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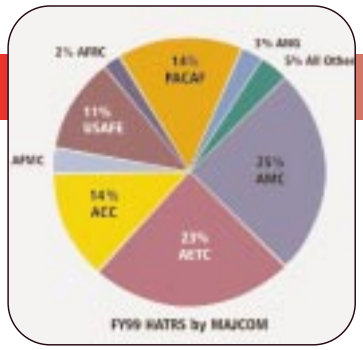

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FSI notams

Rules 1 Through 10

Courtesy ASRS *Callback*, Mar 99

The flight crew of a Turbo Commander rediscovered a basic flying rule while trying to troubleshoot a problem on an IFR approach over mountainous terrain. The First Officer (the flying pilot) reports:

After passing the VOR, we were descended to 10,000 feet and given a vector towards the final approach…We were traveling at approximately 230 knots. During this process the directional gyro on my side of the cockpit failed, and the captain was trying to diagnose the problem. At about this time, we were advised to descend and maintain 3,800 feet, which is the MVA [Minimum Vectoring Altitude] for that sector. Our descent was delayed somewhat, so we were descending fairly rapidly while trying to diagnose the directional gyro problem and join the localizer.

Unfortunately, I failed to arrest the descent at 3,800 feet, and we were called by the tower upon reaching approximately 3,300 feet [and] advised that the tower was receiving a low altitude alert. We were advised to climb immediately, which we did…

I am constantly preaching to everyone that rules 1 through 10 are "Fly the airplane first," and I simply failed to follow my own rules. I should have…allowed the captain to work out the problems. Fortunately, [this airport] is an excellent ATC facility. They quickly caught our altitude and gave us on immediate climb…Our rate of descent was greater than 2,500 feet per minute which allowed for very little deviation time.

Flightcrew distraction is a factor in many mishaps. Our reporter's analysis is accurate. In addition, pilots must be trained to recognize when they are rushed, distracted, and susceptible to error. ✈

TANDEM THRUST 99

The Airspace Environment

Photo by SSgt Michael E. Buytas Jr. USAF

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Andersen AFB, Guam

Andersen AFB, Guam, was host to the combined US and Australian command post and field training exercise (CPX/FTX) "Tandem Thrust 99" this past spring. The biannual exercise involved US Army, Navy, Air Force and Marine Corps units and navy and air force units from the Australian Defence Force (ADF), with Canadian naval units participating as opposition forces. We flew about 1500 sorties over the 9-day FTX portion.

It was a huge undertaking.

About 9000 US military personnel were involved, along with 1000 Australian Defence Force personnel and 800 Canadian navy and air force men and women.

For the air operations alone, there were 70 Navy aircraft aboard the carrier USS Kitty Hawk, numerous helicopters aboard the US, Canadian and Australian ships, 25 Air Force aircraft at Andersen, 15 other service and country aircraft at Andersen, and two aircraft flying out of Kadena AB, Japan.

US aircraft included F/A-18s, F-14s, EA-6Bs, S-3s, E-2Cs, C-2s, SH-60s, F-15Cs, F-1s, B-52s, KC-135s, C-130s and E-3s.

It was a very challenging exercise to coordinate the efforts of all these aircraft and provide for their safety. The following article details some the complexity of developing a CPX/FTX.

AIRSPACE AND THE AOC

In the flying safety equation of "man," "machine" and "environment," weather immediately comes to mind in any discussion of the latter. However, we will address another aspect of "environment," that of airspace.

Frequently, field training exercises involving flight operations require the activation of an Air Operations Center (AOC). The AOC plays a key role, along with the active participation of the various flying units involved, in developing and maintaining a safe environment for flight operations.

The AOC organizes, deconflicts and controls the airspace to facilitate safe, effective and efficient flying. The three main ways this is accomplished are through airspace development and management, production and revision of Special Instructions (SPINS),

and controlling the execution of the Air Tasking Order (ATO).

