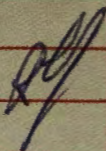


TAC ATTACK

APRIL 1984

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To BUC or Not to BUC
Pg 4



ANGLE OF ATTACK

Angle of attack

Recent mishaps have prompted many of us to reflect on how today's operations are *increasingly demanding*. Not long ago, low level meant flying at a thousand feet, range work was limited to very canned box patterns, and night missions were hardly tactical. Today, we fly much more capable jets, accomplish more ambitious missions, and do so in a much more demanding environment.

There is a "going in" risk factor inherent to flying airplanes (just as there is to walking across the street). Above that threshold lies a spectrum of risks ranging from no-sweat to a darkhorse gamble. Because of our realistic training, increased flying, and improved mission capabilities, we have consistently improved our ability to safely operate at higher levels of the risk spectrum. Unfortunately, routinely operating at high risk levels can subtly breed an attitude of familiarity in the pilots who challenge the odds.

While our mishap trends are down, recent mishaps illustrate the danger of permitting this comfortable, secure attitude to creep into our business of tactically employing our aircraft. "Routine" tactical deliveries on familiar ranges resulted in fatalities when pilots tried to complete

passes that exceeded basic delivery parameters. "vanilla" night/radar low level abruptly terminated when the crew failed to maintain terrain clearance while contacting Center to RTB. And divided/diverted attention during critical phases of flight has caused several close calls as well.

While we continue to improve our safety record, we must recognize that training the way we plan to fight requires us to operate in the higher levels of the risk spectrum. We cannot permit a "Ho-hum, just another routine mission" attitude to replace a prudent respect for the risk.

This month's *TAC Attack* dedicates four feature articles to the basics. Simply ordering your unit back-to-basics won't make it happen. I urge supervisors to encourage discussion of the back-to-basics approach and everyone to recognize that no mission is routine.

Harold E. Watson, Colonel USAF
Chief of Safety



To BUC or Not to BUC
Pg 4

ON THE COVER:
F-16 Falcons training
the way we expect to fight.

APRIL 1984

DEPARTMENT OF THE AIR FORCE

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To BUC or Not to BUC	4
A no-notice test of F-16 airstart theories.	
TAC Tips	6
Interest items, mishaps with morals, for the TAC aircrew member.	
Back-to-Basics	9
The common denominator that spells success in every field.	
Chock Talk	10
Incidents and incidentals with a maintenance slant.	
Aircrew of Distinction	13
Capt Robert M. Hesselbein	
Some of Your Stripes	14
He trusted his friend . . . and did him a great disservice.	
P-51	16
By A1C Kelvin Taylor	
Point of Focus	18
Four ingredients it takes to do the job right the first time.	
TAC Monthly Safety Awards	21
Sgt Robert D. Ballard and SSgt Thomas J. Dean	
Weapons Words	22
Working with TAC's weapons systems.	
Night Landings in Hazard County	24
Vertigo at night is bad. Collision with the ground is worse.	
Down to Earth	26
Items that can affect you and your family here on the ground.	
Short Shots	29
Quick notes of interest.	
Letters	30
Our turn to take flak.	
TAC Tally	31
The flight safety scorecard.	

TACRP 127-1

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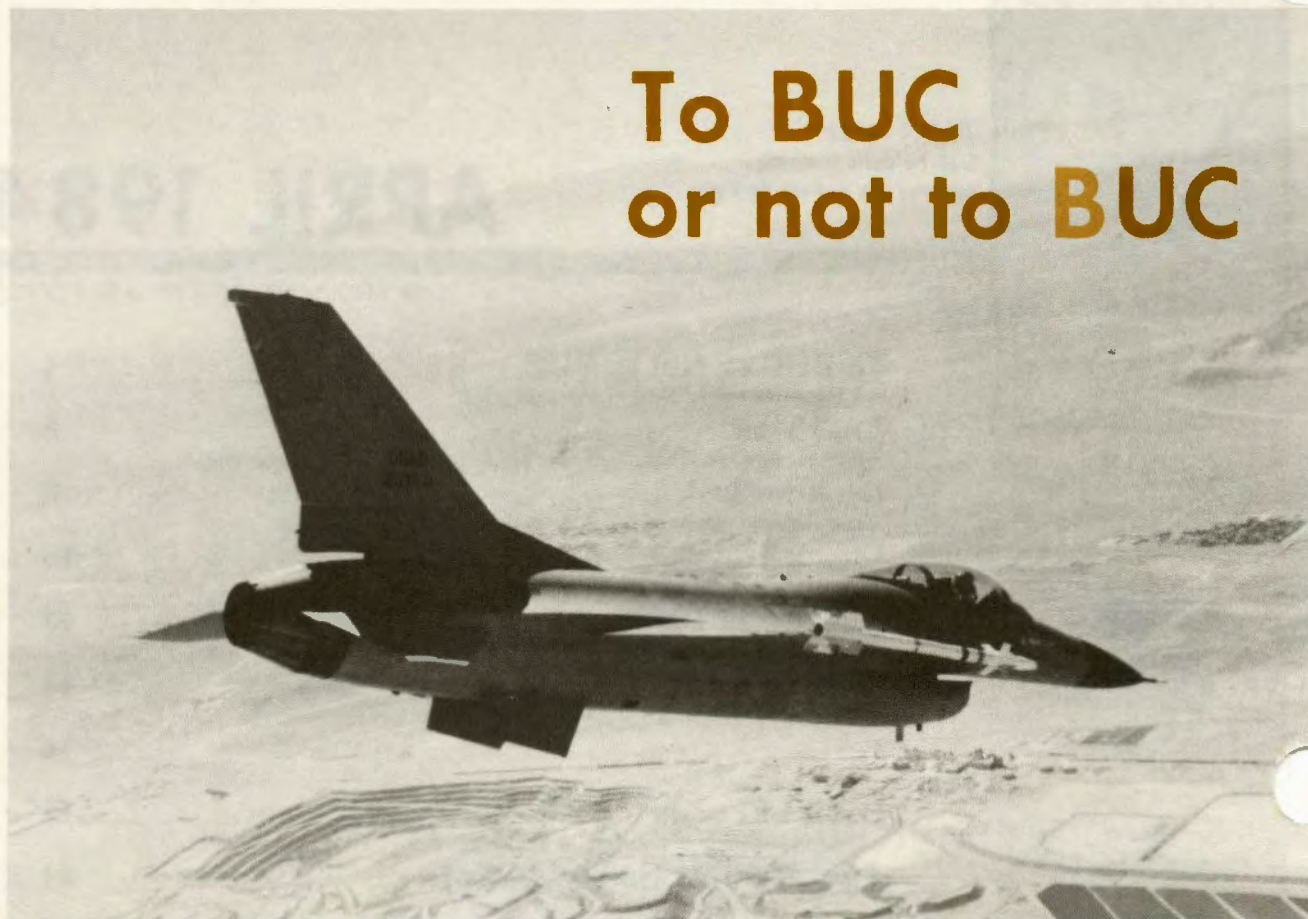
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To BUC or not to BUC



F-16 airstart tech data is currently being revised to incorporate the information Capt Danner discusses in his article. In the meantime, we invite Falcon pilots to review his techniques and rationale and include the information in training and hangar flying sessions. Then, when the new tech data is published, update your discussions.

**By Capt Larry Danner
4 TFS/SEF
Hill AFB, Utah**

I recently had the opportunity to spend considerable time learning firsthand about the innermost workings of the F-16's F100-PW 200 engine. The reason for this educational retreat from flying was an invitation to study the loss of a Falcon whose engine failed and wouldn't restart. A unified fuel control system malfunction precluded any possibility of obtaining an airstart in UFC.

The investigation into the pilot's back-up fuel control airstart attempt revealed some interesting facts (some previously unknown) about the operation of the F100 engine in BUC.

Our search for information confirmed that an engine capable of being started in UFC will always start in BUC (I know, never say always), because BUC, with about 600 parts and fixed scheduling, shouldn't outsmart itself like UFC with its 3,500 plus parts. There are several conditions that can adversely affect the

UFC, that won't affect the BUC since it does not use external information to bias its scheduling. In short, the BUC gives a *higher probability* of a successful airstart after encountering an engine problem than does the UFC.

The bad news is that getting an airstart in BUC requires a lot of finesse. Unfortunately while BUC is very simple, it's also very dumb and responds instantly to throttle commands. Poor throttle technique can induce a condition referred to by engineers as a *rotating stall*. A

group of compressor blades stall and form a small bubble of stagnated or reverse airflow. This bubble rotates around the compressor and reduces the airflow through the compressor, so the engine produces considerably less power and hangs up in rpm. The stall in this mishap was formed during the BUC airstart attempt when the pilot advanced the throttle as soon as he saw a lightoff, like the flight manual directs. This caused the fuel flow-to-rpm ratio to become too high which induced the stall. The only positive way to break this stall is to return the throttle to off.

As luck or unluck would have it, I was flying an FCF soon after I returned. The aircraft performed flawlessly except for a minor weapons discrepancy. On recovery, in the weather at 11,000-foot MLS (ground about 4,500 feet), I had slowed from 350 to 300 knots with the engine at 75 percent. When I moved the throttle forward to stabilize at 300 knots, the engine began a cyclic stall—3 to 4 stalls per second.

I immediately retarded the throttle to idle and checked the engine gauges, but the stalls continued. When the rpm went below 60 percent, I stopcocked the engine, told approach control of my problem, then tried an airstart. I selected JFS—Start 2. Then, because of the very sudden onset and continuing nature of the stall, I placed the EEC/BUC switch to BUC. Seconds later the EPU fired and ran normally. While I waited for the rpm, I placed the throttle to UFC idle by referencing the stripes. At 27 percent, the rpm stagnated for a moment. At that time I had a very strong desire to move the

throttle forward; but what I had recently learned convinced me to leave the throttle at idle.

Before flight, during the ground BUC start, I had left the throttle at idle until the rpm stabilized—it went to 37 percent. I decided to follow that same technique during this airstart attempt. It took about 15 seconds after lightoff with the throttle at UFC idle for the rpm to climb and stabilize at 37 percent. I took another 15 seconds to move the throttle forward from UFC idle to the BUC idle detent. I paused once more to let everything stabilize, then advanced the now-responsive throttle to 85 percent rpm. Back in business, I recovered from my glide at 8,000 feet and 220 knots (accelerating) and lined up for a straight-in simulated flameout approach.

The technique I used is just that, a technique. The Dash One change for BUC airstarts will be out soon. The December flight manual conference recommended a 5 to 10 second delay after lightoff. Whatever the number, I'm convinced the secret to successful BUC airstarts is to pause when lightoff occurs and let the rpm increase before attempting to accelerate the engine. Once the rpm has increased, the engine has a better stall margin and is easier to accelerate.

