UNITED STATES AIR FORCE

FLYING Safety

MAGAZINE

December 2003

Texas Style!

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MAGAZINE

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THE CHIEF OF SAFETY, USAF

PURPOSE — *Flying Safety* is published monthly to promote aircraft mishap prevention. Facts, testimony, and conclusions of aircraft mishaps printed herein may not be construed as incriminating under Article 31 of the Uniform Code of Military Justice. The contents of this magazine are not directive and should not be construed as instructions, technical orders, or directives unless so stated. SUBSCRIPTIONS — For sale by the Superintendent of Documents, PO Box 371954, Pittsburgh PA 15250-7954. REPRINTS — Air Force organizations may reprint articles from *Flying Safety* without further authorization. Non-Air Force organizations must advise the Managing Editor of the intended use of the material prior to reprinting. Such action will ensure complete accuracy of material amended in light of most recent developments.

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SAFETY sage

DEFICIENCY REPORTING UPDATE

The deficiency reporting team at Wright-Patterson AFB is working to make the DR process easier and more rewarding. They have now started a DRIS CrossTell. It's intended to be a quarterly newsletter, or CrossTell, for the Deficiency Reporting and Investigating System (DRIS) community. The objective of this CrossTell is to share knowledge involving deficiency-reporting processes. Anyone involved in the DRIS process is encouraged to contribute content to this publication. It is available on the website at this address: https://afkm.wpafb.af.mil/ASPs/HQAFMC/EN/DefCopEntry.asp?Filter=HE-NP-MO-01.

In November 2003, Ogden hosted a DRIS Workshop that acquainted the 300-plus participants with the DR process, and updated attendees on current and upcoming changes. Specific agenda items included metrics necessary to measure the health of the Deficiency Program, upcoming technology and training improvements, DR Investigations, Trend Analysis and open forums addressing MAJCOM concerns. Conference attendees, briefings, and action items may be viewed at the above web site under "Workshops. "

For DR managers, establishing and maintaining compliant programs is the only way to mitigate the stress of command inspections. It's long been said that if I'm doing the job by the book, it doesn't matter when the IG comes to visit; we'll pass. Cramming or peaking just before the IG inspection is not the answer. Start early at a pace you can sustain and we'll be singing your praise to the AFMC Commander.

Have a question you can't find the answer to? The DRIS team will soon have a "Wisdom and Advice" section on the Web to provide a forum for addressing questions or concerns within the community about any DRIS-related topic. Anyone may now submit a question by e-mailing it to greg.bernitt@wpafb.af.mil, Subject: Wisdom and Advice. An Advisory Council expert will answer questions and inquiries. The question and response will be published on the Web and selected items will be published in the DRIS CrossTell. We look forward to hearing from you. □

Safety Texas Style

USAF Photos
Photo Illustration by Dan Harman

LT COL MIKE FOLKERTS
HQ AFSC/SEFF

On 2 May 2003, the 136th Airlift Wing NAS Fort Worth JRB, Carswell Field, Texas, reached a safety milestone that few other units have achieved. 150,000 flying hours without a Class A mishap! Their last Class A was on June 5, 1965. (See side bar, page 8.) Since that accident, they have changed from KC-97s to C-130Bs to their current C-130H2 aircraft. They have gone through a move from Hensley Field to Carswell Field and 10 wing commanders. How does a unit that has changed aircraft three times, location once and 10 wing commanders go 38 years without a Class A aircraft mishap? We hope in the next few pages to give you some insight on how the 136 AW created a wing safety culture.

The "Guard Family"

"This unit is like a family" was the consistent and most common remark heard from 136 AW members. Although families have their share of squabbles, and the Texas Flying Family is no different, treating each other as family has produced a dynamic and positive safety culture within the 136 AW.

This positive unit culture recognizes that people are its first priority. While members of active-duty and many ARC units measure their length of stay in years, most 136 AW members remain in the unit for decades. This dynamic results in an extremely strong incentive to think and plan long-term. Fortunately, the 136 AW is in the enviable position of being able to handpick quality members for the long term.

Free-Flowing Communication

The first benefit that flows from being a "Guard Family" involves effective communication. Up and down the chain, unit members are willing and able to speak freely. All ranks are willing to "call a spade a spade," and discussion of proposed actions is robust and maybe even a little lively. Full bird colonels are easier to approach than in typical active-duty units. Readily apparent is the 136 AW leadership habit of keeping their listening skills sharp, as well as fully communicating their intended plans with all ranks.

A hallmark of a strong safety culture is openly discussing incidents and mistakes. Leadership seeks to ensure that honest mistakes are learned from, rather than punished. Unit members are often "requested" to discuss an incident and the lessons they took away from it at the next squadron safety meeting.

Leadership Support For Safety

Leadership at the 136 AW shows an active support for its safety program. Placing high-quality



personnel in full-time flight safety positions has been its long-term habit pattern. The current airlift squadron CC is a prior flight safety officer. Also, rather than settle for quarterly flight safety meetings, the 136 AW typically has a monthly meeting.

Looking back through its history, 136 AW leadership has proven a willingness to address reckless and/or inappropriate attitudes. By dealing appropriately with these individuals, regardless of their rank, the 136 AW has been able to protect its members and keep them out of harm's way. The Fairchild B-52 mishap is the unfortunate result when poor attitudes are either not recognized or dealt with inappropriately by senior leadership.

The wing believes that to succeed they must create a culture where the lowest guy doesn't fear retribution for an honest mistake. When people know they won't be "killed" for an honest mistake they are more likely to own up to the problem, instead of trying to hide it. The 136 AW says they can fix what they find, but finding the root causes is the hardest part of the equation. They strive to fix the problem, not the symptom. The balance is to create an atmosphere of non-retribution, but still have discipline.

Airline Influence

Saying that the 136 AW has an airline influence would be an understatement. Southwest, American and Delta Airlines each have a hub in DFW, which contributes to 70 percent of the 136 AW pilots being current or former airline pilots. This airline influence results in extraordinary experience levels, as the average pilot has racked up over 3000 total flight hours. Perhaps more important is the airline influence on the wing's safety culture. By melding together CRM lessons and operating practices from several different airlines, the 136 AW is able to pick out the best parts of each airline's high-quality aviation safety programs.

Training "The Best of Texas"

The 136 AW recognizes high-quality safety, training, and standardization/evaluation programs are joined at the hip. Its impressive training programs go "above and beyond" the minimums, to include a three-day instrument refresher course. With its enviable experience levels, the 136 AW is able to demand a high level of performance of its members, who make an extra effort to deliver.

As missions have morphed during its four-decade history, the 136 AW has taken the initiative and trained its members to adapt. This initiative was never more evident than the unit's efforts to achieve an NVG airland capability prior to deploying for Operation Iraqi Freedom in February 2003. Maintainers and crews alike worked tirelessly through the 2002 Thanksgiving and Christmas holidays to arrive in the AOR fully qualified. Their efforts set the standard, as the 136 AW was one of only two ARC units to arrive in the AOR with a full-up NVG airland capability.

Hats off to the Texas crews and maintainers for stepping up to the challenge. Congratulations are in order for an impressive history of accomplishments, safely made with a Lone Star attitude!□

Editors Note: If you want more information about the safety programs at the 136th Airlift Wing, please contact the Wing Safety Officer, Maj Scott Morris at: scott.morris@txcars.ang.af.mil.



