It is indeed an honor for me to accept the lead from Colonel Hal Watson. He added strength, stature and credibility to a very demanding safety program. The record under his tenure speaks for itself: 1985 was the safest yet.

He gave us a fresh approach concerning safety. "It" was no longer paramount—accomplishing the mission the right way became most important. "Fly Smart" was his by-line. Not because it sounded good, but because it made sense, and we can see and feel the results in terms of combat-ready aircraft/equipment and crews/personnel. We wish him well and hope he will always have a bright sun in his 2 o'clock high.

As for myself, I was weaned by a crusty major who taught me that the term "fighter pilot" was not a mere title stamped on the forehead of the RTU graduate, but a philosophy. A philosophy of those who rise to meet the challenge. Regardless of the odds, they meet it head on, day after day, for as long as it takes to win.

Today, Tactical Air Command is made up entirely of such fighter pilots. Look at our record. We are setting the standards for excellence in every aspect of military life. We are doing things smarter and safer than ever before—with a team effort and spirit heretofore held in reserve only for combat. But, above all, we have championed readiness. And we believe these major goals will help us to continue setting the standards:

**Flight**
- Serve as lead for flight safety issues affecting the TAF.
- Increase awareness of mishap potential regarding ops factor mishaps.

**Ground**
- Serve as lead for TAF ground safety program.
- Support unit commanders in Management Oversight Risk Tree (MORT) initiatives.

**Weapons**
- Enhance utilization of unit weapons safety personnel.
- Improve TAC weapons facilities.

I look forward to a new challenge and promise to uphold the tradition entrusted to me. Your support and participation in TAC Attack is essential for its continued success. Let me hear from you. Show us a better way.

If, through TAC Attack, we have made you think, set higher goals and strive harder for excellence, then I would say we're getting max performance out of our "Angle of Attack."

EDSEL J. DE VILLE, Colonel, USAF
Chief of Safety

JANUARY 1986
5 Habit Patterns
Most of what we do in flying fighters must be based on sound habit patterns. They allow us to fly, fight and handle the unexpected. How do yours stack up?

16 In The Center
OA-37B.

18 Instructor Pilot
As an instructor pilot, your day-to-day duties shape and mold the fighter pilots of the future. Have you taken a moment lately to check your own techniques and attitudes?

26 Heroes Do
Are there any heroes today? Do we have any in the tactical fighter community?

28 Inflight Emergency—Back to Basics
The essentials for handling inflight emergencies haven’t changed since the early days of canvas and wire.

30 The Year of Your Article
Remember thinking That would make a great TAC Attack article? Well . . .
Dear Editor

"Chief Under Glass" in your June Chock Talk raised a few eyebrows in the fire station here. About 9 months ago we procured a jettisoned F-16 canopy and, having heard about the problems being experienced while trying to cut through these tops, we began experimenting. We’ve been successfully cutting through the F-16 canopy for over 8 months now. The answer is in every fire station: a carbide tipped, wood-cutting blade on a K-12 or Quickie Rescue Saw will do the job everytime. To test our capability, we simulated the situation outlined in your article, and cut a 20 x 20-inch square in 49 seconds. (We can cut a \( \frac{1}{4} \)-inch trench in the canopy with no melt-over.) This article raises two questions: first, how many maintenance folks realize the capabilities of their fire departments in handling situations like these? Second, why wasn’t the fire department called in this case? Our primary job is rescue. It doesn’t matter if it’s an unconscious pilot in a burning aircraft or a burning crew chief hung up in his work.

TSgt RICKY N. BROCKMAN
Assistant Fire Chief
363 CES/DEF
Shaw AFB, South Carolina

There are a million stories out there in the Tactical Air Command. Send me some of them.

Editor, TAC Attack
Hq TAC/SEP
Langley AFB, VA 23665-5001
Attn: 432-3658
This is a philosophic discussion. If it's your habit pattern to skim over or disregard such discussions, I suggest you change it. I am talking to TAC fliers in general but specifically fighter aircrew members.

We are creatures of habit. How we live, how we conduct our daily activities/routines and how we fly all form habit patterns. I contend that habit patterns will determine if you live or die while flying fighters. Good habit patterns that enhance safety, cope with routine procedures, deal with emergencies and complement weapons employment, to name a few examples, will help you live. Do otherwise and you risk dying.

To be effective, habit patterns must be dealt with in small groups — to have a pattern of flying safe and getting good bombs is commendable, but you really can't deal with such a broad concept. The specific hab-
the briefing interesting, ask questions and take an active part in the flight briefing process whether you're flight lead or Blue Four?

Preflight Phase — Do you have a habit pattern of stepping on time, taking a VTR tape, preflighting the jet the same every time, strapping in the same

weather, anticipate, think of options, make pertinent radio calls, make sure you are on frequency, fly smooth, set your altimeter, check gauges, watch the nose of the airplane at low altitude, climb to cope, set switches on the range, check gas, adjust delivery parameters, monitor flight members, call joker/bingo, safe up switches away from the ground, require formation discipline and have back-up plans?

Landing Phase — Do you have a habit pattern to check weather/ATIS, handle hung ordnance, practice ASLAR, fly the proper pattern/ground track, look good on initial, put the gear and flaps down, make correct radio calls, clear, anticipate, fly the proper closed pattern track/airspeed, check gear and flaps again on short final and handle problems on roll out?

Emergency Phase — (can happen anywhere) Do you have a habit pattern to study the Dash-1, read accident reports, plan for contingencies, maintain aircraft control, analyze your emergency, apply critical procedures, use the checklist, form a game plan, give/get assistance, know your aircraft systems, crew coordinate, fly the airplane, plan for bird strikes, plan for ejection, cope with missed barrier engagements, and fly the aircraft until engine shutdown?

A technique I use to make these flight phases flow is to think of the mission in a series of transitions. As you transition from takeoff phase to flight phase and so forth, you key your

everytime, reviewing the checklist and starting engines on time?

Takeoff Phase — Do you have a habit pattern to accomplish BIT checks, complete EOR checks, complete before takeoff checks, check traffic, review abort options and takeoff on the exact hack?