For all you unbelievers, BUC *does* work. If you find yourself in an airstart situation, depending on circumstances, it may be prudent to go directly to BUC. Attempting a UFC start, with less chance for success after engine irregularities, may only place you closer to the ground—where patience is at a premium—before trying a

BUC airstart that demands patience.

Don't forget to crosscheck the altimeter and don't press 2,000 feet AGL trying to be a hero.



Captain Danner graduated from Northrop Institute of Technology in 1972 with a BS in Aerospace Engineering. He was commissioned through ROTC then went to UPT at Craig AFB, AL. From there he went to F-4 RTU at Luke AFB, AZ. He was an F-4 pilot at Bitburg, Germany, and Osan AB, Korea. He spent two years as an O-2 FAC at Bergstrom AFB, TX, and has been flying F-16s at Hill AFB, UT, since June 1980. He's also been additional duty safety officer since Sep 1982.

TAG

Tac tips

INTEREST ITEMS,

Lest we forget

Warmer weather is coming (honest), and with it, different seasonal hazards to flying than those we've faced this winter. One menace we can count on returning is thunderstorms. We've all heard of the dangers of the first gusts that often announce the arrival of thunderstorms, and how trying to beat a storm into the destination airfield isn't conducive to longevity. In case you've forgotten the raw power that nature can wield, here's an example of a microburst recorded at an air base on the east coast last summer:

1358: A thunderstorm, with its top painted on radar at 42,000 feet, approached the air base from the west. Northwestern surface winds were about twelve knots.

1404: The winds began gusting and occasionally reached twenty-seven knots.

1409: Within one minute, the velocity increased from around twenty knots to over seventy.

1410: In the next forty-five seconds, the winds exceeded the one-hundred-thirty-knot scale of the base weather unit's anemometer.

1412: When the eye of the microburst passed overhead, the winds shifted around to the southeast and gusted up to eighty-four knots within the next minute and a half.

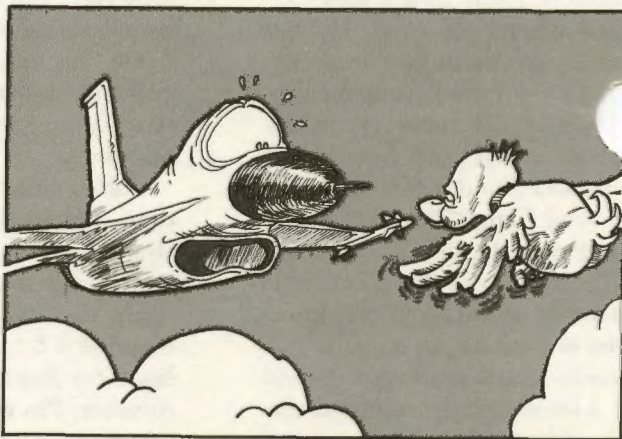
1418: As the storm moved along, the winds rapidly died down to below twenty knots.

The duration of the microburst was only nine minutes, although the storm itself lasted longer. During that nine minutes, trees were uprooted and sections of roof from several buildings at the airfield were ripped off. Can you imagine what might have happened to a crew who thought they could beat this one?

Adapted from *Flights Ops*, No. 39

Only a little birdstrike

The pilot instinctively blinked, tucked his head, and pulled back on the control stick to climb when the blur appeared in the periphery of his windscreen—but *thump*, he still hit the bird.



Relieved it wasn't a lip-shot, the F-16 pilot climbed up and headed for home, fifty miles north.

An EEC (electronic engine control) light came on during the climb and would not reset. Otherwise, the pilot was unaware of any problems, except the damage to the radome that his wingman reported. Just another bothersome, minor bird-strike, right? Not so fast.

During a controllability check, the Falcon flyer discovered that his angle of attack was frozen at four degrees. No sweat, good time to have a wingman. They landed safely.

Maintenance workers found an 18-inch hole on the underside of the radome—and some serious engine damage. Apparently, when the bird ricocheted into the intake, it struck the engine's nose cone. The impact sheared several nose cone

MISHAPS WITH MORALS, FOR THE TAC AIRCREWMAN

mounting bolts, and they all went through the engine causing extensive damage to the compressor blades. The debris also punched a hole in the cover over the oil seal for the engine's number one bearing allowing six quarts of quaker state to drain overboard during the ten-minute flight home.

This pilot handled this seemingly minor emergency well. Had he given in to the temptation to continue the mission just 'til the low fuel was finished, or just 'til the range work was done, this story might have had a different ending. After a birdstrike, extensive engine damage may exist with few cockpit indications. A longer flight home may have run the engine out of oil before it ran out of gas. Any birdstrike is an emergency, and must be handled that way.

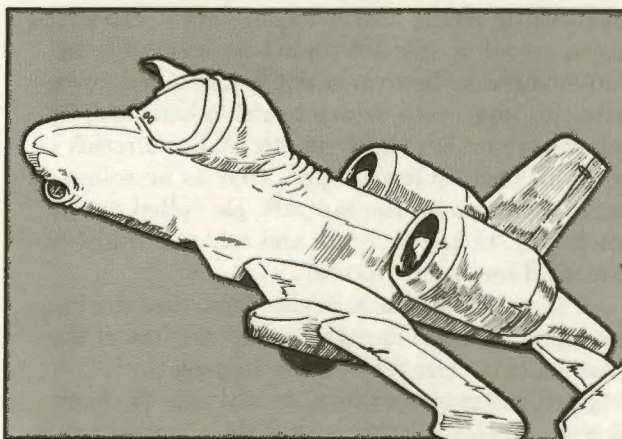
Double engine... false start

Recovering at 500 feet from a low angle strafe pass, the A-10 suddenly yawed violently and pitched over to zero-G. The startled, young pilot reacted by pointing the Warthog's snout skyward and looking around the cockpit. Most of the caution panel lights were glaring at him, and the engine instruments appeared to be winding down. Well into the zoom, the pilot was thinking airstart or bailout; he had his right hand on the ejection handle as his left hand brought the aircraft's throttles back to idle.

As he retarded the throttles, the pilot noticed an accompanying loss of thrust. The engines were still turning after all. So he selected max power, saw the core rpm gauges working as advertised,

and leveled the aircraft around 5,000 feet.

Instead of a double-engine flameout, the aircraft had experienced a massive electrical problem which dumped both generators, tripped the inverter off the line, and popped several circuit breakers. When most of the engine instruments wound down at the same time the aircraft yawed and pitched down (because the stability augmentation system circuit breaker popped), the pilot believed his engines had quit running.



Many of us would bet that it would be hard to confuse a false indication of flameout and the real thing — after all, wouldn't the loss of thrust be obvious? Not as obvious as we might think, particularly when distracted by a windscreen full of strafe panels and an uncommanded fishtailing sensation. Incidents similar to this have happened in a variety of fighters ever since they took away our props.

One lesson that this pilot learned is worth passing on — the rpm gauges on several tactical aircraft are self-generating; that is, they require no electrical power. Some checklists even remind the pilot to check the rpm *first* if he thinks the engine has flamed out. What's your say?

TAC TIPS

Surprise meeting in the weeds

A couple of F-16 pilots were out on a weekend cross-country jaunt. They planned their missions at various base ops across the country along the way. One of their flights on the return trip was a low level mission through the mountains. They used a 1:500,000-foot scale tactical pilotage chart to construct the plan, looked at FLIP, chummed the map, and called the host unit to check on any hazards along the route. According to FLIP, the floor of the route is 100 feet above the ground. The plan was to fly tactical formation at 500 feet, because that was the lowest altitude the younger pilot was cleared into.

About halfway through the 20-minute low level, while flying east across a valley, the pilots saw a ridgeline headed their way. One of them maneuvered to fly over a notch in the ridgeline. After pulling up to insure terrain clearance, he rolled over on his right side to let the aircraft's nose fall back to level flight. Just as he rolled, he heard a thump on the aircraft. He rolled out of the bank, started a climb, and told the flight lead that he'd had a birdstrike.

As they headed back to the departure air base, the leader noticed damage to the radome of the other Falcon. The pilot of the injured bird dropped the gear and flaps at altitude to check slow speed controllability and then landed safely.

The suspected birdstrike turned out to be a wirestrike. The pilot never saw the culprit. He may have missed it when he glanced at his chart because it wasn't highlighted; since his minimum and the planned lowest altitude was 500 feet, he wasn't required to highlight a 322-foot powerline. So maybe he wasn't looking for it. Even if he was looking, a powerline hidden in trees and masked by a ridgeline and bright sunlight it is *hard* to see.

Maintaining a desired clearance above the ground without a radar altimeter (the Falcon doesn't have one) is a matter of judgment and discipline. It takes work over level terrain because there are so many things the pilot has to

check—terrain, wingman, map, airspeed, heading, etc. Over hilly terrain, a pilot has to think even farther in front of the aircraft, or he may end up making late corrections. Often, a late correction results in less than the desired clearance over peaks. And momentum from a late pull-up keeps the jet screaming upward above descending terrain, a gross tactical error for an aircraft that's trying to hug the earth.

Powerlines are a real threat to low level flying. If we fly lower than planned, even the short ones can get us.

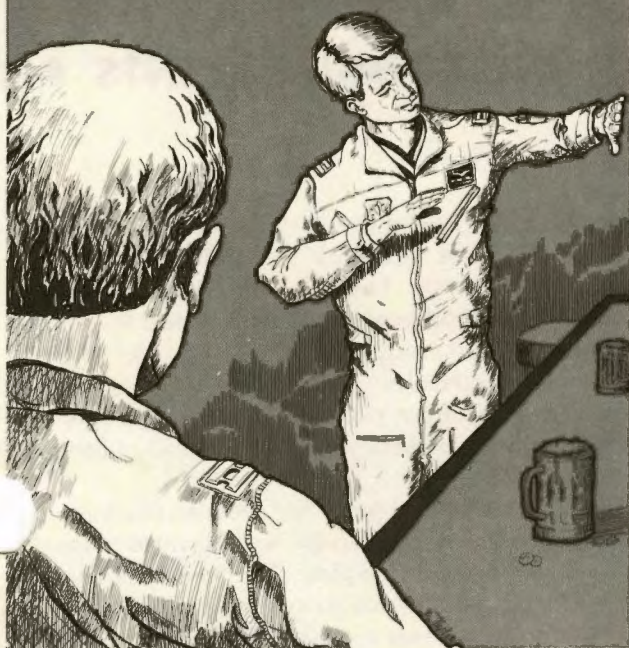
Asking for it

As an F-4 crew taxied out for their 2-vs-2 dissimilar air combat training sortie, their radar acted a little under the weather. The WSO saw that the magnetron (the device that turns reflected radar energy into the presentation on the radar scopes) current was intermittently dropping off the line. The Phantom was otherwise ready for the fight, so they took it to do battle.