Maintenance Texas Style

USAF Photos
Photo Illustration by Dan Harman

CMSGT JEFF MOENING
HQ AFSC/SEMM

No flying unit can reach 150,000 flight hours and 38 years without a Class A mishap without the hard work of the men and women on the ground—the Maintainers! As I talked to the people who make it happen, leaders and young troops, certain themes came out that I believe other units can use to improve their operations.

There is no place for micromanagement in the Air Force.

Attitude

First and foremost is attitude, and I am not talking about a "high and mighty" attitude. I'm talking about an attitude of thinking about what you do, leadership involvement and making safety a priority at all times while meeting the mission. Maj Scott Morris, 136 AW/SE stated, "Mission accomplishment is paramount, and safety is a tool to its achievement." How does maintenance make this tool work for them?

Leadership

When talking to senior leadership and the flight chiefs one key comment I found was, "If a leader is to be successful they have to get away from the desk, and get out to the flightline or backshop." Nothing new here. If you are doing all your managing from the desk, then you don't really know what your troops are doing. According to CMSgt Roy Simmons, Maintenance Superintendent, "We rely on the people, for to us there is no place for micromanagement in the Air Force. It takes everyone working together." Plus, leadership on the flightline provides a chance for feedback at the first level of supervision, who can then send problems up the chain of command for action. You must pay attention to your people, and if you know what they need/want you can enhance safety and the mission.

I didn't just talk to the old heads in leadership, many of whom have been with the 136 AW for over 20 years. I talked to the younger troops as well. You have to give credit where credit is due, and leadership has worked hard to indoctrinate the new troops. One individual commented, "The older troops made me feel part of the group even though I can't do the task as fast as they can." A common theme was that there is an "adult type of learning environment."

"They (leadership/trainers) don't treat us like we don't know what we are doing." "They give us time to expand our knowledge level and ensure we do it right." A comment I related to was that on active duty you are always nervous. It's a medium-to-high threat if mistakes are made. At the 136 AW, it's a low threat. Yes, you get called to the boss to explain what happened, but they aren't on a "witch hunt" to find someone to blame.

In addition, don't beat a dead horse; otherwise you will be ignored. Give your people the information and treat them like adults. Don't withhold information about accident or injury causes. People want to know! Otherwise, it will just be rumors, you won't learn from the mistake, and someone will unfortunately repeat the same mistake. The 136 AW actually practices "leadership by example."

Experience/Training

The Guard has an advantage that many units don't have, an average experience level of over 10 years. Many of the crew chiefs have worked the same aircraft since it came off the factory line. The benefit of this carries over into how they treat the aircraft and train their people. Troops have a pride of ownership in the aircraft and the facilities. From day one, everyone knows they can say no and stop a task if it's unsafe. People want to know about the aircraft, so they encourage them to take more interest in what is going on and how the systems work. Col Daniel Henderson, MXG/CC, stated, "You must make time for training and invest in educating your people." This helps to prevent mistakes. But a key factor is responsibility and accountability. The 136 AW fosters an attitude where you can learn from mistakes.

Even though they have a high experience level, they are now getting more three-levels, which has changed their focus. The continuity of the unit helps in training the new troops as well as the civilian skill crossover of the people they gain. This knowledge gap is something they haven't had before, so they had to adjust their training program to fit the people. The recent unit activation helped train their troops, as they had people available full-time for training, instead of the traditional weekends and two weeks. The deployment actually increased safety by people being able to work with everyone. As they worked with all the different specialties, they learned the danger areas and risks to avoid. One of the largest success factors was their attitude of helping each other and "no union cards." There were no inhibitions about helping anyone with another task. It is a team effort to ensure safety and the mission.

Complacency

If you look at most maintenance or maintenance-related mishaps, you will find complacency at the forefront of the problem. At the 136 AW, they try to ensure complacency doesn't exist. They aren't always successful, but leadership and workers have made it an issue they are constantly aware of and looking to correct. Continual requalificiation and a mentorship program for the young troops are part of their efforts. These efforts include the "young people" ensuring the "old guys" aren't letting their guard down. This goes back to the creating of an atmosphere of cooperation between all wing members, and a non-retribution safety culture.

Safety isn't a special event; it's an everyday concern.

Ops and Maintenance

As with all flying units, the ops and maintenance relationship is part of the wing's strength or weakness. The 136 AW has created a collaborative effort between ops and maintenance with a positive feedback loop. They *talk* to each other on a routine basis, and there are times when they conflict. Ops wants to fly, and maintenance wants to repair. Communication and compromise is the key. Both sides talk to each other to work out the highest priority, and how they can compromise to ensure mission accomplishment. Safety isn't a special event; it's an everyday concern.

ORM

ORM is a tool to enhance safety, and the 136 AW works hard to ensure it's part of their operation. They use ORM to minimize and identify risks. They take required corrective action to eliminate or reduce the risk. Sometimes you don't want to accept the risk, but the mission must be accomplished. Then you must mitigate the risk to the lowest level possible. Slow down if you have to, and stop if necessary, to ensure safety. If you want ORM to be effective, you must keep constant reminders in front of the people to ensure they never let their guard down. ORM is an important tool for the 136 AW and the Air Force, but you must use it to be effective.

Corrective Action

The 136 AW is not a perfect organization and they have their problems, but the key is how they deal with these problems. Once a troop left a jumper wire on an aircraft. They found the problem and instead of looking for a head to cut off, leadership sat everyone down and discussed how it happened and how they, leadership and workers, could prevent it from happening again. They designed a critique process to prevent mistakes and Quality Assurance (QA) is part of that process.

136th Airlift Wing's Last Class A

On 5 June 1965, KC-97G, Serial Number 53-289, Call Sign Coed 03, was scheduled for a formation-refueling mission with eleven crewmembers on board. All preflight checks and inspections were accomplished with no defects noted. The aircraft took off at 0915 CST. The refueling portion of the mission was completed as briefed and without incident. They then proceeded en route for return to USNAS Dallas, Texas. Coed 03 and Coed 04 changed positions and Coed 03 assumed the call sign Coed 04.

Immediately after they changed call signs and positions, Coed 04 experienced backfiring in the number four engine. Power was reduced, however, backfiring continued at power settings in excess of 25 inches manifold pressure. The engine was left operating at 25 inches manifold pressure for the return to home station and landing.

The flight cancelled their IFR plan and proceeded VFR to home station. Upon arrival at USNAS Dallas, Texas the flight was advised that the field was closed due to an emergency on the active runway. The aircraft then held in the local area for approximately one hour before being cleared to land. Coed 04 was number three in the pattern behind two other KC-97s. A normal pattern was flown, and all checklists accomplished. Winds were 130 degrees at 16 knots with gusts to 25, with runway condition described as damp. The aircraft touched down between 1500 and 1800 feet from the approach end of the runway. Touchdown was normal and the aircraft was in a level attitude. The pilot initiated reversing action shortly after touchdown of all three gears. The copilot was holding full left aileron. With initial reversing action, the aircraft started a yaw to the left. The pilot attempted to correct left yaw by increasing reverse thrust on number three engine and applied full right rudder. The copilot assisted in holding right rudder. Yaw to the left increased. The pilot and copilot applied brakes, the aircraft continued left and departed the runway 1975 feet from the touchdown point and made contact with a mobile arresting unit and a truck. The aircraft caught fire and was completely destroyed. All crewmembers evacuated without incident.