Flight Phase — Do you have a habit pattern to comply with the departure, clear, avoid bad
habit pattern for the next phase and associated tasks. I'm convinced that if more recognition was given to these transitions in the mission profile we would avoid mid-airs after takeoff, hitting the ground on low-level entries, scaring ourselves or dying after the last weapons pass prior to rejoin or punching out to avoid a mid-air en route to VFR initial.

The examples mentioned above all relate to a typical air-to-ground profile. But they're just examples. There are many more for this mission profile and the myriad of other missions that we fly in TAC. The point is — habit patterns are formed in the fighter business. Habit patterns put predictability into a very dynamic environment. They not only make fellow flight members predictable, but they also allow you to become more predictable to yourself. For example, if you strap in the same way every time, an unexpected interruption by your crew chief won't leave you with the survival kit strap unhooked.

Your habit pattern will ensure you pick up where you left off. If you watch the nose of the airplane at low altitude, you'll detect any insidious descents and changing altitude trends because your habit pattern always includes the nose of the airplane. If you recheck your gear and flaps on short final during every approach, you won't land gear up because your habit pattern will key on the up or barber-pole indications.

Too predictable you say. I think not. When the adrenalin starts flowing, the bullets start flying or your cockpit tasks mount up; your habit patterns will help you through the situation. Because of your habit patterns, you will be able to fit a lot of those extra tasks into what has to be done. You will know where you left off when distracted and, most important, you will know that certain moments in-flight are not the time to deal with anything except flying the airplane.

Habit patterns are a fact of life. They are formed by you and influenced by your supervisors and peers, regulations, procedures, fright, accidents and so forth. I emphasize the benefits of good habit patterns because there are a lot of bad ones around. You owe it to yourself and your fellow fliers to recognize where bad habit patterns or no habit patterns exist and the effect that changes can have on them.

Rather than rely on luck, the system, the hair on the back of your neck or superstition, let's form good habit patterns in the interest of safety, SA, mission accomplishment and not dying. Review your own and don't forget the transitions.
Lost footing

The F-16 Falcon was almost ready for the next day's flying schedule. A couple of minor problems had been cleared, both pneumatics and hydraulics had been serviced and the jet was ready for weapons loaders to put the load of BDU-33 practice bombs on board.

As one of the weapons load crew members walked toward the plane carrying a BDU, he slipped in a puddle of spilled hydraulic fluid. As he fell, the bomb flew out of his hands and landed, plunger first, several feet away. Fortunately, the installed safety block kept the spotting charge from going off, but injury to the weapons loader and other physical damage could have been much more serious.

Weapons loaders, take a couple of minutes when you first arrive at an aircraft to look over the whole area and notice fluid spills or other loose objects left lying around that might trip you up. For crew chiefs, ensure that spills of oil, fuel, hydraulic fluid and water are cleaned up as soon as they occur. Your aircraft will not only be much safer to work around, but it will look much better as well.

Just not enough

Is the equipment you're using to tote bombs, Mavericks, CBUs and other munitions up to the load that you're asking it to handle? Think twice about your answer because it may not be. A team of munitions handlers found out the hard way when they were repositioning some MK-84 (2000 pounders) on a trailer. The wire sling attached to the forward lug of the bomb broke and the bomb fell about 18 inches, damaging the nose fuze and injuring one of the munitions specialists.

The sling broke because it was only rated to handle loads up to 1500 pounds, 500 pounds less than what it was being used for. The maintenance supervisors were not aware that the equipment wasn't adequate to the task at hand.

Don't get caught in the same trap. Know the capabilities of your gear so you can do the job right the first time without delays for repair of body or equipment.
Don't make it worse

After you've broken something, does the urge grab you to try fixing it before someone discovers what happened? If it does—don't. The attempt to fix the problem usually ends up much worse than what you began with.

An AIM-9P missile was loaded on an F-5 and needed to be removed for maintenance. When the weapons folks tried to take the missile off the rail, the umbilical was sheared off. At that point, the AIM-9 was destined for a trip back to the depot, but the crew then attempted to reseat the umbilical block. While trying to do that, they damaged the guidance and control section. The end result was a much more costly repair job than would originally have been required.

When you've made a mistake and broken something, fess us and get it fixed by the proper people. Don't try to be a "jack-of-all-trades."

In the beginning

SMSgt Ed Hartman
TAC/SEW

A weapons crew at an F-4 unit was sent out to do a centerline fuel tank jettison check on a transient Phantom. The TDY F-4 had arrived earlier in the day to pick up the tank. Before the tank could be installed, local maintenance personnel had to work a fuel flow problem on the aircraft.

When the weapons crew arrived at the aircraft, the fuel problem was squared away, so they went straight to the job at hand. Larry went to the centerline tank, Moe went to the cockpit and Curly started the power unit. Following directions from Larry down at the centerline, Moe actuated what he thought was the centerline jettison switch. When he did, both outboard 370-gallon fuel tanks hit the ramp.

Several personnel inactions, including wrong switch positions, led to this mishap. The important thing to realize is that a single personnel action could have prevented the mishap. A simple walk-around inspection of the aircraft to determine the armed status was not performed. This is the most basic of all load crew responsibilities. When you are dispatched to perform a job—any job—start at the beginning, not half way into the task.
I've got the hypoxia blues

An A-10 pilot was about an hour into his return from a cross-country at FL240 when he began to experience his personal hypoxia symptoms. He declared an emergency, gangloaded his oxygen switches and began a descent to 10,000 feet. Before he leveled off, his hypoxia symptoms disappeared.

After diverting to the nearest suitable base, the pilot was met at the plane by medical personnel. Maintenance folks started working over the airplane and found that the liquid oxygen (LOX) bottle was empty but the oxygen gauge still read 1½ liters.

Hypoxia—it can happen to you. What are your personal signs that you’re not getting enough oxygen? There are no Off flags or idiot lights to detect hypoxia and tell you that you’re in a rapidly deteriorating situation; you’ve got to be on top of how you feel and how your oxygen system is operating. Let’s hope we’ll all do as well as this person did.