On departure, the WSO cycled the radar on and off several times, but the radar scopes were blank. After about ten minutes, though, the tubes came to life once more, just in time for an engagement. As the target came into radar missile range, the video on both scopes started breaking up again. Then the pilot lost interest in looking for the bandits, because he saw white smoke coming out from behind his radar scope. Soon, both crewmembers smelled a strong electrical burning odor. The WSO immediately turned off the radar. The smoke and fumes seemed to dissipate, so they continued the mission . . .

What's wrong with this picture? "Smoke and fumes" and "continue the mission" don't belong in the same sentence. Literally miles of electrical wire tie our electrical components to their basic power source, the generators. Switches, cannon plug connectors, inverters, transformer/rectifiers, current limiters, and a variety of other devices are wired between the components and the generators. We can't always be sure that just turning off an electrical component will fix the problem. If the radar had only been the first symptom of a bigger problem, the adversaries in this story may have scored an easy kill on a couple of distracted crew members who were wishing they had knocked it off.

BACK TO BASICS



by Col. Hal Watson
Chief, TAC Safety

Want to know the secret of successful parents, great basketball coaches, victorious warriors, and eminent corporate presidents? The common denominator that spells success in almost every field is stressing the basics. The phrase back-to-basics is a popular topic in this election year. But what does it mean? And are the basics that some of us learned flying F-100s and F-4s still applicable in this computer age? The basics in any field include communication (vertical and horizontal) and personal accountability for mastering certain skills.

If the environment invites, horizontal communication is natural. Put a bunch of aviators together and chances are they won't talk about the weather—they'll talk about flying. Such discussions inevitably result from gatherings in flight commander meetings, briefings and de-

briefings, around the coffee bar, after night flying, or even squadron parties. I always found that these gatherings made the cold facts of the Dash One and other how-to-fly books come alive as everyone shared his experience or technique. Some of the experiences we shared were negative; one of us made a mistake and fessed up to the whole gang, and we all learned from the experience. That tidbit of information saved several of us from making a similar boner.

In the early days of my flying career, I was blessed with flight commanders who believed in the personal approach to leading. They created an atmosphere conducive to sharing. They made sure that training programs were tailored to each individual. They spent time briefing and debriefing (vertical communication) and in leading hangar flying discussions during weather holds and other breaks in the action. They knew their people and nurtured them while demanding excellence from them—the same excellence that they demonstrated in areas like their own formation, radio, and instrument discipline.

A little later in life, I noticed that my most effective commanders were those who knew their people and fostered an environment in their organizations that encouraged communication. Same song, bigger scale. These leaders set realistic goals for the unit, planned how to achieve those goals, and held subordinates accountable for their parts of the plan. They paid attention to details and insisted on proper execution of the basics.

Today, unfortunately, many safety reports arriving on my desk chronicle the failure of many aircrews and supervisors—failure to maintain aircraft control, failure to see and avoid, failure to follow tech data, failure to follow directives . . . It's time for us all to get back to basics.

How do we do that? A new regulation or an elaborate training program? Wrong. Each of us needs to adopt a personal back-to-basics approach. Aircrews, strive to develop personal discipline; build and share your knowledge and experience by contributing to hangar flying sessions led by flight commanders and IPs. Supervisors, there is no substitute for knowing your people; and whether you're an AMU flight chief or a CBPO division chief, you can find a forum similar to hangar flying to exchange practical job experience.

My challenge to you is to be innovative in your back-to-basics approach. ➤

CHOCK TALK

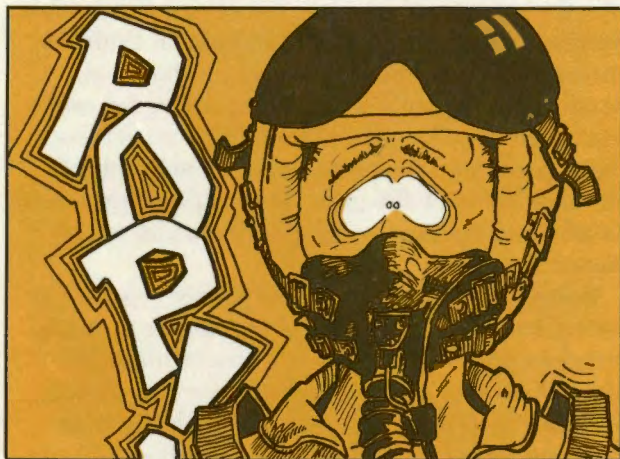
Chock talk

Incidents and

INCIDENTS AND

Blown gasket

An F-15 pilot had been airborne for about twenty minutes on a basic fighter maneuvering mission when his cockpit suddenly fogged up, his ears popped, and he felt himself breathing oxygen under pressure. At thirty-six-thousand feet



the rapid decompression was just as dramatic as the ones he'd seen in recurring altitude chamber training. The pilot immediately started a descent, declared an emergency, and landed uneventfully. The flight surgeon examined the pilot and gave him a clean bill of health.

Remember the movie where the gangster shot a bullet through a window of a passenger jet and the pressure change sucked him out of the airplane? Well it was only a B movie. But rapid decompressions can be serious. The Eagle pilot was lucky.

This was the first flight since the canopy had been removed for tech order maintenance. The

technicians who did the work had some trouble reinstalling the canopy. It was difficult to align and seat correctly. They also noticed that the cannon plug had been scratched during the work. They called an electrician who indicated the plug was still electrically worthy. The supervisor inspected the canopy, canopy seal, and airframe and found no visible damage. So the airplane was buttoned back up.

Apparently, the reason the technicians had trouble aligning the canopy was because it was resting on the cannon plug. The weight of the Eagle's lid not only scratched the cannon plug, it also ground it down into the canopy seal. The canopy seal was only barely damaged—it wasn't obvious at a glance. The seal held a slight pressure, but is burst under the pressure extremes of high altitude. The job guide didn't require a canopy pressure check since the workers reinstalled the same canopy that they removed. The pressure check would have revealed the cut in the canopy seal.

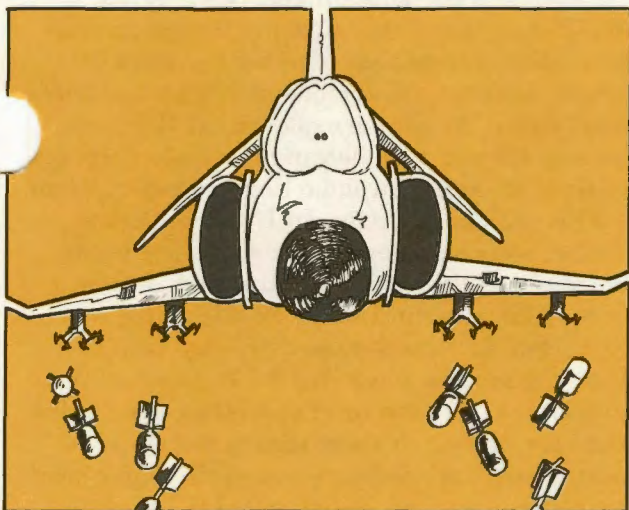
Was the tech order wrong for not requiring the pressure check? No. If the task had been performed correctly, it was not required. But when signs of problems showed up, the extra effort would have paid.

Where's the bit

An F-4 crew was trying to drop their practice bombs on a range. The pilot rolled the aircraft over and pointed the nose downhill, got up a full head of steam, and pickled the bombs over the

INCIDENTALS WITH A MAINTENANCE SLANT

target. No release. The crew rechecked their switches on downwind and tried again—same story. This time on the downwind leg as the pilot was deselecting the suspect station, the aircrew felt bombs come off their Phantom. They safed all



the weapons delivery systems and returned to base.

Maintenance workers replaced a number of weapons delivery components and the aircraft returned to the flying schedule. On the next mission, another aircrew also experienced an inadvertent release.

This time troubleshooters could find no discrepancies in the innards of the weapons delivery components, but they found an improper voltage input to one of the bombing computers. Their search for the electrical discrepancy turned up a damaged wire bundle under the pilot's throttle quadrant. Several wires were broken and insulation had been ripped from a few others.

A week earlier, the forward terminal of the pi-

lot's throttle quadrant was found loose. A technician was sent to drill a hole and install a rivet to secure the terminal board. Apparently, whoever did the work drilled into the wire bundle by accident and didn't notice it.

The technician had the same problem that dentists face—close work with a drill in a confined area with restricted access. He or she used an extra long drill bit which solved the access problem. But just like the dentist, when the bit digs into the wrong area, somebody's gonna scream.

Why MDR ?

by Capt Thomas A. Shimchock
OIC Maintenance Management Division
405th Tactical Training Wing
Luke AFB, Arizona

The following conversation may be overheard in a typical flight line shack or intermediate repair shop: "Hey Sarge, I found this bad part in my jet. What should I do now?" The shop supervisor may say, "Take it down to Support so we can clear the DIFM (due-in from maintenance)." So the technician takes the worn-out component to the support section and then basically forgets about it. Has his responsibility now ended?

Many technicians would say yes. And they would be wrong because the person who discovers a defective component has the responsibility to file an MDR (material deficiency report). MDR's are messages sent to one of the item managers at the Air Logistics Center (ALC) that supports an aircraft type (F-4, F-15, F-16, etc). The item

CHOCK TALK

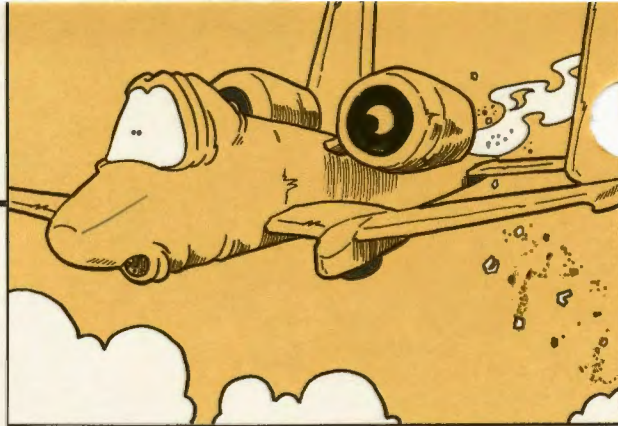
managers are responsible to track how each item in a weapons system is holding up. What a job! When we give the item manager feedback, we help him do his important job. If we don't consistently send MDRs, he doesn't get as clear a picture of how well or poorly a component is doing its job.