Leadership uses QA results and self-imposed flight level Quality Verification Inspection (QVI) requirements to ensure they identify negative trends before they lead to a mishap. Maintenance has created an open concept of talking about mistakes to prevent mistakes. They put the person who made a mistake or failed a QVI in front of the people to talk about what happened. It's not a personal attack, but a critique of what happened, so everyone can learn and prevent recurrence. Everyone must lead by example in following tech data, and everyone watches everyone else. If mistakes or shortcuts are taken, they all work to stop the problem. From day one they work to instill good judgment in their people through communication and trust.

Summary

To sum up the 136 AW maintenance, I would say it is a unit that has created a family atmosphere that works together to ensure mission success, and the safety of their people and aircraft. CMSgt Terry Mitchell, QA Superintendent, "sums up the wing" very well; "It is a culture of tradition and heritage where people feel a responsibility to uphold what those who went before have accomplished." Leadership is leading by example and proving it on a daily basis. When you have brand new troops and 20-year veterans saying the same thing, you know they are working together. I was extremely impressed by what they do and what the rest of the Air Force can learn from them.

Leadership is leading by example and proving it on a daily basis.

What Others Can Learn From The Men And Women Of The 136 AW.

- Encourage your people to think safety at all times.
- There is no magic bullet to create a safe work environment; it takes hard work and effort.
- Leadership must adopt an obvious cultural safety attitude or the people won't.
- Learn from your mistakes.
- Invest in safety with time, people and leadership.
- You can't accept complacency in anything you do.
- Take pride in your work and your workplace.
- Realize we (the Air Force) are held to a higher standard.
- Have fun and enjoy your work, not work hard/play hard, but enjoy your work and being part of your unit.
- People who like to be here will do better work.
- Take responsibility for what you do and accept the consequences.
- Lead by example at all times and all levels.
- Leaders, supervisors and workers must be mentors to other troops.
- You can't quit, you must keep reinforcing safety and good work habits.

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Spatial D & GLOC

Know your limits!

January

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USAF Photo


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2004
FOD Prevention
One person
can make a difference.

March

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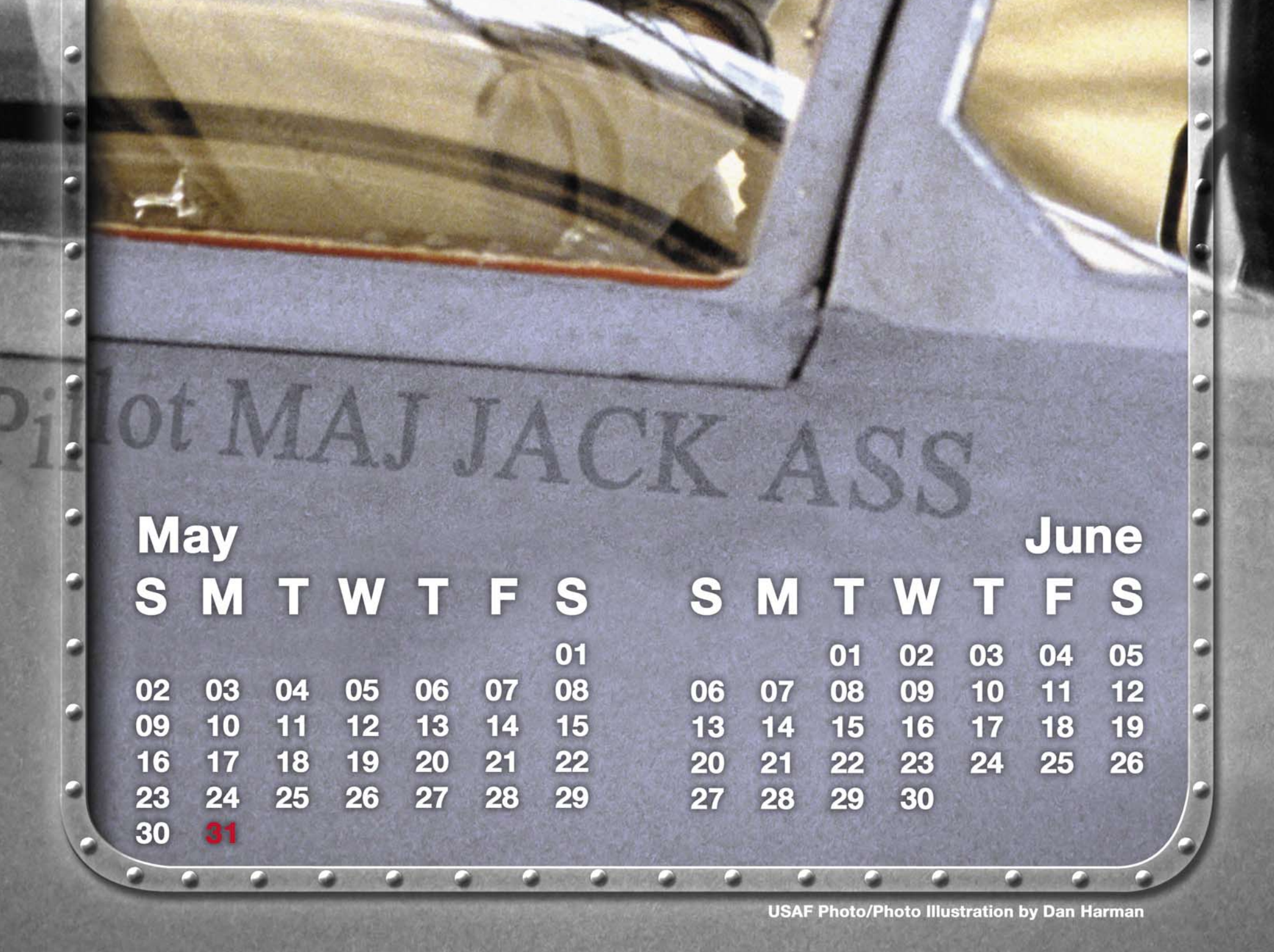
Human Factors

Don't be an Ass!



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2004
With Tech Data...

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AIR FORCE SAFETY CENTER

2004

Don't connect the dots.