Hoo-wee!

Good news for the aircrew. During the go-around from a low approach, the F-4’s landing gear would not lock up. The gear handle was put down and both main gear locked as advertised, but the nose gear remained unsafe. Utility pressure slowly dropped to zero, so the nose gear was blown down with the emergency system. The whole episode concluded with an uneventful barrier engagement.

Bad news, however, for previously unnoticed occupants of the barrier housing. When the barrier maintenance crew prepared to reset the cable, they were severely hampered by an overpowering scent of burnt skunk. It seems that there was one each MK-1, Mod-O skunk that had taken up residence in the barrier housing. When the F-4 took the barrier, the skunk’s peace and quiet was suddenly disrupted. Bet you never figured on something like that closing the runway after a barrier engagement.
A blow hard

A flight of A-7s was taxiing to the arming area when the lead pilot determined that a maintenance truck was parked too close to the yellow taxi line for proper wing-tip clearance. Instead of having the truck moved, the flight leader simply veered around it and continued on to his arming spot. The other flight members followed lead’s example, but number three made his turn much tighter around the truck than the first two. As he made the turn, the A-7 pilot applied power and the force of his exhaust pushed the line truck 40 feet sideways.

When an irresistible force (your exhaust) hits a movable object (anything lying or sitting around behind you), guess which one will lose. Work smart. Don’t compromise safety and established procedures for expedience. If a line truck, maintenance stand, power unit or anything else is in your path, have it moved. It’s a lot easier and smarter to move them than to clear your own wing tips while venturing away from the yellow line.

A parting shot

A n F-4 crew returned to base after completing their range mission. Prior to reaching initial, tower informed them that the prevailing winds were straight down the active runway at 10 knots. Following their landing rollout, both the AC and WSO opened their canopies and asked permission to taxi down the parallel runway since the dearm area was at the departure end. While they waited for clearance, both men commented that the wind seemed much stronger than 10 knots.

Tower gave the go-ahead and requested the F-4 crew to “Taxi without delay.” After they got about 100 feet down the runway, tower asked them to “Expedite.” The backseater was afraid they might be close to overspeeding the canopies, so he checked their ground speed. It read about 30-35 knots; both men decided to close their canopies.

The front canopy came down fine; but, as the WSO moved his canopy lever, he heard a loud noise and noticed that the lever was back in the open position. At the same time, he glanced back and saw the canopy leaving the aircraft. The combined
forces created by the canopy re-opening, the aircraft’s taxi speed and the gusting winds were sufficient to take the canopy off.

Unknown to the crew, a weather warning was in effect when they landed which forecasted winds gusting to 26 knots. Tower failed to pass that information to the crew and others in their flight. The crew also allowed themselves to be rushed by the calls from tower to hasten their taxi down the runway. Such calls are only advisory. If the crew felt they were taxiing too fast, they should have told tower they were unable to comply. They also should have slowed down in order to get the canopies closed securely.

It pays to know your airframe’s limitations and keep your SA up. You’re not going to tear around the ramp at 60+ knots; but a combination of taxi speed, wind and canopy movement could turn into a costly and embarrassing error.

**TAC Individual Safety Award**

AIC Lori L. Benhase
405 EMS, 405 TTW
Luke AFB, Arizona

JANUARY 1986
SSgt Robert Leon, Jr., 355 AGS, 355 TTW, Davis-Monthan AFB, AZ, was performing a hot preflight on an A-10A when he noticed unusual noise coming from the nose gear strut. Knowing that the aircraft strut, when taxiing for takeoff and landing, should have a smooth noise-free up/down operation, Sgt Leon terminated the hot preflight to take a closer look. Further investigation revealed a defective O-ring seal. Had the aircraft been allowed to operate, the seal would have deteriorated causing a loss of hydraulic fluid which would have caused a loss of nosewheel steering.

Lt Kevin M. Hanson, 318 FIS, McChord AFB, WA, established an excellent training program for the runway supervisory unit explosives safety program.

SSgt John L. McComb, 37 AGS, 37 TFW, George AFB, CA, is currently serving as swing shift weapons maintenance supervisor and flight-line weapons loading expeditor and is doing an excellent job. While inspecting impulse cartridges, Sgt McComb discovered an unserviceable fire extinguisher. Further investigation disclosed that all fire extinguishers in the area were unserviceable. He detected faulty wiring in the tank jettison circuit which would have resulted in the inadvertent jettison of a 600-gallon fuel tank and prevented the release of munitions when he found an unsafe condition on the hook locking mechanism of a loaded pylon bomb rack.

Sgt Steve D. Lundberg, 474 AGS, 474 TFW, Nellis AFB, NV, is constantly looking out for safety hazards. He was dispatched on an aircraft red ball work order for leading edge flaps not working properly. He found a large piece of safety wire that was binding the power drive unit, so he removed it and then operationally checked the flaps to make sure...
nothing else was wrong. He also aided three people involved in a three-car accident just two days after receiving "buddy care" training.

SSgt Larry S. Barton, SSgt Terry D. Smith and Sgt William C. Shearer, 37 AGS, 37 TFW, George AFB, CA. Sgts Smith and Shearer were in the process of launching their F-4G. Sgt Barton was waiting for his aircraft to be refueled when he noticed fuel venting from the left side of Sgt Smith and Sgt Shearer's aircraft. At first glance, Sgt Barton thought it was the afterburner fuel drain. When the rate increased, he moved closer to investigate and found fuel pouring out of the aft engine panels and the right aux air door. Sensing immediate danger to the aircrew and aircraft, Sgt Barton ran to Sgt Shearer and the two of them signaled the aircrew to shut down and egress. Sgt Smith notified the flight-line expediter to alert the fire department; then he proceeded to help Sgt Barton assist the aircrew in their evacuation. Sgt Shearer then positioned the fire bottle aft of the aircraft, stretched out the hose and stood ready until the fire department arrived.