Many of the processes used in FTXs have direct application during contingencies, but they are sufficiently different that here we'll concentrate on flight operations during FTXs only. We'll also examine what role the aircrew plays in developing, maintaining and operating within the "environment."

Photo by SSgt Michael E. Buytas Jr. USAF

AIRSPACE PLANNERS/MANAGERS

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While their duties may vary somewhat from one numbered air force (NAF) to another, combat airspace managers provide an invaluable service to their associated flying communities. They have specialized training in Air Traffic Control (ATC), Airfield Operations and Airspace Management, making them a valuable asset to any "live fly" exercise planning team. In fact, senior leaders will reap huge rewards in the flight safety arena by getting these individuals involved early in the planning process.

Long before an exercise begins, airspace managers are typically engaged with the FAA or host nation equivalent even before attending a planning conference. The reason for this is to determine potential airspace limitations that may place restrictions on the exercise play itself. Once an initial concept of operations has been developed, airspace managers begin working more closely with the FAA or host nation counterparts to modify or develop specialized training areas in support of the exercise. This is no easy task since these areas usually have to be developed around busy airports and airways, and must comply with environmental restrictions.

Designing a couple of areas... you're probably thinking, "Hey, no sweat." Well, this is just the tip of the iceberg. There are numerous questions that airspace managers must consider in order to develop a really good airspace control plan for an exercise. What kinds of air operations will these be used for? What kinds of aircraft are involved...Navy, Army, Marines, or other nations? Who will be controlling them...ground radar units, AWACS, E-2s? If multiple bases are involved, will special routing procedures have to be developed, and will air refueling be required? The answers to these questions must then be turned into procedures so all air operations can be deconflicted. Although positive and procedural control are the two methods used for separation, airspace managers primarily use procedural control and deconflict air operations by altitude, location or time. Time is the least desired method and is used as a last resort.

So what's involved in deconflicting airspace for an exercise? Again, airspace managers usually have to modify or develop special training areas. Depending on training requirements, these areas may then be sub-divided and have altitude restrictions to separate various air-to-air operations. Once established, entry and exit points must be created with specific altitudes for entering and exiting the areas. There will also be transfer of control points created for aircraft to transition to and from FAA (or its equivalent) to tactical control. Normally, special control measures must be established in these areas to protect AWACS, tankers and other High Value Airborne Assets (HVAA). Also, if helicopters are involved, a coordinating altitude must be established to separate the fixed- from rotary-wing aircraft.

continued on next page

Ensure combat airspace managers are involved early in the planning process and you'll significantly enhance the overall flight safety of your exercise.

Photo by LCpl Penny Surdukan USMC

Photo by SrA Eric Beaman USAF

The SPINS can and should contain any information that will reduce confusion, aid coordination, or otherwise improve safety, regardless of whether it fits into the standard combat sections.

In addition, some exercises require specialized control areas to handle extremely complex traffic situations. For instance, when the Navy is conducting amphibious operations, they may need an Amphibious Objective Area (AOA) or High-Density Airspace Control Zone (HIDACZ). In such situations, airspace managers work with their respective service counterparts to develop additional procedures for entering and exiting these areas, which will have to be integrated into the overall procedures for the exercise.

As you can see, there's a lot of stuff involved in developing airspace control procedures for a "live fly" exercise, but this is exactly what combat airspace managers are ready for and trained to do. Their job is to create a safe flying environment for aviators to use while accomplishing their flying training objectives. So a word to the wise: Ensure combat airspace managers are involved early in the planning process and you'll significantly enhance the overall flight safety of your exercise.

SPINS

MAJ JOHN A. RUSS
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Special Instructions (SPINS) are a critical part of the exercise. FTXs are frequently joint/combined in nature and, as such, involve numerous different types of aircraft and flying units, each with unique training restrictions and requirements. This translates into a myriad of problems that need to be addressed. Whether it's engagement criteria, weather minimums, communications limitations, etc., a common set of rules must be developed to which all can conform without violating any of their specific restrictions. Here, an agreed upon set of SPINS comes in, which must be disseminated, read, and adhered to.