September

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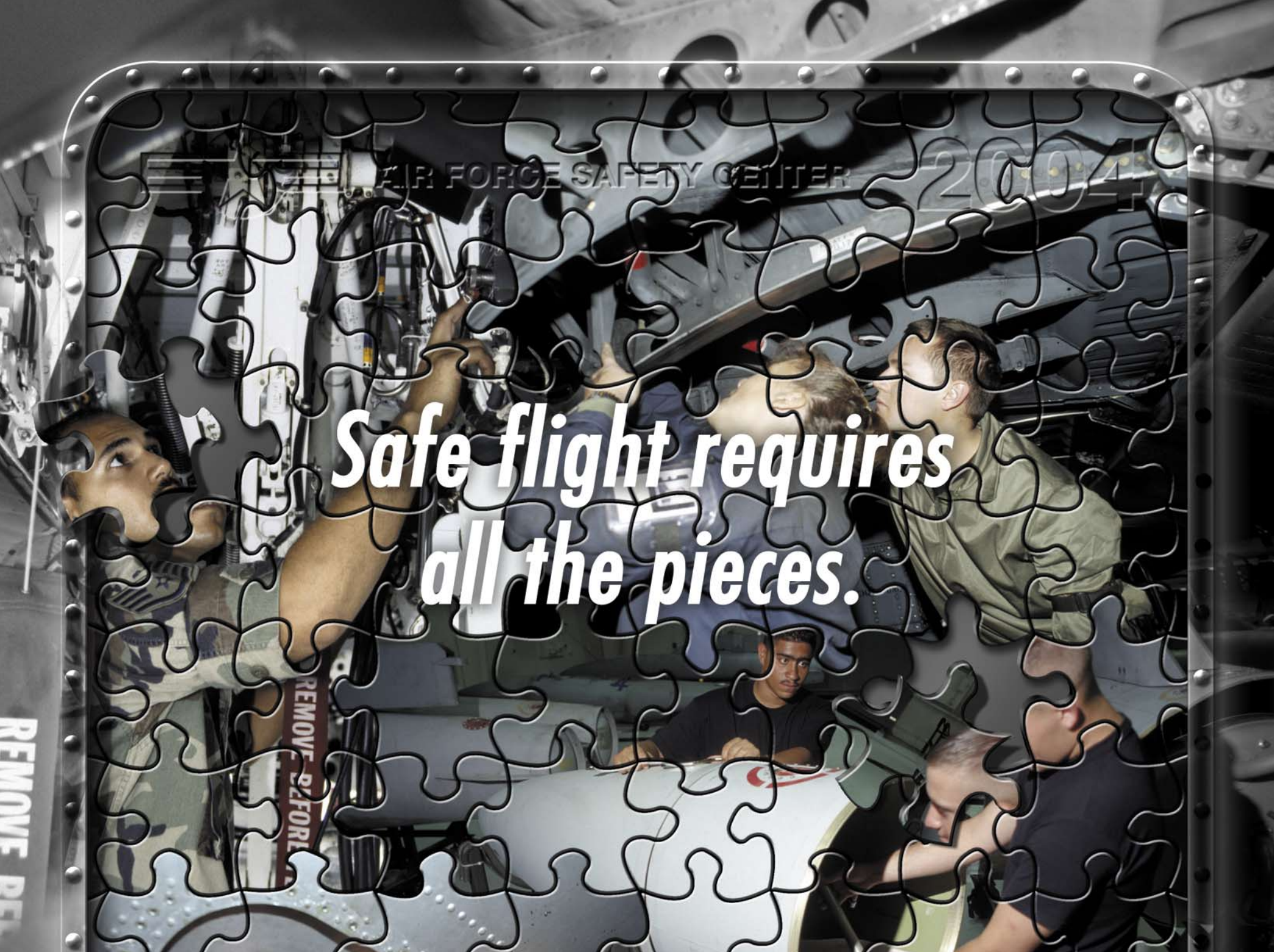
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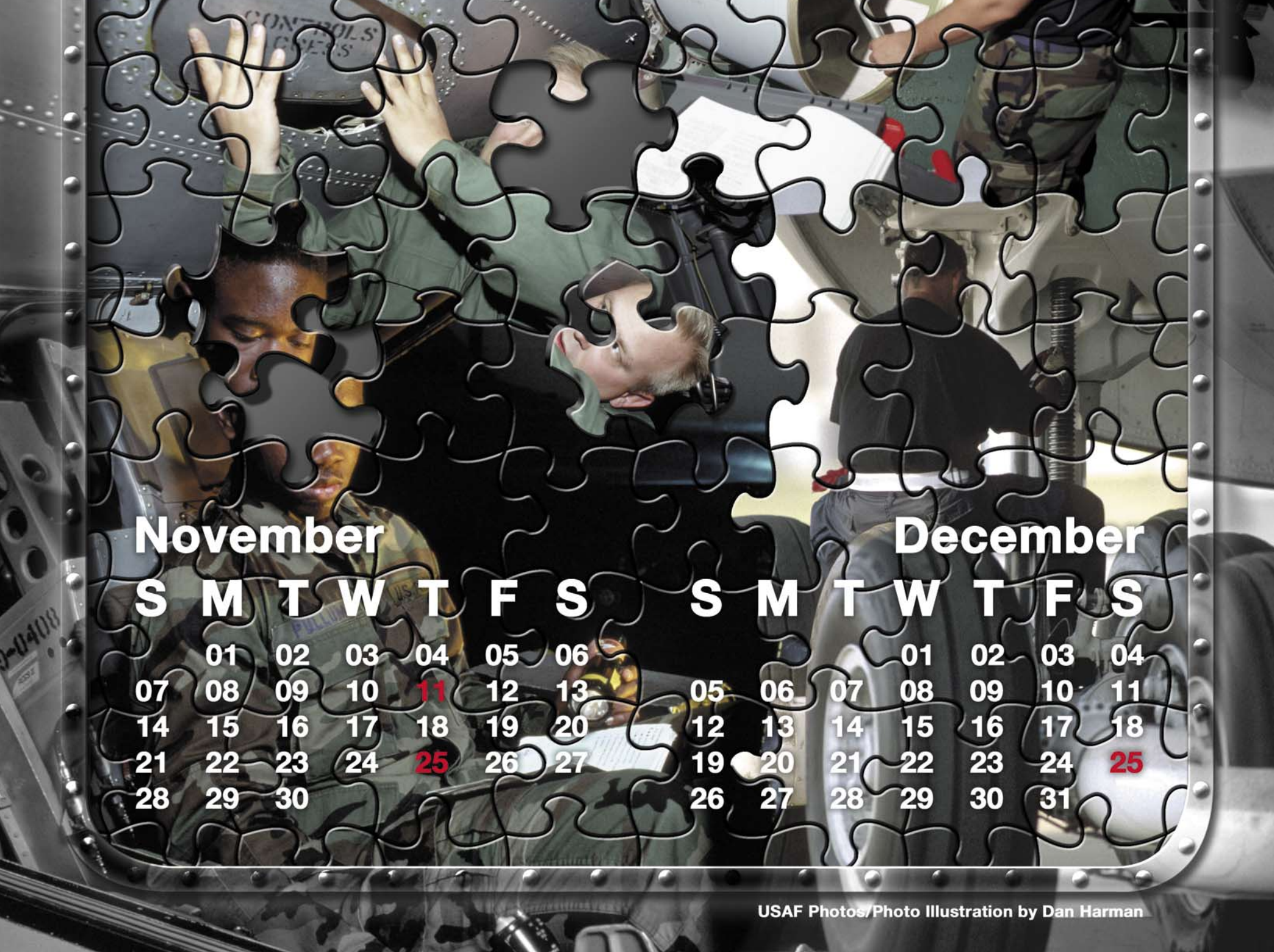
2004
Safe flight requires
all the pieces.



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In Instructors We Trust

LT. JOE COLELLA, USN

...not only did we almost take out ourselves, but we could have killed...spectators on the ground.