Capt Oliver H. Warren, instructor pilot, and Maj Samuel T. Clark, instructor WSO, 153 TRS, 186 TRG, Mississippi ANG, were flying their RF-4C in two-ship tactical formation at 500 feet AGL when their Phantom began to have flight control problems. After completing a turn on the low-level route and a jinking maneuver, Capt Warren felt the stick going full right as he attempted to roll wings level and bring the nose up to the horizon. Only after applying full left aileron and left rudder was he able to level the aircraft. As they began a climb and slowed the aircraft below 350 knots, the crew confirmed that the problem was not a hard-over rudder. They ran through the appropriate flight control malfunction checklists without any relief from the problem. A controllability check was performed, and the decision made to accomplish a 17-unit angle of attack, no-flap approach with an approach-end cable engagement. Because of degraded controllability at lower airspeeds and strong crosswinds at the recovery base, a final approach airspeed of 190 knots was required for a successful recovery. The approach was flown without any further problems, and the aircraft safely stopped on the runway.

A1C Jimmy D. Gonzales, 163 CAMS, 163 TFG, March AFB, CA, was checking the nosewheel area of an F-4C prior to takeoff when he noticed the absence of bleed air exhaust on the right side of the nose underneath the aircraft. Investigating further, Amn Gonzales discovered that the right forward part of the fuselage was extremely hot; he had the aircrew shut down both engines. The aircraft was towed back to the parking area where further investigation revealed a bleed air duct failure, one of the most serious emergencies for an aircrew in an F-4.

SSgt Michael E. Schwalen, 4456 AGS, 56 TTW, MacDill AFB, FL, prevented a serious FOD incident. He was passing behind an F-16 as it was taxiing out for takeoff when he noticed an object blowing behind the aircraft. Reacting quickly, he retrieved it and notified the production supervisor; the aircraft was recalled without incident. The object turned out to be a piece of honeycomb seal that had broken off from the third stage of the engine compressor section.

1st Lt William S. Wilkinson 27 TFW, Cannon AFB, NM. As wing weapons safety officer (WSO), Lt Wilkinson's ceaseless efforts have assured tremendous improvements in the wing's safety programs. When he was first appointed as the WSO, the program was weak and shallow. He has since revitalized both the explosives safety and nuclear safety programs. Both programs received noteworthy comments during a recent 12 AF assistance visit and were rated excellent.
Capt Wayne K. Holum, 422 TES, 57 FWW, Nellis AFB, NV, was piloting an F-16A during a DACT sortie when one of the Aggressors reported that Holum's jet was on fire. Capt Holum immediately retarded his throttle to idle but noticed that there were no Fire or Overheat lights on, and all cockpit instruments indicated normal. The chase aircraft confirmed that the Falcon's entire engine afterburner section was engulfed in flames. Capt Holum analyzed the problem as engine nozzle burn-through and elected to stay with the aircraft in the event that the fire subsided. Thirty-five seconds after starting, the flames became intermittent and an additional 25 seconds elapsed before the fire went out completely. While attempting to determine the extent and nature of the fire, Capt Holum established a max range glide profile toward Nellis. Once established in the descent, he realized that an idle power glide would be insufficient to reach the high key position for either an overhead or a straight-in SFO. Capt Holum advanced the throttle, determined that sufficient usable thrust was available and accomplished an overhead SFO pattern.

Amm Teresa C. Bridge, 474 EMS, 474 TFW, Nellis AFB, NV, pays attention to detail and takes steps to correct safety hazards. On one occasion, she noticed the shop compressor was turned to the continuous run position instead of the intermittent position allowing the pressure to rise above maximum allowable tolerances. Amm Bridge immediately shut down the compressor, notified the safety NCO and suggested a safety valve be installed to avoid over-pressurization. On another occasion she noticed a hairline crack in the steering section support bracket of a bomblift, so she started checking all the bomblifts and found many with the same problem. Procedures are now being taken to solve this problem.

Capt Larry R. Austin, 64 AS, TFWC, Nellis AFB, NV, was performing a functional check flight on his F-5E when he had problems during the alternate landing gear system check. After pulling the alternate gear handle, the nose gear indicated unsafe with a red light in the gear handle and the gear warning horn on. He recycled the gear handle, but the nose gear still remained unsafe. Capt Austin had also lost his UHF radio, so he was unable to contact the SOF or any other agency. As he squawked emergency and headed toward Nellis AFB, Capt Austin shut down the left engine to remove hydraulic pressure from the gear system in the hope that the alternate gear lowering system would work. Again unsuccessful, he restarted the engine and attempted to lower the gear with all electrical systems off, but the effort was fruitless. Finally, Capt Austin accelerated to a higher airspeed and G-loading where the alternate landing gear system produced safe gear indications and a successful landing was made.
OA-37B DRAGONFLY
Not being one to believe in the effectiveness of New Year’s resolutions, I’d like to issue a challenge to a particular cadre of fighter pilots. This group of individuals has more responsibility on their shoulders than the majority of line jocks. Instructor pilots. Ah, yes, the very utterance of “IP” in the student lounge has reduced an eager learner to a jellylike mass of nerves, right? Let’s hope not. This article is not intended to reduce any recent mishap trend or offer new techniques to you, the IP. Rather, it’s a challenge to those in the instructor business to perform a little self-examination; to see if there is any room for improvement.

First, your efforts are not (as you may feel at times) unnoticed. You’re teaching pilots of all experience levels the skills necessary to meet and defeat the enemy without dying in the process. It’s no small task and, although you may not have been told lately, TAC depends on you.

Second, reflect on your student preparation (that’s your preparation for the student). This fits alongside mission preparation.
but focuses on your knowledge about your student(s). How well are you prepared to fill in his particular training voids? Do previous gradeslips indicate that you should concentrate on a particular event or maneuver? The gradebook may tell you where you should be extremely alert. In several mishap investigations this year, the gradebook was found to contain descriptions of individual weak areas that, in fact, ended up killing the very same pilot.

Naturally, this dictates that IPs write accurate, useful and readable gradeslip entries. Take the extra minute to supply the next instructor with something he can use. You just may keep him from performing a real-world CAP for a crash.