The SPINS section of a combat Air Tasking Order (ATO) creates effective air operations, maximizes combat effectiveness, and enhances air safety. As the repository of information such as the communications plan, rules of engagement, flight routes and

airspace boundaries, and theater-specific procedures for CAS, CSAR and AAR, it provides the basis for sound mission planning by package commanders and flight leads. It is essential for deconfliction, prevention of fratricide, and integration of different aircraft types flying from different bases into a coherent mission. All aircrew who fly operational missions understand the importance of knowing the SPINS cold before flying in theater.

SPINS are no less important to the safe prosecution of peacetime exercises. As a free-text message, they provide the exercise planners and controllers a flexible and reliable conduit for passing information of any nature to the flying units—an even more critical need as different services and different nations are added to the mix. SPINS provide common training rules, terminology, flight procedures and standards to ease the coordination burden when air forces operate from different bases.

Using the combat SPINS as a guide, the exercise guidance should include:

- Training rules. These are a very important piece of coordination for exercises and logically replace the "Rules of Engagement" section of combat SPINS.
- The complete communication plan. The complete listing of units, call signs, IFF codes and Standard Conventional Loads (SCLs) aids situational awareness during mission execution.
- The Combat Search and Rescue section. This can make the participants aware of the rescue capability in the area and any special equipment or procedures required for pickup by the designated rescue platform.
- Tanker and CAS procedures. This covers the same type of information as in a combat SPINS: rendezvous, EMCON, authentication, communications, etc.

More so than in a combat or contingency scenario, SPINS guidance should be a two-way street during exercises. Since the participating units best understand their training objectives and their proficiency in various missions and tasks, they must contribute to SPINS development and provide feedback as the exercise progresses. The SPINS can and should contain any information that will reduce confusion, aid coordination, or

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The SPINS section of a combat Air Tasking Order (ATO) creates effective air operations, maximizes combat effectiveness, and enhances air safety.

Photo by LCpl Penny Surdukan USMC

Photo by PH3 Chris D. Howell USN

During exercises, the Combat Operations Division plays a large role in increasing the flight safety of exercise participants.

otherwise improve safety, regardless of whether it fits into the standard combat sections. As the exercise progresses and lessons are learned, these should also be incorporated. A safety section might include notes such as "Heavy light-aircraft traffic has been noted in the vicinity of airport XYZ below 2000 AGL."

ATO SPINS are distributed to all flying units participating in an exercise and, more than any other document, are studied and followed by the aircrew. As such, they are a vital tool that exercise controllers and individual units can use to pass procedural guidance to participants in separate areas. When the AOC works closely with the units to develop workable rules, promulgates these in the SPINS, and incorporates feedback from the flyers as the exercise progresses, they make a very important contribution to flight safety.

COMBAT OPS

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Combat Operations is tasked with monitoring and executing the daily Air Tasking Order during exercises, contingencies and war. Coordination between the Combat Operations Division in the AOC (centralized control) and Wing Operations Centers (decentralized execution) allows for the effective and efficient conduct of combat air operations. During exercises, the Combat Operations Division plays a large role in increasing the flight safety of exercise participants.

During large joint/composite force exercises, Combat Operations personnel act as the schedulers and safety monitors for package planning and execution. The schedule is constructed to provide the most realistic mix of combat assets, while maintaining an acceptable operational risk based on pilot and aircrew experience. All Combat Operations personnel are highly experienced flyers; most are former squadron

Photo by SSgt Michael E. Buytas Jr. USAF

supervisors and supervisors of flying (SOF). They provide mature oversight during the exercise participants' initial requests for large force scheduled events. Once the schedule is produced, Combat Operations reviews the schedule to resolve potential conflicts and safety of flight concerns. Once the schedule is released to exercise participants, Combat Operations personnel are assigned to assist package commanders as they prepare their package for combat training employment.