We were returning from NAS South Weymouth, where I had completed my day-night navigation flights. I was a student at VT-6 and finishing up my intermediate phase of flight training. We took off from NAS Sowey and continued our day navigation. We landed in Charleston, S.C., for gas. After we fueled and had our VFR clearance, we took off, heading for Savannah, Tallahassee, Crestview and then Whiting Field to close out our day-nav flight.

We climbed to 3,500 feet and started to nav using ground references. After about 15 minutes, the instructor said, "I've had enough of this day-nav stuff. Let's just dial up the NAVAIDs and head home." At first I thought this was cool, so I dialed up the next NAVAID in our planned route. Here we made our first mistake. The instructor decided to cut the corner and fly a more direct route back to Whiting, turning west and climbing to 4,500 feet. I started to feel a little uncomfortable at this time. Not only did we not file this route, we had no weather brief or NOTAMS for it. I made a suggestion to the instructor that we call the FSS and let them know our new plans in case we had an emergency. The instructor's reply was that there were plenty of places to land if we got in trouble, and we would give them a call on the ground. "OK," I thought, "You're the instructor, and in you we trust." As I started to chart our course, the instructor told me he would figure it out and I should just fly to the NAVAIDs he gave me.

As we approached Dobbins (about 10 miles away) I once again asked, "Sir, do you want to give Dobbins a call to let them know we're coming?" His reply was that Dobbins was just an ATA, we were at 4,500 feet and didn't need to call them. Everything they teach us about safety in flight school just went out the window. I was flying with "Maverick" and he was going to do whatever was legal without regard to safety.

At five miles, I spotted the field and told him that something looked different. He asked what it was. I told him that there were columns of smoke coming up from the runways starting at about 1,000 feet. Again I asked, "Do you think we should give tower a call?"

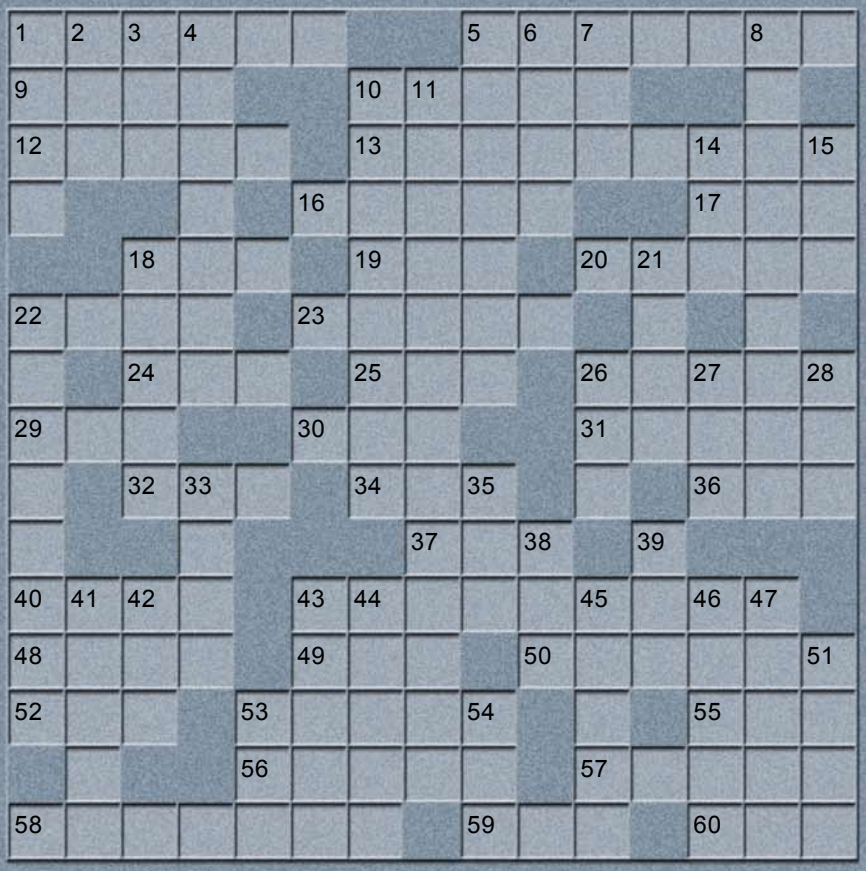
He replied, "Nah, just give me the controls when we cross the field."

As I started to cross the runway at 4,500 feet, I said, "You have the controls," and showed him my hands. He took the controls and started to roll the aircraft to the right to see these columns of smoke. Suddenly, from out of nowhere, a diamond formation of jets appeared just 200 feet away at the same altitude. I shouted an expletive, and the instructor rapidly rolled the aircraft level and asked, "Who the [expletive] was that?"

I replied, "It's not the Angels, it looks like the Thunderbirds." I looked down at the ground and noticed hundreds of thousands of people. It was 1515 on a sunny Sunday afternoon, and we were flying through an air show. A call came over guard stating, "Orange and White aircraft over Dobbins, this is Thunderbird control, come up on guard." We did and they let us have it, stating that we had come within 200 feet of the Thunderbirds, and we were to call them immediately upon landing. My instructor realized that not only did we almost take out ourselves, but that we could have killed hundreds of spectators on the ground. It was a very quiet flight home from there. When we landed, the instructor hopped out before I shut the aircraft down and said, "Shut it down, I'll see you inside." When I arrived he was speaking to a colonel on the phone. There were many "Yes, sirs" being spoken. We debriefed and he told me to keep the Dobbins incident quiet. I walked away with eight "aboves" on that flight, but I'm not sure that was worth the terrifying memory.

I learned that day that if you feel uncomfortable about anything that has to do with safety of flight, press the issue until you can get it resolved. That was the last time I ever took an instructor's word as gospel.

A Controlled Flight Into Terrain Crossdown Puzzle



ACROSS

1 Overtakes
5 Popeye's strength provider
9 Aerial manuever that can lead to a CFIT
10 Mil. flight system used to avoid CFITs
12 Monotheism deity
13 Defers
16 Drain
17 Sleep
18 Demeanor
19 Sunken track or groove
20 Roman goddess of flowers
22 Federal org. that manages disasters
23 Changed a property classification
24 Pub drink
25 Total
26 Director Oliver
29 1798 affair that led to undeclared naval war with France
30 AT&T rival
31 Holiest city of Islam
32 Person trained to initiate initial medical care
34 Comic opera ___ Pinafore
36 Collection
37 Hole
40 Charged particles
43 Vital item for pilots to avoid a CFIT
48 Mining goals
49 Item used to transmit comm.
50 1985 movie White _____
52 NCAA basketball tournament
53 Main trunk of the systemic arteries
55 Former White House Spokesman Fleischer
56 TV show Meet the ____
57 Factor that is a leading cause of CFITs
58 Hurt; what happened to aircrews in CFITs
59 ____ ala mode
60 FedEx rival

DOWN

1 Essential item to avoid a CFIT
2 Internet service provider
3 Center of the solar system
4 Type of distortion that can lead to a CFIT
5 Probed
6 Portion
7 Classified ad abbreviation for looking for
8 Pilots must take this into account to avoid CFIT
10 One of the most dangerous times for a CFIT
11 Results of CFITs
14 Card game
15 Health resort
18 Astonish
21 Tardy
22 Pilot factor that can lead to a CFIT
26 Dallas, TX school
27 Mil. commissioning source
28 Dine
33 Disorder.
35 Knight's title
38 X in modern times
39 Actress Ryan
41 Constellation
42 Earn
43 Love
44 Excited
45 Nook or cranny
46 Sea World attraction
47 Item used to support a garment from the shoulder
51 Offenses
53 Spring mon.
54 Cleopatra killer

Editor's Note: The following accounts are from actual mishaps. They have been screened to prevent the release of privileged information.