Next, keep the student involved in the dynamics of flight planning. He will normally be using you as a role model. Show him what you consider for that pop-up attack or merge tactics. Tell him the flow of your thought processes. Then ask questions of him in the briefing. Nine times out of ten, if he explains it with his mouth, he'll be able to execute with his hands.

Instruct (in strukt) — 1. to furnish with knowledge; 2. to train; teach; educate. It can be done airborne while still nurturing radio discipline. That UHF radio is your instantaneous access to the student's cockpit. Film and VTRs are great (more later on that); but in flight you must actively teach your student; correcting when required and praising as necessary. I recall an experience on one of my first operational sorties as a new brown bar. I had managed to stagnate my leader 7000 feet at 4 o'clock when I was briefed to keep him 7000 feet at three or nine. I can still hear that UHF instruction as I wondered what was taking lead so long to get line abreast: "Do something — don't just sit out there and watch me!" I promised myself to never again force an IP/flight lead to make a similar call.

Fifth, aggressively debrief. Instill in your student(s) an idea of how fighter pilots debrief. Three important things must occur: praise, self-criticism and correction. Point out what pleased you about the flight and particular strong areas which met or exceeded the standards. And focus on your errors, too. There's no room for King Kong attitudes. When we go to war, it will be a team effort — and any team member can commit an error. That leaves "correct." Strive for perfection. To me that means debriefing shoddy check-ins, poor arming area line-up, missed radio calls, formation positions and the traffic pattern. I've been stationed at bases where you could tell which squadron the four-ship on initial belonged to by the way they flew the pattern. Focus the debriefing on mission objectives. I don't believe you can do that without effectively using gun camera film and VTRs. Why should any pilot fear a viewing of his film/VTR? Both are valuable tools to becoming a more solid aviator, if you take the time. Analyze merges, shot parameters, energy management, radio calls, times on final, initial piper placements, pop-up geometries, G-straining maneuvers, etc. You'll only fine-tune your talents. If you're doing it right, you should hand it to the commander and say, "See what you think of this, boss." Additionally,
what do you think those three MIG kills will be worth in combat if you don't have it on film? Zip!

Sixth, units that inherit your student must know what they're getting. MQT programs may need to be tailored to a newbee's weak areas. This reflects back on accurate gradebook entries (and meaningful summary performance reports [SPRs] for you RTU IPs). Give field squadron commanders an accurate track record (good or bad) on your students. A former student may be the other half of your element one day.

If you've been an IP for a considerable time, it may seem like the mistakes stay the same, only the faces change. If you've been an IP for a considerable time, it may seem like the mistakes stay the same, only the faces change. Well, grit your teeth and keep doing a good job. Recognize that your job — your instruction — is as important today as it was with your very first student. Make those planning sessions, briefings and debriefings as interesting as ever because it's likely the first time other flight members have heard it.

Finally, allow me to submit a few questions for you to ponder:

- What standards of performance do you demand from students, other IPs and yourself?
- Do you try to minimize stressful situations by being a friend or do you maintain your position and rank as an IP? Often it's hard to tell a friend his performance was substandard.
- Where does your ego stand in relation to good training and judgment? When Joe Bag of Donuts loses sight on a BFM hop, is your call for him to "continue" a reflection of your desire to gun him or are you more interested in talking his eyes back on your jet so he can learn something?
- Are your advanced missions stale or have you been in the books, keeping up with tactics development?
- Do briefing room training aids make you uncomfortable? Can you use them effectively?
- Are you designing mission profiles that will force the student to think and demonstrate good judgment, SA and tactics? Or do they demand mechanical responses?

We will face an ever-increasing, technologically evolving threat if the balloon goes up. This dictates that our line pilots enter the "work force" qualified to perform those missions expected of fighter pilots. That requires our instructor cadre to continue the dedicated efforts they have to date. Remember, whether we win or lose, live or die, rests in part on your shoulders. Good hunting.
CAPTAIN THOMAS T. SCHRADER, an F-16 flight examiner, had just raised the gear handle during his takeoff on 17 June 1985 when he heard an unusual thump. An illuminated warning light in the gear handle confirmed that he had a problem with his landing gear. After lowering the gear handle, all cockpit indications were normal and his wingman reported that all three gear were down, but the nosewheel was missing. Consultations ensued with the SOF and General Dynamics technical personnel while Captain Schrader burned down fuel and considered the alternatives for recovering the aircraft. After receiving all the various recommendations, Captain Schrader determined that the best course of action was to attempt a normal landing. His primary concern was that the nose gear would engage the cable or fail during the rapid deceleration of a cable engagement and cause excessive damage to the aircraft.

Captain Schrader set up for a visual straight-in approach, turned on the JFS and the EPU and inerted the fuel tanks. He flew an on-speed approach, touching down 1000 feet down the runway. At touchdown he shut down the engine and aero braked, holding the nose strut off the runway until he reached approximately 80 knots. He then gently lowered the nose to the runway and used differential braking to maintain runway centerline. The aircraft was brought to a full stop with only minimal damage to the nose gear strut.

Captain Schrader’s careful analysis and superb flying skills prevented serious damage to a valuable TAC combat aircraft.
Sneaky ice

Snow had fallen on and off for the last five days. Temperatures had lurked around the freezing mark just enough to turn some of the solid white stuff into liquid and back to ice later. Typical weather for many bases in TAC during the winter months. During his preflight, an A-10 pilot noticed some snow and ice on the top and rear of the left wing. That was removed with deicing fluid and the rest of the walkaround didn’t turn up anything out of the normal. No other snow or ice was noticed during the flight control or slat/stall warning checks either.

During takeoff, the Warthog pilot followed his leader at a ten-second interval. About a thousand feet down the runway, he heard a slight pop and began to feel aircraft vibrations. He checked his engine instruments and continued his takeoff to rejoin on his leader's wing. Power was brought back on each engine alternately, and the pilot found that his right engine was causing the problem. He then brought the jet back for a successful landing.