There are two good reasons to file an MDR. First, when you alert the item manager to a bad component (by sending an MDR), he can see if the problem was caused by that particular part or if it's applicable to all such parts. He can rid the supply system of defective parts that contribute to aircraft down time (and more work for the maintenance technician). Second, MDRs are recorded to form a historical data base containing failure rates of defective components and systems. The data base is available to engineers and system designers at the ALCs and within Air Force Systems Command. By studying the documented deficiencies of today's components, engineers can design more reliable and easier-to-maintain equipment for tomorrow's aircraft. So in the long run we realize improved mission capable rates—increased readiness.

If your bread and butter comes from fixing airplanes or their black boxes, you're bound to hear: *Why should I waste my time submitting an MDR on this old part? We've had a hundred of them fail before in exactly the same way.* Use the opportunity to demonstrate your knowledge. Teach your fellow technician how we will all benefit from his efforts with better parts from the supply system and aircraft that fly more because they break less.

No JOAP is no joke

A herd of Warthogs was flying missions out of a neighboring air base while the runway at the home 'drome was being repaired. Three of the deployed A-10s were out flying a close air support training mission. During target egress, with the throttles in max, the lead pilot heard an explosion. A wingman saw pieces falling from the leader's left engine and reported smoke and vapor trailing the sick motor. The lead pilot shut



down his left engine and landed uneventfully from a single-engine approach. After landing, the pilot saw that the entire fan assembly was missing.

When the engine was autopsied, the massive failure was attributed to failure of the number one engine bearing. The bearing had been installed during a local engine overhaul about fifty flight hours before the mishap. All the work during the overhaul and installation had been properly performed, inspected, and documented.

A review of the joint oil analysis program (JOAP) records on this airplane turned up some interesting information. The last recorded oil sample analysis was completed four sorties (eight days) before the engine exploded. At that time the iron content was measured at three parts per million. When the airplane first arrived at Brand X AFB, oil samples apparently weren't taken. Neither were samples taken on the first flying day of the deployment when the aircraft flew twice. After the third sortie an oil sample was taken, but for some reason it was not analyzed. After the mishap when that oil sample was finally analyzed, the iron content reading was twelve parts per million. If these results had been known before the fourth sortie of the deployment, the bearing problem would probably have been averted.

The JOAP procedure didn't work because it wasn't followed. The coordination among host base and TDY workers on the flight line and in the JOAP lab broke down. We pack our bags and take our jets off to exciting locations a lot. The procedures we use to accomplish all our tasks must work as well on the road as they do at home.

The routines that we establish to accomplish various requirements work like clockwork at home. When we move the work area, or change the people involved in our routines, it's easy to take Charley or Melvin's steps for granted. Trouble is our new workmates don't even know Charley or Melvin, much less their routines.

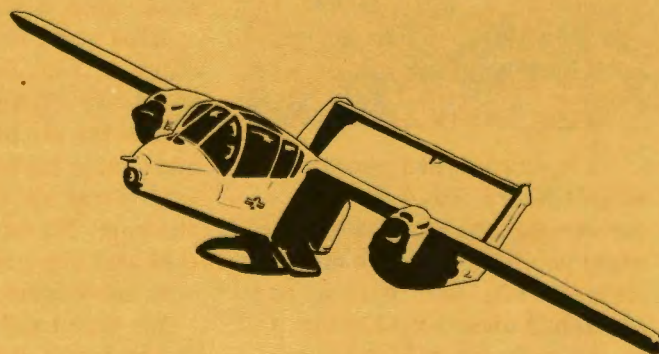
AIRCREW OF DISTINCTION

On 7 November 1983, CAPTAIN ROBERT M. HESSELBEIN, an OV-10 instructor pilot, was flying in the back seat of a Bronco with an up-coming student pilot in the front cockpit. They were flying a syllabus-directed sortie to practice controlling an airstrike. Their aircraft was operating normally up to the initial portion of work on the range. After the student fired two marking rockets and was turning around for another pass, Captain Hesselbein noticed smoke coming from a large bundle of wires in the rear cockpit near his right elbow. Cracked insulation and frayed wiring had caused the short. When the circuit breakers failed to pop, the wires continued to heat up and were soon hot enough for the plastic insulation to support combustion. Only seconds after the smoke appeared, the wire bundle burst into flames.

The flames quickly spread along the length of the wires from near his elbow back to the circuit breaker panel behind his seat. As the fire grew, Captain Hesselbein moved as far as he could to the left in the rear cockpit to avoid being burned and directed the student pilot to turn off the battery and generators. When he did, the fire immediately went out. When the instructor was convinced the fire was really out, he told the student pilot to select emergency battery power. Captain Hesselbein then declared an emergency and landed uneventfully at the auxiliary field located at the range.



Capt Robert M. Hesselbein
549 TASTS, 549 TASG
Patrick AFB, FL



Captain Hesselbein's quick analysis of the electrical fire and his instant, correct response, based on a solid knowledge of aircraft systems, prevented the possible loss of the airplane. He has earned the Tactical Air Command Aircrew of Distinction Award.

SOME OF YOUR STRIPES

he trusted his friend...
and did him a great disservice



This feature article originally appeared in TAC Attack vintage September 1966. We have significantly improved our accident rate in the intervening years — but human nature hasn't changed a bit. Here's a timeless lesson about supervision and inescapable responsibilities that go with the paycheck.

I really felt bad about it when I heard. You know, it's hard to explain how it hits you when you hear that one of the birds went in. And this was one of the bad ones. I first heard it on the radio when I was coming home from the drug store.

Mike had been helping me put the new transmission in . . . he's a real good mechanic on cars as well as airplanes . . . and we had gone for some late ice cream when we quit work-

ing. As we got back in the car, the radio came on with music, and before we were out of the parking lot, the announcer broke in and said there had been a big explosion on the edge of town and they didn't know what it was yet.

Mike and I looked at each other . . . like, do you suppose it could be . . . ? And before we'd driven the six blocks home, the announcer broke in again and said it was an airplane from the base. No more . . . just real cold and impersonal like he was announcing the ball scores.

We didn't talk about it going in the house, but I know Mike was wondering, like me, if it was a bird from our flight and whether the pilot got out.

When we got in the house, Sarah asked if we'd heard. She knew the answer before she finished asking from the looks

on our faces.

We just kinda sat around for a while . . . I guess we were just waiting for another announcement on the TV. Like I said, Mike comes over pretty often and I treat him just like he was my kid. It isn't like we have to enertain him. Both of us just sat there with our own thoughts, not really looking at the television.

On the late news they said the pilot didn't get out of the airplane, but didn't say who it was. Mike started to get up to call the base, but then he sat down again.

When the news and weather was over, he went home. We had to be to work early in the morning. We'd find out then. I went to sleep still wondering if it was one of my birds.

When the phone rang, I thought it was the alarm clock

and started to go in to take a shower, but when Sarah picked it up, I knew what it was about. The Captain wanted me to come in right away. It had been Mike's airplane.

Yes Sir, I'd pick up Mike on the way in.

I looked at the clock when I hung up . . . I'd been in bed less than an hour.

Mike heard the details when he got back to the barracks and talked to some of the guys. When I got to his room he was feeling pretty bad. He hadn't undressed or gone to bed or anything . . . just sitting there on his bed.

He told me what he knew of it while we drove across the base to the flight line. The pilot had reported that the controls didn't feel right while he was in the tanker and decided to abort the mission and come home. The flight leader came back with him and they were getting ready to land. The pilot said once that it felt like the elevator was sticking . . . that it didn't move when he moved the stick. Then, just as they were about a mile from the runway, the flight leader saw him nose over real sudden and dive right into the ground. The pilot didn't say anything on the radio . . . it was over in a second.

The Captain grabbed me and Mike as we walked in the hangar and took us into the flight line office. He had the forms that Mike had pulled just after he finished preflight for the night flying. He didn't say anything until we all found a chair and he lit a cigar. He only does that when he's got a real big one on his mind. And he did! He had the forms

where we had pulled the aft section for the engine shop. Really, Mike had worked on it. I have enough problems with the guys we're getting now, I let Mike do his own work. Sure, he's only an airman first class . . . but I haven't seen a better mechanic in twenty-two years around airplanes. Some of these jokers that we're training to be crew chiefs can't tell a socket wrench from a cross point screw-driver.

And so I told the Captain how we'd had this write-up on the engine and the engine shop had run it on the trim pad. When they brought it back, Mike replaced the aft section. After he had reassembled all the control linkage and everything, he ran the form over to me to sign off the Red X. I guess I never did really inspect his work before he buttoned up all the access panels.

But, I told the Captain, this was no time to try to cover anything up . . . Mike and I had worked this way for months. If I trusted anybody in the flight to do the job right, it was Mike. And I saw his style often enough . . . on the airplanes, on cars, on my neighbor's outboard motor . . . Mike's just a natural mechanic. And he's careful and thorough. That's probably what makes him so dependable.

The Captain leaned back and puffed on his cigar a couple more times. I'd expected him to be pretty mad, like he gets out on the line when things are getting tight, but he seemed calm.

Then he shook his head a couple of times. "You're not telling me anything new, Sarge. I've seen you and Mike

in action. I know how much you depend on Mike. And there's many a time that I've been awful glad we had Mike around." He looked at Mike for a few seconds without saying any more.

"But in a few minutes," the Captain went on, "I must take these forms over to the accident board. They're going to see this write-up on the aft section removal. And they're going to see who did the work and who made the inspection."