Often things happen out of the ordinary that cause pilots problems, such as improper equipment, bad weather and bad procedures. Let's control everything we can and reduce the risk on the things we can't control.

T-37 No Engines

A T-37 launched on a cross-country leg and climbed to FL200. They continued on and asked to climb to FL240 due to icing at the lower altitude. Unfortunately, the ice continued to slowly build up, so they began an en route descent. Total accumulation was about 1/2-inch on the leading edge of the wings. As the aircraft passed 12,000 feet MSL, the ice began to peel off in sheets. Now, what do think sheets of ice can do to an aircraft? As they passed 8,000 feet MSL, they noticed the number one engine RPM begin to roll back. Shortly thereafter, the number two engine began to roll back. The crew selected starter-air for each engine and the engines recovered. The engines then operated normally, but the crew declared an emergency and landed safely at home station.

The maintenance team ran the aircraft and found no damage or abnormalities. As a precaution for dual-engine flameout, they changed the number two engine to *prevent* a second occurrence. How did the engine shut down? Let's just say ice and engines don't mix.

Slapped Around C-17

A C-17 made two passes over the local drop zone and a cargo strap fell from the cargo door. The smaller hook end of the strap remained attached inside the aircraft, while the larger ratchet end stayed outside and bounced against the tail cone. The crew didn't discover the strap until they landed at home station. The damage was numerous scrapes and two holes in the tail cone. How can a strap get left out in the cold without the crew knowing about it? A lot of cargo gets moved around in a C-17, and straps get stored in places they shouldn't be. The unit initiated an FCIF alerting crews to inspect the aft bulkhead area for straps prior to flight and cargo drops. Transporters and aircrew, make sure you store the cargo straps where they are supposed to go, and that you secure "everything" before the aircraft takes to the air.

Bad A-10 Rounds

Two A-10s had a normal weapons delivery sortie at one of our overseas locations; however, the squadron was later notified that local residents found some 30MM rounds, and they were not on the range. The aircraft were inspected and the remaining rounds were removed with no defects noted in the aircraft, munitions or in the pilots' actions. The rounds were collected from the good neighbors, who were relatively close

to where the two aircraft opened fire during their high angle strafe passes. The rounds were relatively intact and in close proximity to each other. The rounds still retained their windscreen and had two-raised rifling bands that were worn flush with the metal portion of the round. They showed little to no rifling marks and most of the windscreens were blackened by residue.

Maintenance checked the first aircraft and found nothing wrong when they borescoped the barrels, and the bullet lot for that aircraft only had single rifling bands. The second aircraft's barrels were borescoped and two barrels had severe erosion of the lands and grooves just beyond the breech end of the barrel, and they failed to meet the barrel diameter specifications. This is a pretty good indication of where the bullets came from and why they didn't reach the range.

The unit took some extra steps to prevent recurrence by:

- Checking all their barrels
- Placing the barrels on a combat replacement schedule instead of a training schedule
- Training all technicians on proper borescope procedures
- Emphasizing to the pilots the importance of annotating when they fired more than 200 rounds in less than two minutes
- Ensuring debrief personnel relay the "200 rounds in less than two minutes" writeup to the gun shop after a sortie

These steps will hopefully prevent another case of rounds landing where the pilot didn't want them to go. It would be a good idea to ensure your unit doesn't have the same problem.

Really Bad Ride Due To Weather?

Two F-16s took off for a data-masked mission and the weather briefing called for thunderstorms, moderate to severe turbulence, and mixed icing. Not a fun setting for any flight. The storms were reported to the west of their area, but once airborne the storms had moved into the area faster than anticipated. As the aircraft traveled at FL350 and .85-mach, lead encountered IMC conditions and called for the wingman to go 3-5 mile trail. Lead then used his radar to see if any thunderstorm cells were present, and none could be seen. The crews encountered dark clouds, then yellow and orange clouds with bright flashes. Lead directed a 180-degree turn to avoid the storm, and after initiating the turn, lead encountered a near-immediate airspeed drop to "zero knots" indicated. He radioed his wingman that he was out of control and directed the wingman to continue the turn and egress the storm. Lead's aircraft descended rapidly, maintained 15-30 degrees nose-low, flipped violently back and forth and inverted several times. The pilot reported the sky conditions changing from yellow-orange to black. Lead's nose tracked to approximately 70 degrees nose-low passing FL120. Fighting all the forces on the aircraft, the pilot was able to finally recover the aircraft at approximately 750 feet MSL. The two aircraft then rejoined and safely returned to base.

The only damage to the aircraft was to the weapons and EC pod radomes. This pilot was able to save his life and the aircraft through staying with the aircraft. There was a lot of discussion on whether he should have ejected. I can't print that discussion here, but you can read the entire mishap in AVSAS Report #307135. The pilot encountered forecasted severe weather, but the mission was flown anyway. The bottom line is that current regulations dictate that pilots "will" avoid thunderstorms at all costs, whether in peacetime or wartime. If encountered, pilots "will" exit by the quickest avenue available. Be safe and think about the risk versus the benefit.

Gear-Up Landing

The T-37 instructor training flight didn't quite end the way they planned. The sortie was uneventful until the final landing. They had been flying pattern work; one straight-in approach and three touch-and-go landings. In addition, the crew had experienced four pattern breakouts and an initial carry straight through due to pattern saturation. The instructor had control of the aircraft and flew it around the outside pattern to initial and was given a departure end break for landing. The aircraft was flown around inside downwind to the perch and the pilot called, "gear down, full stop," as he executed the final turn. Tower cleared the aircraft for a touch-and-go, but the pilot responded that this would be a full-stop landing. Tower recleared the aircraft to land and the pilot responded with only his call sign. The aircraft then contacted the ground 500 feet down runway, with full flaps and *no gear* extended. The aircraft skidded to a stop 2400 feet down the runway. The crew safely egressed.

Maintenance inspected the aircraft and found nothing wrong with the landing gear system. Why do instructor pilots land their aircraft with the gear up? You will have to contact your Flight Safety Officer to get a copy of the mishap message for all the details that I can't reveal here. But I bet you can have some nice discussions around the office about how an *"instructor"* could forget to lower the landing gear.

Editor's Note: The following accounts are from actual mishaps. They have been screened to prevent the release of privileged information.

I hate to beat a dead horse, but you all keep reviving the issue, and that issue is not following tech data. Here are some more cases where manufacturers, backshops and flightline troops didn't meet the standard and caused mishaps.