The RSO (runway supervisory officer) had noticed some snow or ice coming off the leading edge of the right wing and going down the engine intake during the takeoff roll. A thorough check of the engine’s insides found six fan blades that were damaged beyond repair. Apparently, the aircraft had looked as though it was free of snow or ice except for the left wing. No special attention had been given to the other side of the aircraft because it appeared that the sun had already melted everything off. As a result, ice underneath the slats went unnoticed and subsequently came off during takeoff roll.

Don’t slight your preflight or deicing procedures when weather requires added precaution. In the winter, you might find ice hiding underneath flight controls and other hard-to-see places where the sun doesn’t shine.

For lack of a fastener

An Aardvark went out on its low-level mission to the range and returned without any problems. Later, during preparation for an engine run,
damage was discovered in one of the engines. The marks on the fan blades indicated that a panel fastener had been the culprit; and, when the panels in front of the intake were inspected, panel 1102 was missing a fastener that matched the damaged blades.

On the morning before the FOD occurred, the panel had been opened to complete the preflight circuit breaker check. The aircraft forms indicated that the panel had been closed, fastened and signed off properly. When the panel was put back in place, however, a fastener of improper length was used and it didn’t torque down properly. During flight, the fastener vibrated loose and went down the intake.

When you put a panel back after maintenance, make sure it, along with all the fasteners, is on to stay until you’re ready to open it up again. Let’s keep the ramp and aircraft engines from serving double duty as spare part bins.

Will Mr. Murphy please step forward?

A pair of Phantom flyers were nearly home from a cross-country when an unusual vibration began to shake the entire aircraft. The Master Caution light came on with a couple of associated warning lights, and the crew noticed that their utility hydraulic pressure had dropped to zero. They declared an emergency and headed for the nearest en-route airfield to get the jet on the ground.

After landing, the vibrations were traced down to a pneumatic pump that had failed in flight. A review of the records turned up a history of pneumatic pump problems including similar vibrations and pneumatic pressure line failure. After this sortie, a hydraulics technician discovered that the pressure and return lines to the pneumatic pump had been connected in reverse. Both fittings were the same size and had been marked incorrectly. The reversed lines caused the pneumatic compressor to run backwards and resulted in reduced pump efficiency, aircraft vibrations and eventual pump failure.

When an aircraft has a history of continuing problems, look deeper to see if there’s a root problem you’re not noticing. Whether you call it Murphy’s Law or something else, watch out for the areas where the potential for error is high.
It's where you’re at that counts

A tow crew moved an F-15 Eagle to the wash rack and prepared to remove the tow bar after the aircraft was properly chocked and the area around it cleared. Following the tow driver’s direction, the brake rider, who was standing on the jet’s boarding steps, reached inside the cockpit with his left hand to pull the emergency landing gear handle. As he pulled the gear handle, he also activated the emergency canopy jettison handle which fired the canopy jettison initiator. Since the canopy was already up, it didn’t leave the aircraft.

A lot of training, new procedures and pinning emergency handles could be implemented to keep such things from happening again. Or, even easier, the brake rider could have used the handles the way they were originally designed to be activated—while sitting inside the cockpit, not from the outside.

Loose panel

The CRS fuel shop needed to do some repair work on an F-15’s number three fuel cell, so they went in through the speed brake area. The work was completed and the speed brake was closed. No writeups were made in the 781 about the panel removal and panel 66 wasn’t inspected by the crew chief during preflight since the speed brake was down.

During the next flight, the Eagle pilot didn’t use the speed brake until he was in the base turn just before landing. He didn’t have any problems, but during his postflight he noticed that a panel was sticking out from under the speed brake. The panel was severely damaged and the rear edge of the speed brake was delaminated.

The panel had simply been put back into place without any fasteners and the speed brake strut removed before the work was inspected. Unfortunately, it never was checked. An old saying seems appropriate: “Always put things back just like you found them.”

I’ve got to go

An egress technician went out to an F-106 to remove the ejection seat so other maintenance could be done on the jet. His helper was the assistant crew chief who had recently gone through FTD training but wasn’t proficient in the egress area.

The technician had a dental appointment that conflicted with the task at hand, so he was in a hurry to complete the job. While the crew chief read the tech data, the technician began removing the seat. On the first try, he raised it too high and had to lower it. When he lifted the seat a second time, the seat belt initiator fired.

After the initiator had fired, the two men found that the necessary safety pin was not installed. While they thought the pin had been in place when they began work, it either hadn’t been or it was pulled out when the seat was raised the first time. If the egress technician had thoroughly reviewed all warnings in the tech data with the crew chief, the status of the pin might have been determined. If he hadn’t had the pressure of a dental appointment hanging over his head, a more complete prebrief and a thorough job could have been done.

The responsibility for giving yourself enough time to do a job right falls on your shoulders. If you’ve got conflicting responsibilities that won’t allow you to devote your full attention to your work, either cancel your appointment or let your supervisor know far enough ahead so someone else can be detailed to do the necessary maintenance. Don’t wade into a task thinking that you can speed through it and press off to your next appointment or meeting. Haste makes waste is an old cliche, but that’s exactly what happens.
The leading cause of hunting accidents is “victim mistaken for game.” Don’t shoot unless you’re absolutely sure.

The Consumer Product Safety Commission (CPSC) says that about 3,000 people a year are treated in emergency rooms for snowblower injuries. When the chute gets clogged with snow, serious injuries occur when a person reaches in to unclog it because the blades on snowblowers are closer to the chute opening than most people realize. The CPSC recommends that before reaching in, snowblowers should be turned off and all moving parts should have stopped.

Ski patrol statistics show that a large number of minor injuries usually occur on the first day out. So prepare for it: The first day back is not the right time to try out new equipment or techniques. A good rule to follow is to just get back on the skis the first day. You can speed up the adjustment your feet have to make to your boots by wearing them around the house for a few days. Don’t forget to tune up and wax your skis and wear layers of clothes: muscles need to be kept as warm as possible. Do some warm-up stretches for the leg, arm and back muscles. Be careful of early-season terrain obstacles: thin spots, rocks, stumps, icy patches, slush and out-of-control skiers. And don’t overdo it. If your timing is off with sloppy execution and missed turns, quit while you’re ahead. These are signs of skier’s fatigue. Oh, one last little tidbit: mirrored sunglasses direct the sun’s rays directly onto the nose. You could end up with a nasty sunburn; so wear a sunscreen on the old schnoz.