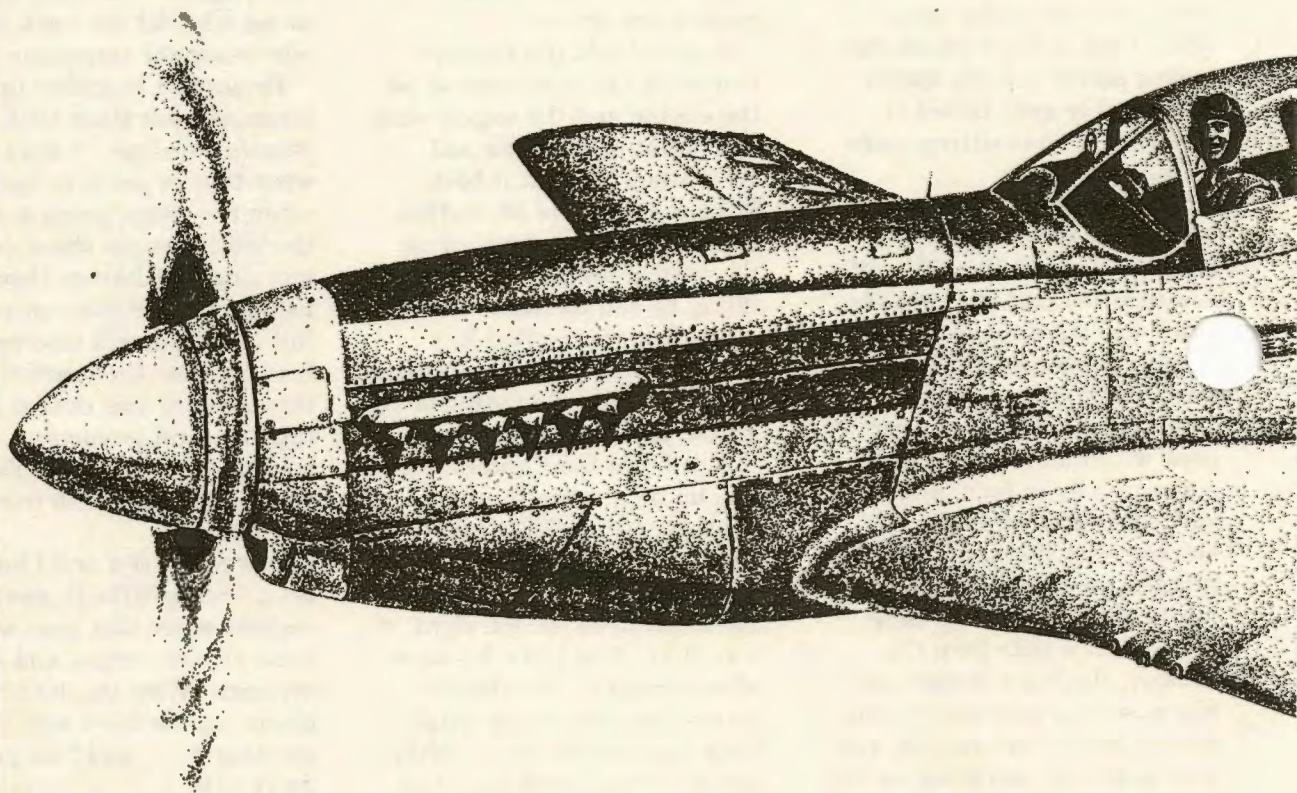
He started to gather up the forms and put them back in the manila envelope. "I don't know what they're going to find when they start going through the wreckage out there in the morning, but I know they'll be looking for elevator control linkage and quick disconnects. And whether the board decides this accident was caused by flight control problems . . . or a bolt out of the blue . . . I've learned one big truth from it already."

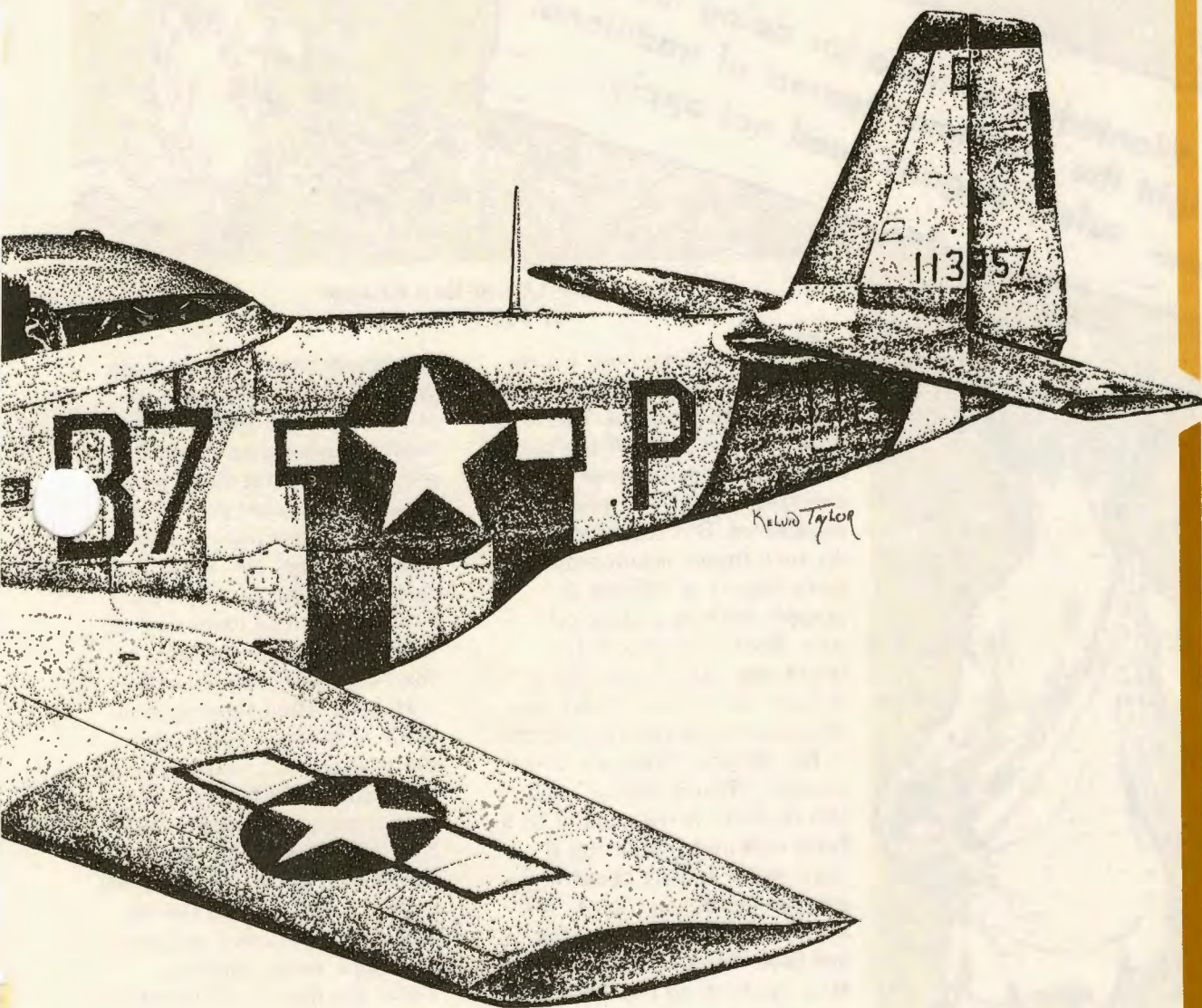
"Sarge . . . you and I have been forcing Mike to wear the responsibility that goes with some of your stripes and one of my bars. When you let him button up his work without inspecting it . . . and I let you get away with it . . . we're placing 100 percent of the responsibility for error-free work on his back."

The Captain paused to puff on his cigar again.

"I know what you mean, Sir," I was looking at Mike as I said it. "Mike may be one hell of a good mechanic . . . but I've never seen *anyone* who doesn't make a mistake or omit something once in a while. That's why we inspect all critical work." ➤

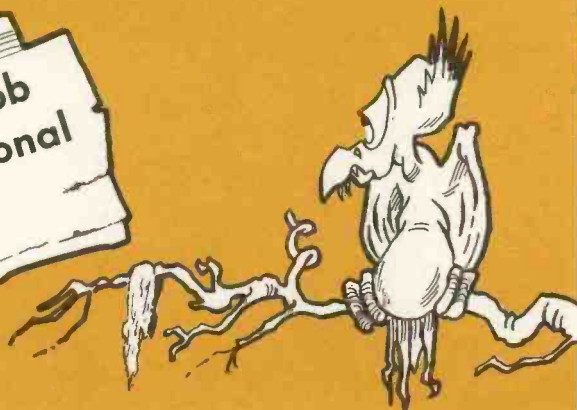
P-51 MUSTANG





a point of focus

Wanted: A formula for doing the job right the first time. Bearers of traditional safety slogans need not apply.



By Lt Col Ken Krause
57 FIS/CC

For a long time now, I have had trouble with safety. Not the word, the concept. Oh, it's a good word; it rolls off the teeth and tongue easily, most people can spell it, and it's quickly recognized. But safety stands for such broad organizational goals that it is difficult to grapple with in a practical way. Because it stands for broad and varied concepts, it is difficult to focus on, much less disseminate in everyday terms.

The phrases "Safety is Paramount," "Think Safety," and "Work Safe" leave most of us a little cold and wondering if what we're setting about to do complies with the intent. We may say *OK, I'll work safely*, but then think to ourselves, *How the heck do I do that?* We get mental images of people softly treading about, nervously glancing over their shoulders, lest they be caught doing something unsafe (read unsafe in a deep, foreboding voice)—conservatism in the extreme.

That's no way to do a job. And most fighter folks (flyers, maintainers, supporters), are

extremely interested in doing the job. The job is where we should focus on safety. Safety is nothing more than doing the job right the first time. *Swell*, you say, *but what does that take? Isn't that just another vague concept?* No. What it takes to do the job right the first time can be examined in much more practical terms than can doing the job safely.

Having sifted through hundreds of mishap reports over the past several years, been an avid reader of Fleagle, and read innumerable MEI, ORI, NSI, MSET, and QA reports, I've settled on four ingredients I think it takes to do the job right the first time—training, tech data, tools, and time. Voila, the four Ts. *What about supervision, attitude, and motivation?* you ask. First, they screw up the mnemonic and second, I hope to show they're really results of having the other four.

Training. Just because a particular task is signed off in the on-the-job-training record or aircrew gradebook doesn't



necessarily mean the individual is capable of doing the job right the first time. Sometimes we get so wrapped up in the training program that we forget to *train*. The completed paperwork sometimes becomes the goal vice the member's ability. Supervisors and commanders must continually evaluate job performance and insure the paperwork truly indicates ability.



Training is a team effort—throughout the unit. Let me explain. We recently CUT (cross utilization training) an individual as assistant crew chief. He was helping the regular crew chief install a drag chute and inadvertently pulled the emergency harness release handle on the right side of the pilot's seat instead of the drag chute handle on the left. Later, we found that he had failed the egress training test; but since his primary job did not require working in the cockpit, he was not required to retest. The damaged ejection seat was a relatively inexpensive lesson, but it taught us how training information needs to filter into all the nooks and crannies of our unit.

Tech data. Besides technical orders, this category includes all forms of written procedures and guidance. Not only must it be available, but also read, understood, and followed. Believe it or not, some folks can't read well and the "system" may not always identify them for you. Understanding is most



often where we have problems. A detailed training program which requires extensive use of written instructions will help an individual learn to understand the written word. Over-the-shoulder observations effectively measure that training.

And if the words don't make eminent sense, the AFTO 22 or AF Form 847 is the method to change them. Back when Rin Tin Tin was a puppy and I was going through the F-4 RTU, I noticed the checklist procedures for single and dual-engine flameout were reversed. I queried the IP (who had just finished a tour in SEA) who said, "Gee, you're right, I never noticed that before." Come to find out the procedures had been reversed for several months, for the last two printings. We had seldom practiced that particular emergency procedure, so it had gone virtually unnoticed and unchanged.