The Case of The Bad Hose

The C-17 was on a VFR downwind, and following gear extension, the number three hydraulic system was found depleted. The emergency checklist was accomplished, and the aircraft landed safely. When maintenance checked the aircraft, they found hydraulic fluid leaking from the right main landing gear (MLG) wheel well. Closer inspection found the right MLG extend hose ruptured just above the fitting sleeve and damage to the retract hose on the number three system. They replaced the hoses and submitted a deficiency report.

There have been *51* reported failures of this hose. Not a very good track record. There are two manufacturers of the hose, and the hose must be installed using the two-wrench method to prevent twisting of the hose. This twisting and normal MLG movement can cause premature hose failure. The aircraft tech data was changed to authorize only one brand of hose to be installed and it will be a fly-to-fail part. Proof the deficiency reporting process can solve your problems. When you have problems, use the system to improve the product and prevent mishaps.

Stiff Stick

On a normal T-38 instructor training mission, the flight was uneventful until landing. After landing, the crew told the SOF and maintenance that the stick was binding as back pressure was applied, which had made for a real fun landing. Maintenance investigation found a rivet lodged between the horizontal stability interconnect cable assembly and the bell crank assembly. The rivet was removed, but due to damage they had to replace the cable assembly. Ops check was good and the aircraft was returned to service.

Inspection of the aircraft revealed no missing rivets, so it had to come from a previous repair. Fair warning, folks: Loose rivets don't make their way into flight controls without *someone* leaving them there. Clean up after yourself and the problem never happens. The key to mishap prevention is to follow the books and take the extra effort.

Intentional Gear-Up Landing

During a T-37 formation orientation sortie, the wingman received some unplanned emergency procedure training. Shortly after takeoff, the number two aircraft had a gear problem, and they went to the emergency orbit pattern. Lead checked the aircraft over and found the nose wheel rotated 90 degrees to the left and the torque link appeared to be disconnected. They kept the gear down IAW checklist and initiated phone calls with the SOF and the Air Logistics Center to figure out what to do next. After a few tries to get the nose gear centered, the SOF gave the pilot two options: Land according to the checklist with gear down, which might result in difficulty controlling the aircraft, or land gear-up, which could provide more direc-

tional control. The pilot chose to land gear-up. The aircraft was configured with main gear up, nose gear slightly extended, flaps 100% and speed brake extended. With minimum fuel remaining, the aircraft touched down and skidded 938 feet before stopping five feet left of centerline. After the mishap they found two pieces of the broken upper torque link arm bolt on the runway.

Previously, the aircraft had a broken upper torque link arm near the quick disconnect pin. The link was replaced IAW the applicable T.O. with parts from shop stock, not new parts from supply. Following the torque link replacement, the aircraft had flown 34 sorties with 102 landings prior to the mishap. On the sortie prior to the mishap, the pilot had written up a nose wheel shimmy and the maintenance crew had replaced the nose wheel. There was no high-speed taxi check of the aircraft as required by the T.O. and local instruction.

The Dash 6 requires the torque link bolts to be NDI'd during the number one Periodic Inspection (PE) and replaced during the number two PE. However, due to the current process, the nose gear is removed and rebuilt at the backshop, and the backshop doesn't use the Dash 6 workcards. Therefore, they had no reference to the requirement to NDI or replace the bolts. The backshop always just NDI'd the bolts, but the gear T.O. requires the bolts to be *replaced* during rebuild. What's that saying about how following the T.O. will prevent mishaps? Metallurgical analysis was accomplished and concluded the bolt failed due to overstress. The primary fracture appeared to be the result of overstress, but fatigue cracking was found elsewhere on the bolt. They also concluded that fatigue was not the sole source of the failure, and at some time prior to the mishap sortie, the strut had "bottomed out," most likely due to a hard landing or mis-servicing of the strut.

What key factor played a part in the aircraft landing gear-up? The nose gear was not properly maintained IAW tech data. Many things could have prevented this mishap, the most important one being to follow tech data. As maintenance professionals we need to ensure all tech data is followed, and if tech data between flightline and backshop differs, get supervisors involved to answer the questions and prevent mishaps.

Unknown FOD

An HH-60 returned from a normal flight with landings at several different sites and reported an engine problem on return to base. After safely landing, they shut down the affected engine. Upon return to parking, they turned the aircraft over to maintenance. No blood stains or feathers to indicate a bird strike, no aircraft fasteners missing, and no engine parts missing. The engine was borescoped and revealed no intake damage. However, every blade in the compressor section was damaged either by the foreign object or post initial FOD from pieces of the compressor blades breaking off and striking the remaining blades. In addition, small metal shavings were found in the bottom of the combustion section.

To try to find the cause, maintenance ensured all tools were accounted for, and they were. So, they used FAST analysis, which determined a cadmium-aluminum rivet caused the FOD. These rivets are used throughout the aircraft. Nothing in the 60-day maintenance history indicated where the rivet might have come from, and none were missing from the aircraft.

This is one of those cases where we did $97,774 in damage to an engine, and we know what caused the damage, just not from where it came. The rivet was left behind on the aircraft, or on the ramp, where it was picked up by the aircraft. It may not be your aircraft that gets damaged, but it can also be transient aircraft. Housekeeping is everyone's responsibility, especially the mechanics.

They Didn't Need the Right Tool

An F-16 developed a fuel leak during a hot turn and was shut down. The crew started to clean up the fuel, but the leak didn't stop. The crew egressed the aircraft and a Class 3 fuel spill ground emergency was declared. Fuel specialists arrived at the aircraft and determined a humming noise from the aircraft was from the aircraft gyros still spinning from battery power. With the battery on, the main fuel shutoff valve could not be closed manually. They gained access to the cockpit, turned off the battery and were able to stop the fuel flow.

Troubleshooting found a fuel leak between the augmenter fuel control (AFC) fuel supply tube and the AFC fuel pump filter assembly. The gasket had a 1/2-inch separation in the upper left center section of the gasket. To make things worse, during disassembly a helicoil from the lower right corner of the AFC filter pulled loose, requiring filter replacement.

How did the gasket fail? Recently the AFC had been replaced due to time change requirements. Tech data requires the fuel tube to be installed with a pusher tool, and the task was signed off as completed IAW tech data. If you went to either the squadron support section or the engine backshop, you would have found the pusher tool *hadn't been signed out in two years.* Do you think they were following tech data during the AFC installation? I don't. There is a caution in the T.O. that states, "The gasket shall not be forced between flanges. Failure to comply may result in fuel leakage." The pusher tool *"prevents"* unnecessary pressure and damage to the gasket. What if this fuel leak had happened in the air and we lost the aircraft and/or pilot? If the maintenance crew had followed tech data and used the right tool for the job, this mishap would not have happened. My big question is: Where was supervision? What about the training program that allowed this widespread workaround to live on until an accident happened? The goal is to prevent mishaps, not create them.