During the mission planning stage, Combat Operations personnel (package Air Boss) attend every planning session and mission briefing. The role of the package Air Boss is not to instruct in mission tactics; rather, the Air Boss is there to ensure the package commander does not allow anyone to exceed an acceptable level of risk. The Air Boss will step in and prevent conflicts in the taxi and takeoff flow of exercise aircraft. The Air Boss also advises package commanders and flight leads when he sees a possible safety hazard in any portion of their plan.

Once the package commander has briefed the package and aircrews have stepped to fly, the Air Boss joins the Supervisor of Flying in the control tower to act as a liaison for the package. The Air Boss works to deconflict taxi times as aircraft slip takeoff times and fall out due to unforeseen problems.

During launch and recovery, the Air Boss helps to ensure conflicts are avoided as high numbers of aircraft depart and return to base during a very short departure and recovery window. The Air Boss is available to help the SOF by explaining the package flow plan and advising on the potential conflicts that may arise if an unplanned event occurs during the mission. In this capacity, the Air Boss aids the SOF in decision making and providing aircrew assistance when unplanned events occur and during inflight emergencies.

Combat Operations' primary job is to ensure the safe, efficient and effective use of combat airpower to achieve the goals set by the Joint Force Air Component Commander. The goals of joint/combined training exercises are to provide safe, effective, and efficient combat training to pilots and aircrew. Combat Operations is working every day to accomplish those goals.

We trust this little overview has given you a new appreciation for what you, in conjunction with the AOC, can do to improve the airspace environment. And hopefully, you won't think of the environment strictly in terms of weather again! ✈

The goals of joint/combined training exercises are to provide safe, effective, and efficient combat training to pilots and aircrew.

FY99 HATR Summary

MSGT JAMES K. ELLIOT
HQ AFSC/SEFO

This article breaks down the FY99 reportable incidents (figure 1), trends, HATRs by location (figure 2) and MAJCOM (figure 3), and recent and upcoming changes to the HATR Program.

FY99 Reportable Incident Trends

There were 131 HATRs filed from 1 Oct 98 through 30 Sep 99. Near Midair Collisions (NMAC) represented approximately 48 percent of the reportable incidents. These incidents most commonly involved:

- VFR aircraft not using see-and-avoid procedures (majority of incidents)
- Separation errors by controllers
- Pilots not adhering to ATC instructions
- Unauthorized vehicles on an active runway
- Communication problems between controllers and pilots
- Questionable judgment

Recent and Upcoming Changes

More changes to AFI 91-202, *Attachment 3, Hazardous Air Traffic Report Program*, are in the works to improve the HATR Program. One change already in place is:

- Creation of Address Indicating Group (AIG) 9384. This AIG encompasses the HQ AFFSA/XA, MAJCOM SEs/DOs/ATs, NAF SEs/DOs, Wing Safety Offices, HQ FAA/AAT-4 and ASY-300, and all USAF representatives. AIG 9384 will eliminate confusion on where to send HATRs and streamline "lessons learned" to all appropriate organizations.

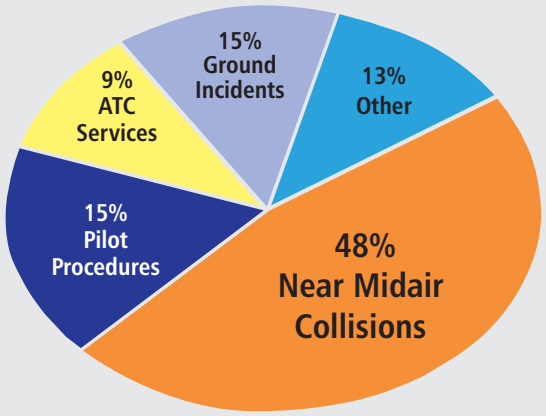
Recent changes include:

- Creation of the HATR web site: http://www-afsc.saia.af.mil/AFSC/RDBMS/Flight/fltops/home.html
- A completed Memorandum of Understanding with the International Air Transport Association, which establishes a sharing of HATR-type information
- Establishing routing changes for international HATRs that aren't resolved at the unit/MAJCOM level
- Updates to the AF Form 651, *Hazardous Air Traffic Report*

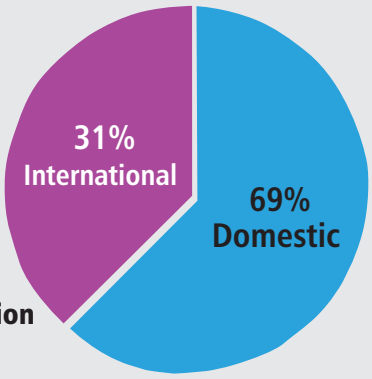
In Conclusion

We'll continue efforts to simplify HATR reporting, and encourage everyone to ensure all HATRs are submitted. ✈

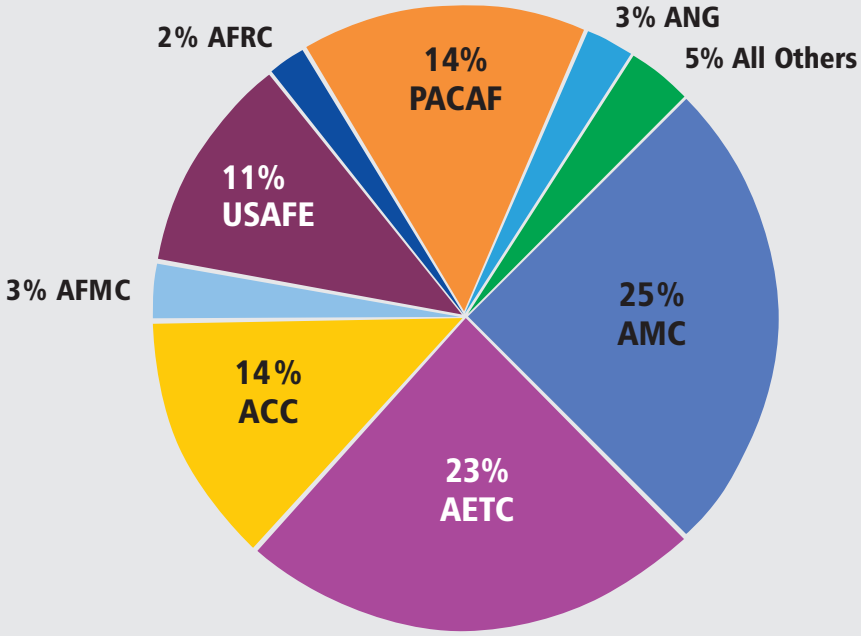
Please send comments to me at HQ AFSC/SEFO, 9700 "G" Avenue, SE, Kirtland AFB NM, 87117-5670. Or you may call me at DSN 263-2034, or e-mail me at elliotj@kafb.saia.af.mil.



FY99 Reportable Incidents



FY99 HATRS by Location



FY99 HATRS by MAJCOM

Class A Mishaps FY99

FY99 Flight Mishaps (Oct 98 - Sept 99)	FY98 Flight Mishaps (Oct 97 - Sept 98)
30 Class A Mishaps	24 Class A Mishaps
9 Fatalities	18 Fatalities
25 Aircraft Destroyed	20 Aircraft Destroyed