One last thought on tech data. Make sure all WOMs (words-of-mouth) are identified and either dispelled or formalized in writing.

Tools. From screwdrivers to aircraft, if the tool or piece of equipment doesn't fit the task, or if it is broken, or even unavailable, the worker should call "time out" and get a good one.



I'm not just talking about wrench benders. We all know of mishaps that happened because the aircrew knowingly took a bad piece of equipment into the air.

We should also evaluate how we are using safety equipment "tools." One of our folks nearly lost an eye when the hose he was using to refill the T-33 gaseous oxygen system popped loose and smacked him on the eyebrow. His safety glasses were available and in good repair, but on his forehead instead of over his eyes.

And what about self-help projects? This is the place where there is probably the greatest potential for using tools unsuited for the job.

POINT OF FOCUS

Time. This ingredient is often overlooked, yet it is the one that threads throughout the other three. Often in the press of getting the iron in the air, taking the time to do the job right the first time is stuck into the "can't afford" slot. Sometimes the worker who makes a serious mistake has been properly trained, has the right tools in good repair, and uses and understands the tech data—but he's pressed for time. Sometimes we can get away with beating the "flat rate manual" time for a job—if the other three ingredients are present. Sometimes we can't.

I recently went through our monthly Quality Assurance report looking for discrepancies caused by not taking sufficient time to do the job. It was sur-

prising how many occurred in instances where a lack of time was *not* a reasonable excuse—during engine buildup, engine bay inspections, FOD walks, and postflights. If folks are cutting corners during non-time-sensitive work, what do they do when pressed?

I hope you can see how the four Ts are related and how the time factor runs through them all; but how does supervision, attitude and motivation fit in? A supervisor is only a technician applying leadership to get a job done. Technicians with good technical training, who know the value of well written instructions, who appreciate proper equipment, and who know how to manage their time, have the foundation to become effective supervisors.

First, we train technicians, then we teach them leadership techniques. That way it's natural for them to instill and insist on proper attitudes about doing the job right.

Attitude and motivation are the by-products of being well trained and equipped and having enough time to carry out the assigned tasks. Give a guy or gal the wrong tool, half the normal time to do a job, or a job he or she hasn't been trained to do, and watch what happens to his or her attitude and motivation.

Whether planning for a mission, a surge exercise, a weapons load training session, or a self-help project, asking yourself if it's a "safe" operation is seldom enough. Rather, ask about the four Ts: *Have we had sufficient training, do we have the appropriate tools and equipment in good repair, is written guidance used and understood, and will we have enough time?* With this focus you can better judge whether to begin, delay until deficiencies are set right, or press on with confidence the job will be done right the first time. ➤



Lt Col Krause is the commander of the 57th FIS, Keflavik, Iceland. He holds a Masters Degree in Business Administration and is a command pilot with over 2,700 flying hours. He graduated from the Air Force Academy in 1965 and entered pilot training at Vance AFB, OK. He checked out as an F-4D pilot at George AFB, CA, and had subsequent tours at Eglin AFB, FL; Udorn, AB, Thailand; Mountain Home AFB, ID; Misawa AB, Japan; and Kadena AB, Okinawa. After completing Air Command and Staff College, Colonel Krause went to TAC Safety as Chief of Programs and Publications. Before being assigned to Iceland, Colonel Krause was the operations officer of an A-10 squadron at Myrtle Beach AFB, SC.

SAFETY AWARD

CREW CHIEF SAFETY AWARD

SGT ROBERT D. BALLARD is this month's winner of the Tactical Air Command Crew Chief Safety Award. He is a member of the 474th Aircraft Generation Squadron, 474th Tactical Fighter Wing, Nellis Air Force Base, Nevada.

During a recent aircraft launch, while Sergeant Ballard was observing the pilot perform flight control checks, he noticed a slight bulge near the hinge point of the leading edge flaps. He directed the pilot to shut down the aircraft. Subsequent investigation revealed that the flap actuator mount had broken. If the aircraft had flown, the leading edge flaps would not have operated on one wing causing severe control problems.

Another time, again during an aircraft launch, he detected a small seepage of fluid coming from the wheel brake assembly. Although it was only a very slight leak, he asked the pilot to reapply the brakes. On the third application, a seal rup-



SGT ROBERT D. BALLARD

tured, and the brake failed. On another occasion, during a landing gear retraction check, the hydraulic specialist was about to apply hydraulic pressure. Sergeant Ballard stopped him and asked if he had checked the cockpit switch positions. When he looked in the cockpit, the landing gear handle and speedbrake switch were both in the wrong position.

Sergeant Ballard has earned the Crew Chief Safety Award.

INDIVIDUAL SAFETY AWARD

This month's winner of the Individual Safety Award is **SSGT THOMAS J. DEAN**. He is the shift NCOIC of the F100 engine test cell, 405th Component Repair Squadron, 405th Tactical Training Wing, Luke Air Force Base, Arizona.

Sergeant Dean developed a comprehensive emergency procedures test for his section and administered no-notice simulated emergency evaluations of all his personnel.

Sergeant Dean's training program was put to the test on 31 October 1983, when an F100 engine was received at the test cell for operational testing after a core engine change. During engine trim, when augmentor operation was selected, a massive fuel leak occurred at the connection of the fuel supply tube to the augmentor. Sergeant Dean and his crew immediately initiated emergency actions. They successfully shut down the engine without damage, and contained the fuel before a stray spark could cause a catastrophic



SSGT THOMAS J. DEAN

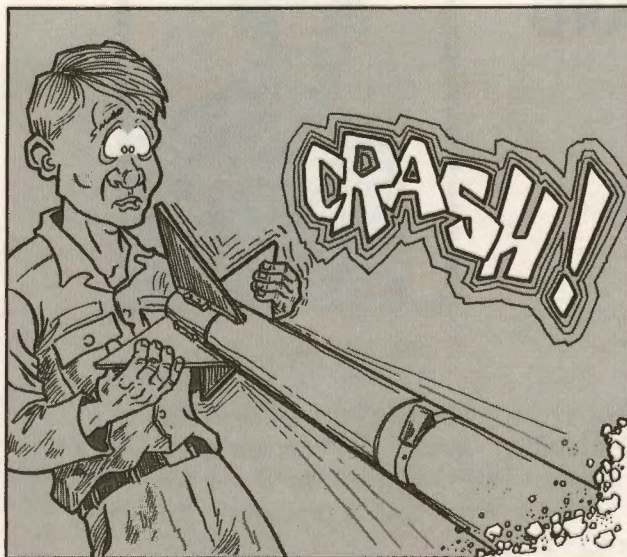
fire. His crew handled the emergency professionally, without panic, much to the credit of Sergeant Dean's training program. Their prompt execution of emergency procedures prevented a major mishap.

Sergeant Dean's foresight in professionally training his people for potential emergencies was the primary reason that this emergency did not result in a major fire. He has earned the Tactical Air Command Individual Safety Award.

WEAPONS WORDS

Hurry up and...look out !

A weapons crew was downloading an F-15's AIM-7F Sparrow missiles during an integrated combat turn-around (ICT). As each radar-guided missile came off the Eagle, the crew placed it on the bed of the MHU-12M trailer. One of the workers, armed with a trusty Allen wrench, marched up to the trailer to remove the fins from the missiles. One of the fins was resting against the trailer's frame which made it hard to get at with the wrench. So he took the Sparrow by two fins and rolled it over. But it rolled right out of the chocks and fell nose first to the concrete. Out of action.



ICTs are designed to get our jets back in the air on another mission as quickly as possible. But when we're trying to hustle, we're more liable to

make a mistake. If the mistake breaks the airplane or ruins the ordnance, we've defeated the purpose of the quick turn. While ICTs are indeed a time to hurry, they're also a time to be on guard.

Jam session

Trying to prove oneself one-on-one against the dart is an exciting phase of air-to-air combat training. It's a chance for a pilot not only to practice putting the gunsight pipper on the target (like we do on good days during air combat maneuvering missions), but also bullets. It's a little trickier than the WW-2 movies make it look. Sometimes it's even a little humbling. Although the lead-computing gunsights in some aircraft help figure the bullet's time of flight and the affects of G-forces, your average jock can still mess it up. There is just no substitute for live-firing practice.

One pilot was flying his aircraft in a butterfly pattern, performing a series of lateral approaches to the dart from alternating sides. The first pass was humbling. On the second run he was nailing that contrary aluminum training aid. But the gun stopped for no apparent reason in the middle of the attack. When he flew a third pass, the gun wouldn't fire when he squeezed the trigger.

The pilot safed the gun and came home. Maintenance workers found a hole in one of the interior panels, pieces of a disintegrated bullet, and damage to the cannon from a 20 millimeter round that had exploded. We may never know exactly what caused the bullet to explode before it escaped through the barrel; several possibili-



ties exist. But why the pilot tried to fire again once the gun had jammed is also a mystery.

If the radar quits working on a night radar mission, the operational part of the mission is over; we don't stick around to see if it's going to get better. The delay might cause further damage to the radar. The same logic applies to the gun — whether strafing on the range or killing the dart.

He switches all say that the cannon should be working and it's not, better bring it back while it's still in one piece.

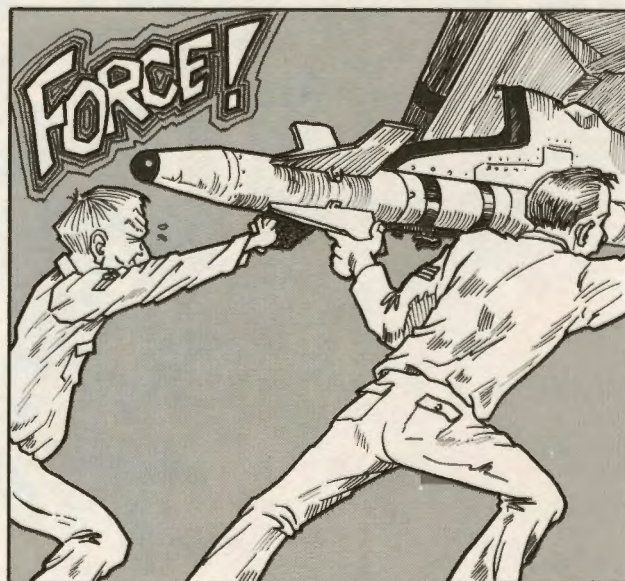
Ten percent

One of the fighters on air defense alert had to be replaced because it required some maintenance. After the new aircraft had been groomed and armed for action, the load crew moved to the retiring aircraft and safed its weapons. Later, another crew came to download the missiles. They noticed that the umbilical cords for guidance and control of the AIM-9 Sidewinders had been disconnected by the team that safed the aircraft. They all assumed that the retainer clips had also been disconnected along with the umbilicals by the other crew. They were all wrong. As they began to slide the first Sidewinder backwards off the launch rail, they met some resistance. They assumed the detent was sticking slightly and pulled harder to free it. Then, when they lowered the missile, they discovered the umbilical had been sheared off.