When selecting furniture, do you know what material is the least flammable? Is it cotton, wool, rayon or nylon? Buy wool, it’s the least flammable.

Poison Houseplants. If you’re a plant nut, you probably know what plants are poisonous and what their common names are. But, if swallowed, a poison control center will need the scientific name to identify the plant and its remedy. So please keep those plastic sticks that usually come in the pot when you buy it that gives the common name as well as the scientific name.

Is it OK to tuck in the corners of an electric blanket? No. Heat builds up or coils can be damaged. And nothing should be put on top of an electric blanket, like a bedspread or another blanket.

Don’t burn scrap marine lumber or remnants from decks or outside furniture in your woodstove or fireplace because they have been treated with three types of wood preservatives that the EPA (Environmental Protection Agency) has just added to its restricted use list. Pentachlorophenol (penta or PCP), creosote and some inorganic arsenicals (contains arsenic) are used to preserve exterior siding, decks and outdoor furniture. When burned, these preservatives cause respiratory and skin irritation, muscle cramps, headaches and fatigue.

Tire Tip. For every 10-degree drop in temperature, tire pressure drops one pound. Check tire pressure more often during cold weather.
When they spoke of chasing MIgs at supersonic speeds on the deck, the young lieutenants would stop and listen. It was so easy for the "would be" fighter crews to imagine themselves flying on the wing of these men. Tales of chasing MIgs and dodging SAMs seemed endless to those who gathered around to listen. Who were these "heroes" who captivated the attention of the young men? They were all RTU instructors, recently returned from the war in SEA. Now it was their turn to teach the hard-learned lessons of combat to the next generation of fighter crews.

These instructors had the credentials to do the job. They had the right stuff. They'd been "downtown" and faced the SAM and AAA gunners too many times to count. They had what heroes are made of—confidence born of experience and an air of superiority that comes from doing it better than anyone else. To the young lieutenants just entering RTU, they were men who had proven themselves in combat and had earned the respect of those to whom they would impart the skills of being a fighter aircrew.

When it came to instructing, these men put the same priorities into a training mission that they practiced in combat: safe conduct of the mission, achieving mission objectives and instilling flight discipline. Each of these aspects that combat proven instructors stressed on every mission are just as necessary today on any mission we fly, whether it is a combat sortie or TR-1.

First, let's look at safe conduct of the mission. Thorough mission planning is the key to success in the air. The flight lead should assign portions of the mission planning to each member of the flight. Since each of them will face the brunt of the enemy threat, they should each understand the mission in every detail. Every aspect of mission planning from building the briefing thru engine shutdown must be thought out in advance. The flight briefing should be thorough and tailored to the experience level of each flight member. The tactical phase of the mission must stress and be flown according to the applicable ROE (rules of engagement). In the air, positive flight lead control is paramount. When called for, lead should make the necessary radio calls to correct a wingman who isn't flying the mission as briefed—regardless of rank or personal friendship.

The second aspect is achieving the mission objectives. They may come from the RTU syllabus or as part of new tactics being developed for a specific scenario. Regardless, the objectives for each mission should be chosen based on measurable criteria. An objective that requires all bombs dropped to be within hit criteria or that the flight both enter the merge and leave the flight with mutual support defines measurable criteria that can be readily assessed. During the debriefing, be honest in your evaluation of how the mission went. No one is fooled when you gloss over the objectives that were only partially met or not at all. If somebody didn't hack it—say so and then figure how to do better the next time out.

The third aspect is instilling flight discipline. There is one undeniable fact about combat: you’re going to be scared. The only proven thing that keeps you from turning and running when you’re scared is discipline. The discipline to work together as a team is a prerequisite for success in aerial combat. Discipline will permit you to enter the intercept phase against a flight of MIgs with the confidence to win. It takes discipline to check six for your wingman instead of just watching out for old number one. How does a good flight lead/instructor instill discipline? By demanding attention to detail. Set your standards high and then demand that you and the members of your flight fly to and meet those standards.

If your goals as a fighter pilot are to lead by example, to set the squadron standards and to foster new tactics, then you’re on the right track.

Who ensures the safe conduct of each mission, achieves realistic objectives, and instills flight discipline? . . . heroes do.
Over the years we have learned through experience how to operate aircraft during emergency and abnormal conditions. Today's flight manuals contain detailed procedures for handling ground, inflight and landing emergencies. The three basic rules which we use in emergency situations today were just as relevant 60 years ago:

1. **Maintain Aircraft Control.**
2. **Analyze the Situation and Take Proper Action.**
3. **Land as the Situation Dictates.**

How did aircrews apply sound judgment to take the most correct and safest actions back before the invention of **BOLD FACE** checklists?

A classic example was a routine close-air-support mission out of old Luke Field during the summer of 1927. On that June day, the pilot of a twin-engine Martin tactical bomber and his crew chief took two new privates along for an orientation flight. After takeoff the pilot discovered that his right landing gear was damaged. Material failure of the four bolts connecting one of the gear struts caused the right wheel to flop in the breeze.

While he maintained aircraft control, the pilot made a low pass across the field and declared an emergency by dropping a note to the supervisor of flying (most aircraft didn't have radios in 1927). He analyzed the situation with the assistance of the crew chief and decided to take proper action which was to replace the broken strut bolts. The order for new bolts and some rope had been included in the IFE note dispatched earlier. The lieutenant pilot was highly motivated and wanted to insure that his assistant crew chiefs completed their orientation ride so he then proceeded to the Army troop maneuver area to drop his practice bombs.

Meanwhile, the flight-line expediter collected the replacement bolts and two other lieutenants were tasked for the "express" parts delivery to the emergency aircraft. They quickly joined their high-speed DeHavilland with a flight of Martins and...
lowered the package of spare parts to the crew below them. The startled crew chief opened the surprise package, but had no use for it since his aircraft was fully mission-capable.