6 Oct	✶	An airman suffered a serious back injury during a helicopter training exercise.
21 Oct	♣	An F-15E crashed during a SATN training mission killing both crewmembers.
22 Oct	♣	Two F-16Cs collided shortly after departure. One F-16 was destroyed and the other F-16 recovered uneventfully.
29 Oct		A C-9A's No. 2 engine failed and caught fire shortly after a touch-and-go.
9 Nov	♣	An F-16CG crashed during a day BFM training sortie, killing the pilot.
17 Nov	♣	An F-16C experienced engine failure and crashed during a day training sortie.
19 Nov	♣	An F-16CJ experienced loss of thrust shortly after takeoff and crashed.
4 Dec	♣	An F-16D experienced engine failure 25 minutes into flight and crashed.
15 Dec	♣	An F-16C on a day training sortie experienced loss of thrust on RTB and crashed.
29 Dec		An OA-10A's No. 1 engine throttle cable failed during flight. The pilot had difficulty landing, the aircraft departed the prepared surface, and all three gear collapsed.
7 Jan	♣	An F-16DG experienced an engine malfunction shortly after gear retraction and crashed.
13 Jan	♣	A KC-135E crashed northwest of the departure end of the runway. All four crewmembers were fatally injured.
20 Jan	♣	An OA-10A entered an uncommanded, nose-low attitude. Unable to return the aircraft to controlled flight, the pilot ejected, and the aircraft was destroyed.
21 Jan	♣	An F-16CJ conducting low-level tactical navigation struck trees on a ridgeline. The engine failed, and the aircraft was destroyed on impact with the ground.
28 Jan	♣♣	Two F-15Cs were flying a Dissimilar Tactical Intercept Training sortie against a three-ship of F-16Cs. The two F-15s collided during the first intercept and were destroyed.
3 Feb	♣	An F-16C on a training mission had an engine malfunction. The pilot ejected after an in-flight fire developed, and the aircraft was destroyed on impact with the ground.
24 Feb	♣✶	An RQ-1A UAV departed controlled flight, crashed, and was destroyed.
17 Mar		On climbout, a U-2S canopy shattered, FOD'ing the engine and damaging the vertical stab. The pilot RTB'd and made a safe landing.
18 Mar		An F-16C suffered major damage on landing.

26 Mar	✣	An F-16C on a day training sortie suffered loss of thrust, crashed, and was destroyed.
29 Mar	✣✶	An RQ-4A Global Hawk UAV crashed and was destroyed.
30 Mar		A U-2S experienced loss of hydraulic pressure and suffered major damage on landing.
7 Apr	✣✶	A KC-135R sustained major fuselage damage. (Ground Mishap)
10 Apr		An AMRAAM and No. 1 launcher were liberated from an F-16CJ during flight.
18 Apr	✣✶	An RQ-1K UAV crashed and was destroyed.
26 Apr	✣	An F-16DG experienced a landing gear malfunction while attempting to land. The pilot executed a successful go-around and proceeded to the controlled bailout area, where both pilots ejected. The aircraft was destroyed on impact with the ground.
19 May		An F-117A sustained a fuselage fire on takeoff roll. Takeoff was successfully aborted.
2 Jun	✣	An MH-53J conducting an exfil mission crashed in the LZ. One crewmember was killed.
15 Jun	✣✣	An F-15C and an F-15D crashed while on a local training mission.
18 Jun	✣	An F-16DG crashed while on a local training mission.
1 Jul	✣	An F-16C, part of a four-ship SAT sortie, struck the ground during the low-level portion of the mission. The pilot was fatally injured.
12 Jul	✣	An F-16C experienced engine failure and crashed while on a local training mission.
11 Aug	✣	Two F-16Cs collided during the landing phase. The pilot of one F-16 successfully ejected, while the other F-16 recovered safely.
19 Aug	✣	Two F-15As collided during a BFM sortie. One pilot safely ejected. The other F-15A made it back to base.
20 Sep	✣	An F-16D departed the runway on landing. The pilot ejected safely.