Evidently, a couple of similar mishaps involving retainer clips had led to a recent change in the local downloading procedures. Now, one worker was responsible for disconnecting the

AIM-9 umbilicals and retainer clips from the missiles on the left side of the aircraft, and another worker had to undo those on the right. The crew chief was then responsible to check both sides unhooked before downloading each missile. The additional check by the crew chief was new. Unfortunately, this load chief had been TDY and knew nothing of the procedural change or either mishap that caused it.

You know the old saying about the ten percent who never get the word. The statement can be self-fulfilling prophecy. Or we can take an active part in reducing the number of people who don't get the word. When TDYs, leaves, illnesses, or other events disrupt continuity, does your unit have a plan to bring the long lost worker up to date on what's changed during his absence?



NIGHT LANDINGS IN HAZARD COUNTY



An F-16 pilot was flying a night instrument mission in the weather and developed a serious case of vertigo. The aircraft's flashing strobe lights contributed to his orientation problem, alternately filling his windscreen and surrounding canopy with black then brilliant white fluorescence. He considered reaching down to the right console and turning the strobes off, but feared turning his head would make his gyros completely tumble. He hadn't been airborne very long, but there was no sign of any VMC, and his spatial disorientation wasn't getting better; so he decided to retreat to the pattern. There, he could practice instrument work beneath the weather and get rid of that awful feeling of being tilted in one direction when the gauges all said he was banked the other way.

The pilot received clearance for a TACAN penetration and approach and started down. When he slowed down to configure the aircraft, he felt even more disoriented. If only he could get down below these clouds, he knew it would all go away. He lowered the gear and flaps as he approached the final

approach fix and made his gear check call, but didn't request a radar monitor. At the gate, he began a fairly rapid descent to the minimum descent altitude (MDA) so he could get below the clouds.

As he expected, he broke out of the weather and acquired the runway lights several miles ahead. At last, right side up was right side up. When he leveled the aircraft at MDA, he noticed he was drifting left of course. Strong crosswinds were present earlier, but he had forgotten about them. While correcting back to a track that would take him to the runway, he slowed to the desired 13 units angle of attack approach speed. While working to maintain 13 units, he had one eye on the runway lights and the other on the Heads-Up Display (HUD). His night landing cross-check included only the HUD's flight path marker and pitch ladder, and the runway lights.

In his rush to get down out of

the weather, the pilot had pulled off a bunch of power. Then, when he slowed to 13 units AOA and got busy figuring out the crosswind, his heavyweight Falcon gradually drifted below the MDA. The aircraft maintained a constant 13 units, but because the pilot hadn't selected a higher engine rpm, it was doing so in a descent. The pilot didn't notice that he and his Falcon were sinking because he was only looking outside, and there just aren't enough visual cues there at night to judge vertical motion. He didn't refer to any round dial instruments inside the cockpit, like the VVI, or to the airspeed and altitude information that was available on the HUD.

All of a sudden he sensed he was very low; the fast-approaching runway environment appeared flatter than usual, and he saw a red-over-red VASI indication. So he selected afterburner and went around, unaware that he had

trimmed the tops of some trees that stood beneath the final approach path.

The tendency at night to try to maintain altitude by only looking at the lights around an airfield is not a recently identified hazard. Pilots in aircraft with and without a HUD have demonstrated that when the VASIs are already red-over-red, they don't get redder as you get lower.

Most of us have experienced the relief of breaking out of the weather, getting our bearings, and instantly feeling back in control, no longer disoriented, no longer struggling against an unnatural environment. The sudden return to familiar surroundings can produce a false sense of security. When it happens in day VMC, it usually doesn't present problems. However, breaking out of the clouds into low visibility, either day or night, doesn't produce the same euphoria; you still have to work at being oriented and you realize you have to continue cross-checking everything in order to fly the approach with precision. But breaking into the clear at night, particularly with vertigo, can be especially *dangerous*; you feel a great sense of relief but may not be aware that you still need to fly the gauges. Acquiring the approach lights quickly orients you to the horizontal, but the lights alone don't provide sufficient feedback about your vertical progress.

A more complete cross-check could have saved this lad from dragging his gear through the squirrel nests. And a cross-check is the only thing that'll save you and me from doing the same thing. ➔



DOWN TO EARTH

I was wearing my seat belt for the wrong reason

By 1st Lt Carol Maske
USAF Special Operations School
Hurlburt Field, Florida

I was on my lunch break with a lot of errands to do in an hour—out the back gate to the bank, then to the post office, then finally, maybe, time for a quick lunch. I finished my errands with plenty of time to pick up a fast bite to eat and head back to the office.

Leaving the post office, I was on my way to one of our fast food establishments. I was mentally occupied with the relative calorie count of a large taco salad versus a large baked potato with chili and cheese. Thus, preoccupied, I approached the intersection in front of the shopping center. I saw the traffic ahead pulling away on the green light. A little quick mental calculation told me there was no need to slow my speed as I was well behind. I casually noted cars in the on-coming left-hand-turn lane poised for the turn into the shopping center, but I had the light and the right of way was mine. Then, the “impossible” happened. The lead car started coming across my lane right





55-gallon drums could offer a big bang

A welder started to cut the top off of a never used, 55-gallon drum with the bungs in place. About five seconds after applying heat, the drum exploded, seriously injuring the welder.

The drum, FSN 8110-00-292-9783, was manufactured by U.S. Steel Corp., Container Products Division, Masury, Ohio, and shipped in January 1983. Since the drum had never been used, it was suspected that something in the construction process of the drum could have caused the explosion. So U.S. Steel was asked how they made the drums.

First cold rolled sheet steel is rolled into a cylindrical shape and welded longitudinally. The cylinder is then treated with a zinc phosphate rust inhibitor. After the top and bottom are put on and the outside painted, the inside of the drum is treated with about ¼ cup of a 3-in-1-type oil mist to further inhibit corrosion. Last, the bung is installed.

We think some kind of chemical reaction takes place in the drum when it is exposed to hot and cold weather. So it is recommended that all units using this type 55-gallon drum take the following steps before cutting them.

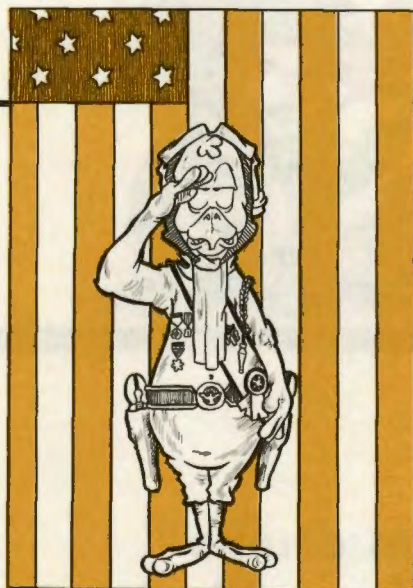
1. Remove bunghole covers to allow any pressure or gas to escape.
2. Fill the drum with water, then rinse it out.
3. Refill the drum with water to a level just below the point where cutting will take place.
4. Refer to TO 34W-4-1-5, "Welding Theory and Application."

in front of me. *Oh, no!* I thought. My hand instinctively hit the horn as my foot jammed the brakes and my mind instantly calculated and rejected every evasive action I thought of. *Boxed in! Nowhere to go! I'm goint to hit it! Hard! The windshield—my head. Oh Lord, no! Not me.* I heard a horn before I realized it was mine. And the desperate squealing of those tires as I thought *Please let me stop in time—oh please—please!*

But, allow me to back up a moment. I would like to explain why I was wearing my seat belt. It's not unusual to find our safety officer peaking in our windows to see if we have our seat belt buckled, and taking names. Furthermore, our commander gets upset when he hears about someone who forgot to "buckle up." So I decided it would probably be prudent to develop the "buckle up" habit. No one was going to catch me without my seat belt and leak it to them.

Quite honestly, I really don't remember buckling up when I left the post office. There was this awful impact. My body whipped forward like a rag doll. I distinctly remember being headed for the radio—but then something grabbed me and held me securely. There I was sitting upright again in the driver's seat. Now I find it very difficult to express the emotions I felt as I reached up to touch that seat belt while I gazed at the incredible mess that was formerly the front end of my car. Suffice it to say that I knew the strong hand of a caring commander had really been what caught me.

Now 'days, I wear my seat belt not just because the safety officer checks on me nor because my commander might hear about it if I don't, but because I know my seat belt works.



FLEAGLE SALUTES-

A1C Richard W. Holder and **Amn William P. Mentzer**, 363d Component Repair Squadron, 363d Tactical Fighter Wing, Shaw AFB, South Carolina. Airmen Holder and Mentzer heard an explosion in an adjacent area of the welding shop and rushed to the scene where they found a co-worker unconscious and bleeding profusely from his arms and face. They quickly turned off the oxyacetylene gas that was flowing freely from the severed hose near the injured airman. Then they worked to stop the flow of blood and treated the injured airman for shock until professional medical help arrived. Their quick, coordinated response to the emergency helped prevent the death of a co-worker and a possible major explosion.

SrA Thomas A. Mosby, Aircraft Generation Branch, 49th Fighter Interceptor Squadron, Griffiss AFB, New York. When stray voltage from a faulty power cord of a hy-

draulic test stand charged an F-106, the ground wires arced with the hangar floor and the attached fuel drip cans heated up. Senior Airman Mosby, on the other side of the hanger, noticed smoke coming from the arcing wires and ran to disconnect the test stand. Then, despite burning his hands, he disconnected the fuel cans from the aircraft. His quick actions may have prevented a fire in the hangar and loss of the aircraft.

SSgt George G. Sarris, 49th Aircraft Generation Squadron, 49th Tactical Fighter Wing, Holloman AFB, New Mexico. While readying his F-15 for an early launch, Sergeant Sarris found a piece of metal beneath the aircraft. He opened the panel above the fallen fragment and discovered hydraulic lines barely held by a damaged bracket above the integrated drive generator. The aircraft was immediately grounded. Sergeant Sarris' alertness prevented further damage and alleviated a hazardous condition.