Well versed in supply procedures, the crew chief put the parts back into the reusable container and waved the airborne expediters back over to pick up the misdelivery. On the way back up to the fighter, the supply rope broke and the package became a dropped object.

The fighter pilots making the parts delivery had excellent situational awareness; so they returned to base, red-balled some more parts from bench stock and blasted off again in search of a floppy geared Martin. They rapidly accomplished a head-on rendezvous with their target as he was RTB after completing his range mission.

Neither of the assistant crew chiefs were task certified for air-to-air parts pickup from a dangling rope, so they returned to base, red-balled some more parts from bench stock and blasted off again in search of a floppy geared Martin. They rapidly accomplished a head-on rendezvous with their target as he was RTB after completing his range mission.

The mishap pilot had previously qualified in ditching when he experienced a single engine failure a few months prior. To avoid salt water damage to government property, he instructed his crew to jettison their parachutes as he made a low pass over the field. Apparently, the other assistant crew chief was not task certified in parachute jettisoning. Murphy's law took over as he threw his chute into the number one engine.

Although it is difficult to inflict foreign object damage to a reciprocating engine in flight, Murphy succeeded. With a flapping wheel and a failed engine wrapped in silk, the pilot was placed in a rapidly deteriorating situation.

The aircraft landed in the water shortly thereafter, and several boats were standing by for the search and rescue. When the media showed up to interview the soaking crew, only the pilot was available to tell them "what happened." The regular crew chief was already working on another aircraft, and his assistants were reportedly off looking for their recruiter.

One lesson stands out in this tale: Taking one step at a time, we can work to regain the rhythm of the mission and bring it to a successful conclusion. Application of proper procedures during emergency or abnormal conditions can allow us to get our aircraft back on the ground safely.
Whether you're into New Year's resolutions or not, some of you thought about writing an article for TAC Attack during the past year but just never got around to it. Well, 1986 is here. A new year, a clean slate and a brand new chance to do what you've been putting off—write an article for TAC Attack.

This is your magazine. We need your inputs to help us keep it relevant, timely and useful to all of us in our daily activities no matter where we work in Tactical Air Command.

We need the thoughts of fighter jocks on how and where we can fly tactically smarter and safer and more efficiently. We need words of insight and wisdom from crew chiefs and other maintenance types on the best ways to maintain aircraft under all kinds of readiness conditions and weather. We need There I Was accounts from those of you out there who have either had a personal experience or have seen someone else do something that really taught a valuable lesson on how to do our jobs more safely. Share those lessons with everyone else before we have to learn them the hard way. If you made a mistake and lived to tell about it, we would all appreciate a chance to learn the same lesson, under more "comfortable" conditions. We're not just looking for the bad news. Let us know where things turned out right as well.

For articles in general, put your thoughts on paper and ensure that there is a safety message. We're not a public relations, tactics or management journal, so take a look at past issues and you'll be on target. If you've got any questions about whether or not we'd be interested in your ideas for an article, we're only as far away as your closest Class A telephone (AV 432-3658). Whether you call or not, we give every article a friendly reception and make every attempt to use your efforts to make all of us smarter.

Now for the proverbial bottom line. Why should you write for TAC Attack? There are several excellent reasons such as making our lives as military professionals better, making us a more prepared and better trained force or simply helping us to do our jobs safer. Take your pick or decide on a reason of your own but always remember in the back of your mind that the author of each published feature article or SEPT receives a classic, noncholesterol, nonallergenic Fleagle T-shirt. Need I say more?

This is the year. Don't let it go by without writing and sending us your article. As our cartoon says: "There are a million stories out there in TAC. Send me some of them." I'll be looking for yours.

Major Don Rightmyer
Editor, TAC Attack

JANUARY 1986
### CLASS A MISHAP COMPARISON RATE

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

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### TAC'S TOP 5 THRU NOV 85

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<tr>
<th>TAC FTR/RECCE</th>
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<th>Class A mishap-free months</th>
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<tr>
<td>40 405 TTW (F-15,F-5) Luke AFB, AZ</td>
<td>154 57 FIS (F-4) Keflavik, Iceland</td>
<td>155 138 TFG ANG(A-7) Tulsa, OK</td>
<td>137 177 FIG ANG(F-106) Atlantic City, NJ</td>
<td>196 182 TASG ANG(OA-37) Peoria, IL</td>
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<td>33 333 TW (F-15) Eglin AFB, FL</td>
<td>107 5 FIS (F-15) Minot AFB, ND</td>
<td>132 114 TFG ANG(A-7) Sioux Falls, SD</td>
<td>103 125 FIG ANG(F-106) Jacksonville, FL</td>
<td>180 110 TASG ANG(OA-37) Battle Creek, MI</td>
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<td>31 366 TW (EF/F-111) Mtn. Home AFB, ID</td>
<td>104 48 FIS (F-15) Langley AFB, VA</td>
<td>121 183 TFG ANG(F-4) Springfield, IL</td>
<td>86 119 FIG ANG(F-4) Fargo, ND</td>
<td>176 USAFAFW (many fighters) Eglin AFB, FL</td>
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<td>30 49 TW (F-15) Holloman AFB, NM</td>
<td>63 318 FIS (F-15) McChord AFB, WA</td>
<td>118 180 TFG ANG(A-7) Topeka, OH</td>
<td>70 107 FIG ANG(F-4) Niagara Falls, NY</td>
<td>168 USAF CTF 84 (T-33) Castle AFB, CA</td>
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<td>29 67 TW (RF-4) Bergstrom AFB, TX</td>
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<td>110 124 TRG ANG(RF-4) Boise, ID</td>
<td>62 147 FIG ANG(F-4) Ellington AFB, TX</td>
<td>110 552 AWACW (E-3, EC-130) Tinker AFB, OK</td>
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TO BAD HE DIDN'T MAKE IT TO THE ALL WEATHER OPERATION SECTION.