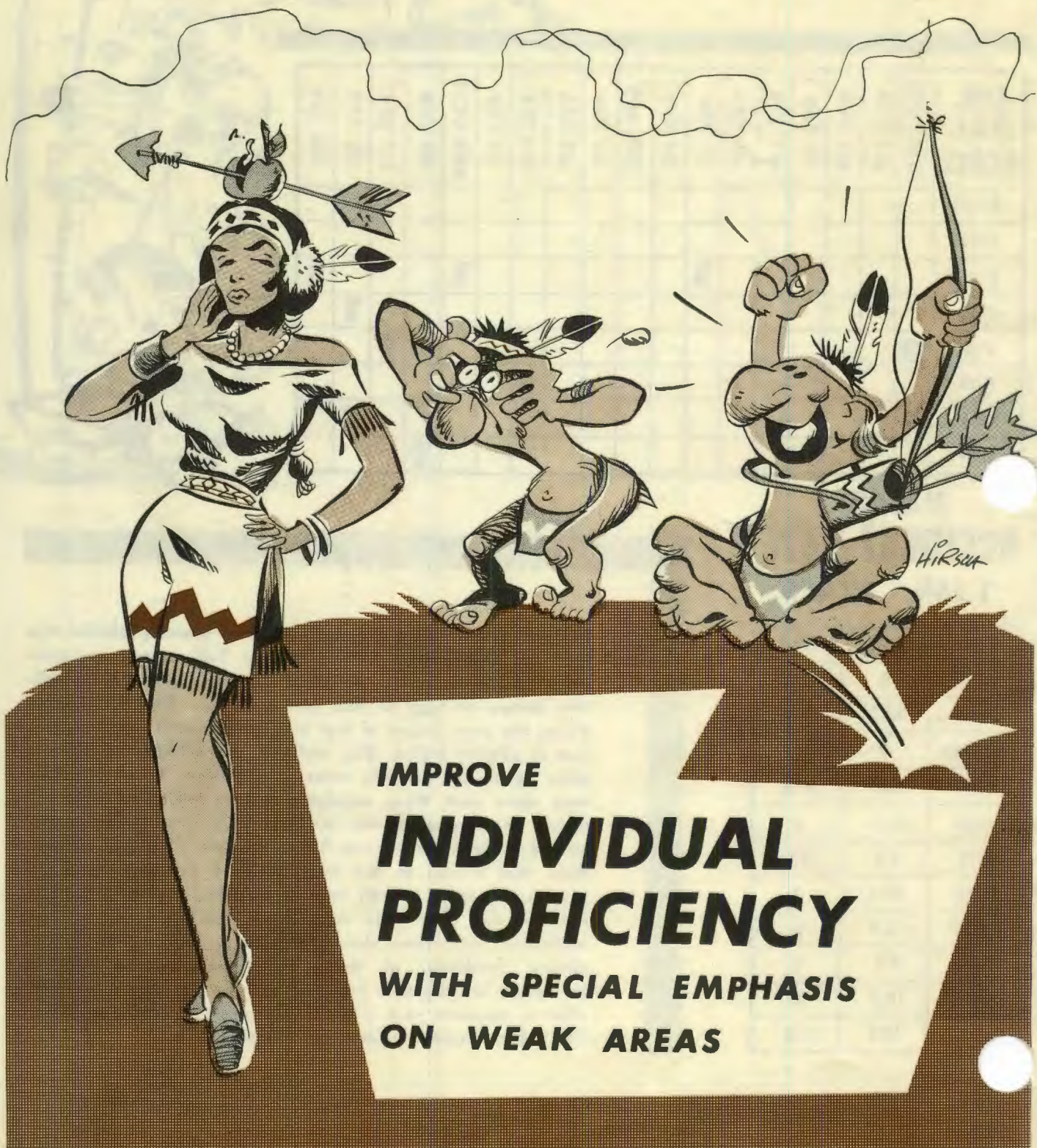
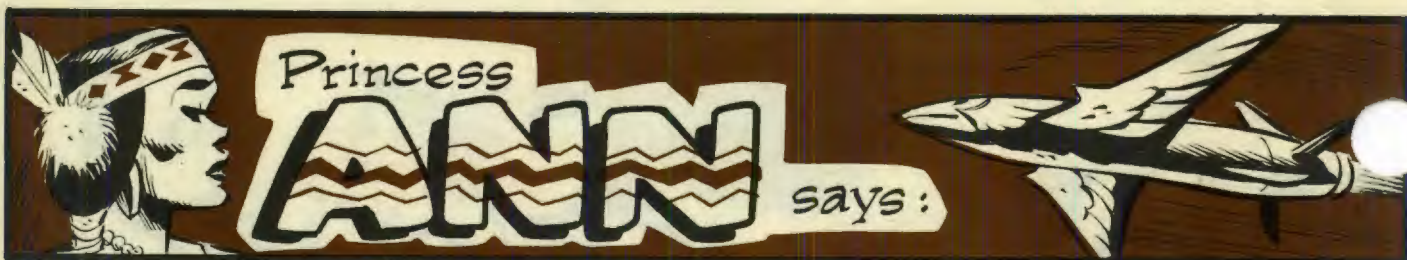


APR. MAJ. ACDTS.	4510 CCTW	433 TCW	464 TCW	31 TFW	479 TFW	140 TFW	27 TFW	474 TFW	4505 ARW	127 TRW	401 TFW	363 TRW	131 TFW	4520 CCTW	463 TCW	117 TRW	102 TFW	354 TFW
F-105																		
F-104																		
F-100							1							1				1
F-86																	1	
F-84	2															1		
B-66											1							
T-33	1																1	
CONV.															1			

MAJOR ACCIDENT RATE 1 JAN. - 30 APR.

TYPE	1961	1960
F-105	0	42.8
F-104	27.5	60.9
RF-101	0	0
F-100	19.4	22.6
F-84	67.7	0
T-33	3.8	6.9
B-66	50.9	0
KB-50	16.5	0
C-130	4.9	0
C-123	10.0	0
ALL	13.1	11.8

The old cliché "April Showers" has been literally fulfilled this year only with aircraft instead of rain. TAC experienced eight aircraft accidents in April compared with only three in April 1960. This brings the total for this year to 26 . . . Only 23 occurred during the same period of last year; consequently the rate this year is slightly higher. But, statistics are valuable primarily to show trends and indicate areas of weakness. We should think more about what these accidents cost us in dollars, lives and ability to accomplish the mission. This year through April, aircraft accidents have cost TAC more than 15 million dollars. More than enough to buy fully equipped Cadillacs for 2,500 people. Seventeen aircraft were destroyed . . . that is nearly a squadron and even more important is the tragic loss of lives associated with these aircraft accidents. TAC experienced 14 aircrew fatalities, of these seven were pilots. Accident prevention is everyone's business so let's all make a concerted effort to conserve what is left of our inventory and to make 1961 TAC's best aircraft accident prevention year.



IMPROVE

INDIVIDUAL PROFICIENCY

**WITH SPECIAL EMPHASIS
ON WEAK AREAS**