Sgt Edison F. Godoy, 56th Aircraft Generation Squadron, 56th Tactical Training Wing, MacDill AFB, Florida. Sergeant Godoy, a dedicated crew chief, was readying his F-16 one morning. Unable to remove several marks from a panel he was wiping, he lowered the panel and discovered that a disconnected plug had marred the skin. The plug provides continuous high-energy ig-

niton to the engine. His conscientious attitude resulted in alleviating a hazardous condition.

Capt James G. Hazen and **2d Lt Donald L. Parrott**, 434th Tactical Fighter Training Squadron, 479th Tactical Training Wing, Holloman Air Force Base, New Mexico. Failure of a cannon plug on an SUU-11 gun pod attached to an AT-38B caused the gun to fire at the flight leader several thousand feet ahead on takeoff roll. When the aircraft lifted off at 160 knots, Lieutenant Parrott and his IP, Captain Hazen, saw tracers in front of their aircraft. The IP directed the student to immediately set the aircraft back down on the runway and abort. When the main gear struts compressed at touchdown, the gun ceased firing, and the crew safely completed a high speed abort. Their prompt action limited damage on their aircraft and kept the lead aircraft from being hit.

1st Lt Robert L. East, 75th Tactical Fighter Squadron, 23d Tactical Fighter Wing, England Air Force Base, Louisiana. While flying a surface attack tactics mission at a deployed location overseas, the left engine of Lieutenant East's A-10 compressor stalled in the vulnerable low altitude, high speed regime. He climbed to gain control, turned towards an allied base, shut down the bad engine, and started the auxiliary power unit according to the checklist. Soon, however,

the APU caught fire, so the pilot shut it down and pulled the APU fire handle to put the fire out. Lieutenant East successfully landed the crippled fighter from a difficult single-engine approach.

Sgt Michael Vrane, 363rd Equipment Maintenance Squadron, 363d Tactical Fighter Wing, Shaw AFB, South Carolina. Sergeant Vrane was launching a tran-

sient L-188 Logair turboprop when the left inboard starter exploded and the engine caught fire. Without hesitation he called for help on the radio and used a CB fire extinguisher to put out the flaming engine. His quick response prevented the possible destruction of the aircraft which was loaded with flammable materials.

Sgt Tommy J. Anderson, 4404th Aircraft Generation

Squadron, 4th Tactical Fighter Wing, Seymour Johnson AFB, North Carolina. Sergeant Anderson was driving his line truck near some parked aircraft when he noticed a fire on a hydraulic mule that was attached to one of the F-4s. He stopped his truck and used the fire extinguisher. When the fire was out, he directed others to move the hydraulic unit away from the aircraft. His quick response and leadership helped avert an aircraft fire.



Auto-Mate Jack Stand Recall. If you bought an Auto-Mate jack stand, model 172, between 18 Nov 83 and 23 Jan 84, the Army-Air Force Exchange Service urges you to bring it back for a refund or replacement. The stand may have a defective leg junction.

Enough is Enough. If moderate exercise is good for you, is more better? Not according to Dr. Kenneth Cooper, a fitness expert. "There is a point of diminishing returns," he says. Those who run more than 25 miles a week are more prone to muscle and joint injuries; exercising more than five times a week triples the injury rate; and increasing exercise duration from 30 to 45 minutes doubles the injury risk. Recommended for most people is 20 to 30 minutes of exercise (at 70 to 85 percent of maximum pulse rate) every other day.

30 Minutes After Exercise. A group of British researchers has found that within half an hour after sustained exertion, blood pressure drops significantly. Other studies now in progress show that exercising for short durations lowers blood pressure for 4 to 10 hours. Working out regularly could keep it down for good.

Dented Cans. Sometimes they're not a good deal. If the can bulges, usually at the top or bottom, the contents are spoiled. If the dent is along the seam of the can—a stress point—gases that produce spoilage could escape (the same gases would have made the can bulge). Cans with a sharp V-shaped dent could cause pinhole leaks. And if the contents are discolored or have a strange odor, don't taste the product. Throw it away.

More on Home Fire Protection. The U.S. has the highest fire death rate per million population in the industrialized world. And that's why the Fire Administration is now pushing for the installation of sprinkler systems in the home. Why? A sprinkler system would spray water in a room before the temperature reaches 200 degrees Fahrenheit, giving you more time to escape and reducing the formation of carbon monoxide gas, which causes more deaths than burns. If you want more information, call your local fire department.

LETTERS

Dear Editor

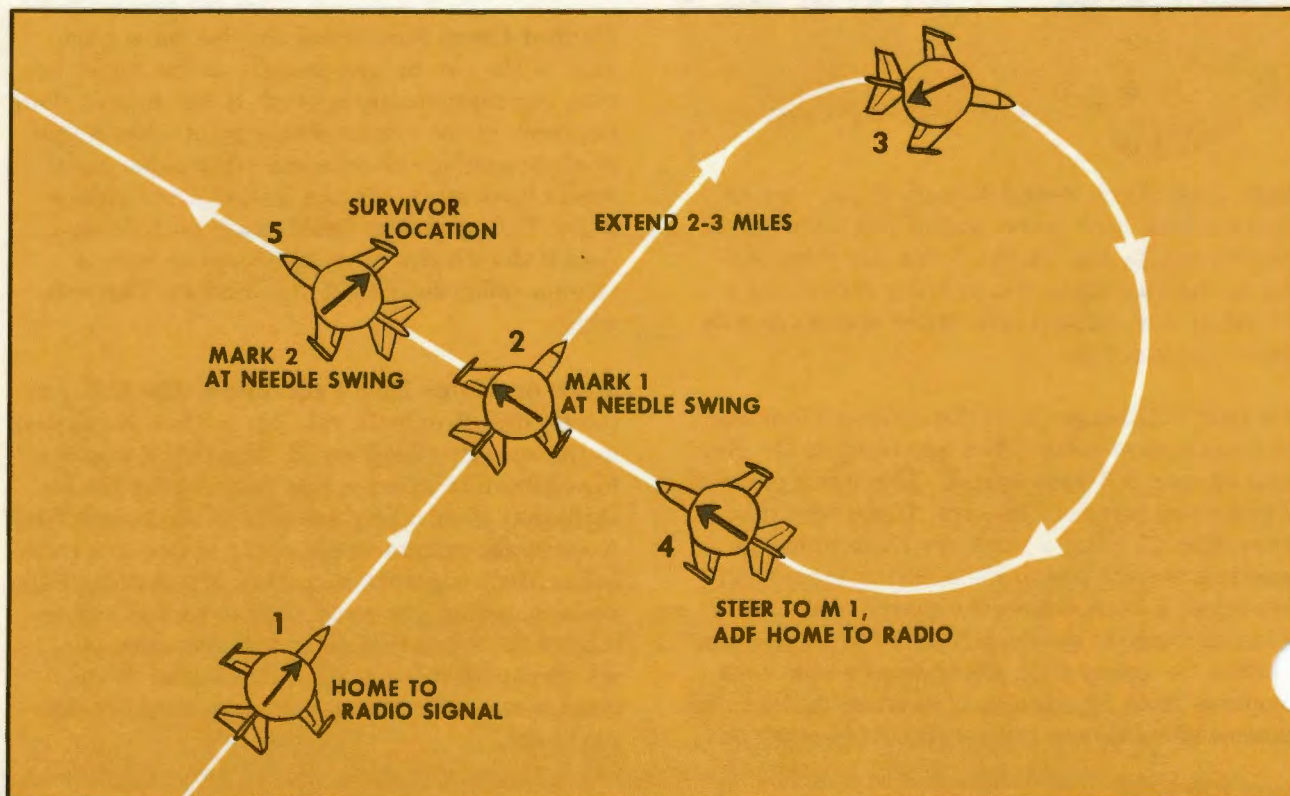
I'd like to add an old SAR trick to the RESCAP procedures in your June 1983 article and November 1983 letter to the editor (Maj. Wicks). There is a simple and effective procedure for homing in on a survivor's radio signal when he is in the trees, under a low cloud deck, in the water, or otherwise hard to spot visually. It requires an aircraft with an ADF and an INS with a MARK feature, and can pinpoint the survivor's location within 100 yards.

1 Update your INS. Enter the survivor's area at maneuvering speed and a reasonable altitude (3,000 to 5,000 feet if possible). Ask the survivor for hold-downs or home in on his beacon with your ADF needle. As the ADF needle swings through 3 or 9 o'clock, **2** MARK the spot. Extend 2 to 3 miles past the point, then begin a 270-degree turn away from the needle swing, **3** so

that you are on another run-in heading 90 degrees off the first. **4** Steer to the first MARK and again, home in on the radio signal. This time, when you **5** MARK the needle swing, your MARK will be right over the survivor. You can continue to refine the position and report it to SAR coordinating agencies.

I've used this technique twice in real-life SARs, and it's much more effective than a random visual search, even aided by ADF. It's something every fighter pilot should have in his bag of tricks.

Major Bob Keeney
HQ TAC/DOV



TAC TALLY



CLASS A MISHAPS
AIRCREW FATALITIES
TOTAL EJECTIONS
SUCCESSFUL EJECTIONS

TAC		
FEB	THRU FEB	
	1984	1983
2	4	6
2	5	3
0	0	2
0	0	2

ANG		
FEB	THRU FEB	
	1984	1983
1	1	3
0	0	3
1	1	3
1	1	2

AFR		
FEB	THRU FEB	
	1984	1983
0	0	0
0	0	0
0	0	0
0	0	0

TAC'S TOP 5 thru FEB 84



TAC FTR/RECCE	
class A mishap-free months	
51	355 TTW
30	58 TTW
23	4 TFW
20	37 TFW
17	27 TFW

TAC AIR DEFENSE	
class A mishap-free months	
133	57 FIS
86	5 FIS
83	48 FIS
42	318 FIS
33	87 FIS

TAC-GAINED FTR/RECCE	
class A mishap-free months	
142	188 TFG (ANG)
134	138 TFG (ANG)
133	917 TFG (AFR)
111	114 TFG & 174 TFW (ANG)
106	112 TFG (ANG)

TAC-GAINED AIR DEFENSE	
class A mishap-free months	
116	177 FIG
82	125 FIG
65	119 FIG
49	107 FIG
40	147 FIG

TAC/GAINED Other Units	
class A mishap-free months	
175	182 TASG (ANG)
159	110 TASG (ANG)
155	USAF TAWC
147	84 FITS
143	105 TASG (ANG)

CLASS A MISHAP COMPARISON RATE

(BASED ON ACCIDENTS PER 100,000 HOURS FLYING TIME)

TAC	1984	3.4	3.5										
	1983	6.9	5.3										
ANG	1984	0.0	2.3										
	1983	0.0	7.1										
AFR	1984	0.0	0.0										
	1983	0.0	0.0										

JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC

NEAR MISS!



HARDISON