USAF Class A Flight Mishaps

FY04 Flight Mishaps (Oct 03-Nov 03)

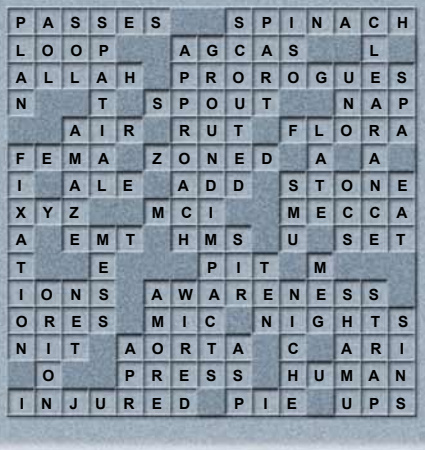
4 Class A Mishaps
0 Fatalities
2 Aircraft Destroyed

FY03 Flight Mishaps (Oct 02-Nov 02)

4 Class A Mishaps
2 Fatalities
4 Aircraft Destroyed

09 Oct A KC-135E experienced a #3 engine fire.
14 Oct ✈ A T-38 crashed during takeoff.
17 Nov A KC-10 experienced a destroyed engine.
18 Nov ✈ An A-10 crashed during a training mission.

- A Class A mishap is defined as one where there is loss of life, injury resulting in permanent total disability, destruction of an AF aircraft, and/or property damage/loss exceeding $1 million.
- These Class A mishap descriptions have been sanitized to protect privilege.
- Unless otherwise stated, all crewmembers successfully ejected/egressed from their aircraft.
- Reflects only USAF military fatalities.
- "✈" Denotes a destroyed aircraft.
- "✶" Denotes a Class A mishap that is of the "non-rate producer" variety. Per AFI 91-204 criteria, only those mishaps categorized as "Flight Mishaps" are used in determining overall Flight Mishap Rates. Non-rate producers include the Class A "Flight-Related," "Flight-Unmanned Vehicle," and "Ground" mishaps that are shown here for information purposes.
- Flight and ground safety statistics are updated frequently and may be viewed at the following web address: http://afsafety.kirtland.af.mil/AFSC/RDBMS/Flight/stats/statspage.html.
- **Current as of 25 Nov 03**.



Answers to Controlled Flight Into Terrain Crossdown Puzzle on Page 25.

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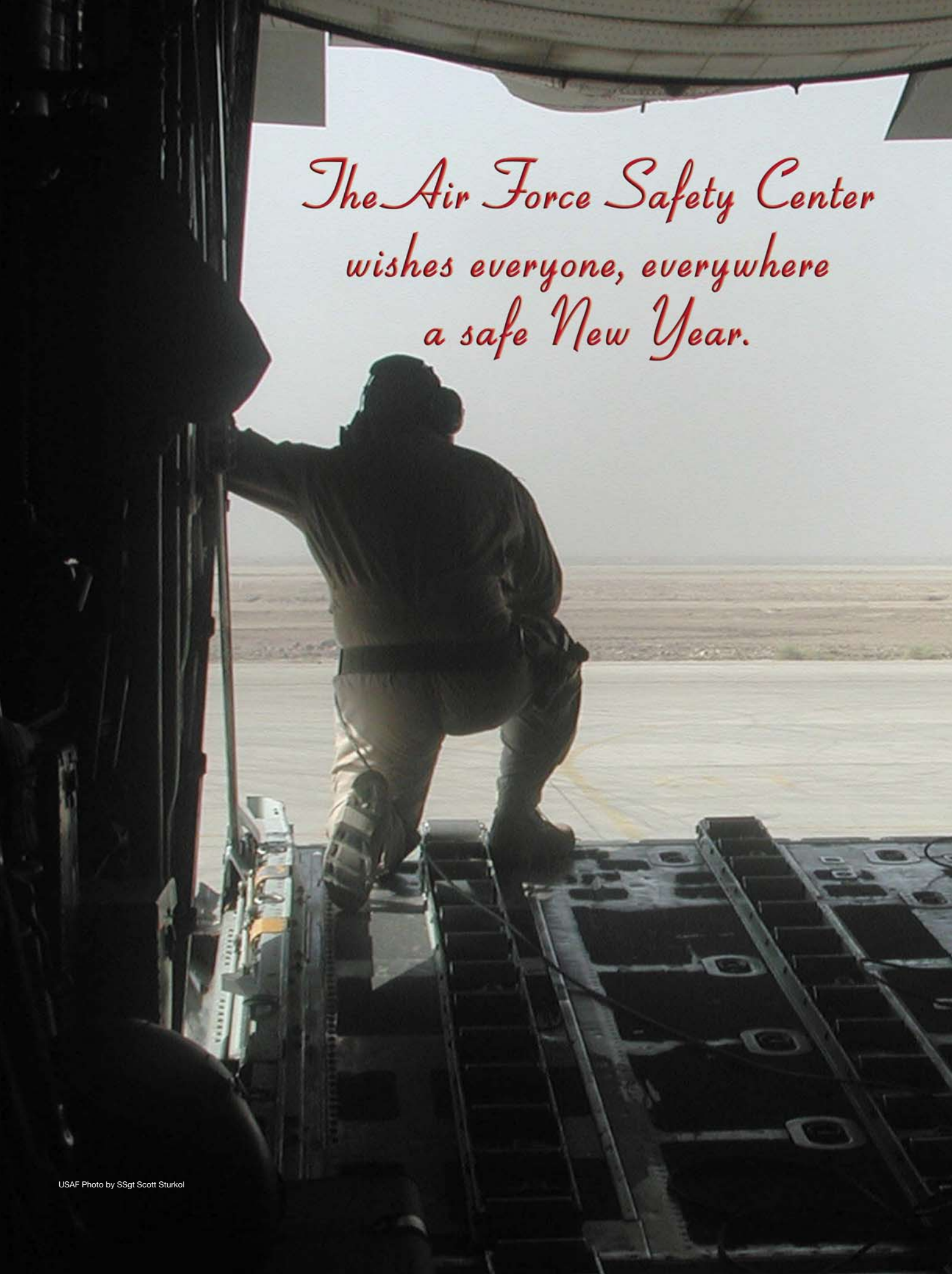
The Aviation Well Done Award is presented for outstanding airmanship and professional performance during a hazardous situation and for a significant contribution to the United States Air Force Mishap Prevention Program.

MSgt Frank B. Mallory III
Vandenburg AFB CA

On 4 November 2002, during an apparent routine takeoff of an F-15E aircraft from Vandenberg AFB, CA, MSgt Mallory witnessed a catastrophic and dangerous situation unfold. He observed smoke and flames from underneath the aircraft as the aircraft aborted at high speed. Two loud bangs were heard as both main tires burst and began breaking apart. Once the tires disintegrated, the rims and brake assemblies began to grind into the runway surface, generating heat and catching fire. When the aircraft stopped on the runway the smoke and fire, fed by ruptured hydraulic lines and leaking fluid, began to intensify. Seeing no emergency vehicles responding, MSgt Mallory waved down a passing transient alert truck to verify the crash response net had been activated. In sight of the fire department, MSgt Mallory again observed no response and decided to take action. He quickly ensured the aircrew was clear of the aircraft, disconnected the fire bottle from the alert truck, and began to fight the fire. Within seconds, he had knocked down the fire and continued to extinguish dangerous flames, which had re-ignited from the intense heat and exposed flammable materials. Firefighting equipment was on the scene approximately three minutes later. However, the fire truck contained water instead of the required firefighting foam and proved ineffective in controlling the situation. Fortunately, MSgt Mallory's actions had already extinguished the fire. His decisive actions brought the situation under control and saved the crew and aircraft.



USAF Photo by SSgt Scott Sturkol