- 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 dollars.
- These Class A mishap descriptions have been sanitized to protect privilege.
- Unless otherwise stated, all crewmembers successfully ejected/egressed from their aircraft.
- "✣" 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, ground, and weapons safety statistics are updated daily and may be viewed at the following web address by ".gov" and ".mil" users: http://www-afsc.saia.af.mil/AFSC/RDBMS/Flight/stats/index.html.
- Current as of 4 Oct 99. ✈

Maintenan

More Broken "Bones"

Part One: Upsy-Daisy. A five-person crew removed the B-1B's No. 1 engine using a 4000-series trailer, and transferred it to a 3000-series trailer for the trip to the Jet Shop. A bobtail was hooked up to the engine trailer combo, and the Jet troop driving it was within shouting distance of the Jet Shop when he had to stop for a cross-street. The cross-street had recently been resurfaced and there was a difference in height between it and the street he was on of four inches. Once sure it was clear to proceed, he started driving over the grade carefully. Everything was fine until the trailer's front wheels edged up the elevated surface. That's when, in rapid-fire succession, the engine shifted rearward, the engine/trailer combo's front end tilted skyward, and the F101's back end kissed the pavement. And an engine was pranged to the tune of $17,000. A reconstruction of events leading up to the mishap did uncover a tech data discrepancy. While the 2J-F101-6-1 calls for the trailer hand-knobs to be torqued to 375-400 inch-pounds to prevent the engine from shifting on the trailer rails, the 1B-1B-2-70JG-20-1 only requires the adapters to be "locked" after properly positioning the engine's center-of-gravity on the trailer. But tech data confusion wasn't the real culprit here. Remember: Strict adherance to tech data will prevent mishaps like this.

Part Two: The Thighbone's Connected To The Leg-Bone. Aero Repair personnel were tasked to check rig on the rudder of a B-1B that had been down for an extended period. They wanted to look over the rudder area before applying hydraulic power, so they positioned a stand on the right side of the aircraft. That's when they discovered the No. 4 hydraulic actuator/servo-cylinder rod end and input rod were bent, making the actuator unserviceable. They also found a two-inch hole on the leading edge of the lower rudder, just above the rod end attach point. The damaged actuator had originally been Cann'd from another aircraft to install on the mishap aircraft a few weeks earlier. A look at the 781A write-up for removal/installation of the lower rudder, No. 4 actuator, reflected that the discrepancy had been cleared, as had the Red X. A look back at previous maintenance actions in CAMS and the aircraft forms revealed that between the time the actuator had been installed and Aero Repair arrived to check rig on the rudder, the aircraft's APU had been fired up on six separate occasions to FOM. As with many large aircraft, when the APU is operated, hydraulic systems pressurize and control surfaces move. In the case of the B-1B, its flight control surfaces move left or down, and then back to a neutral position. Since the rod end bolt wasn't connected to the rudder control horn and the control rod wasn't connected to the No. 4 actuator input bellcrank, each time the APU was started, the rod end extended and contacted the lower rudder leading edge. Price tag for repair totaled more than $39,000. Would a little more attention to detail have prevented this broken Bone? What do you think?

Part Three: "I HATE It When That Happens." The B-1B had been down for several days for clean-up maintenance following return from PDM. Prior to a four-engine mainte-

ce Matters

nance run for leak checks, the supervisor/engine run man inspected all four engine intakes and documented the 781As. With everyone on hand and everything ready, he conducted the pre-run safety brief, directed members of the run crew to their assigned positions, and started the No. 4 engine. The ground observer detected a banging noise when No. 4 was started and brought it to the attention of the supervisor, but since engine instruments didn't hint at anything unusual going on, the supervisor started the other three engines. Meanwhile, the Pro Super, who had been monitoring the engine run from nearby, also perceived abnormal noise coming from the No. 4 engine and directed the run crew to terminate the run and determine what was making it. Pieces of metal on the ground behind the No. 4 engine confirmed that an unexpected and unwelcome fate had befallen the F101 motor. The run crew's worst fears were realized when they looked down the No. 4 intake and saw the remains of a 12 inch "Mag-Lite" type flashlight embedded in a first stage fan blade. Moral of the story: Properly accounting for all of your tools all of the time will prevent FOD and help keep your good reputation intact.

A Lesson Learned In PPE

Aviation Machinist Mate Clayton Storms, USN

Learning lessons through hindsight can be hard, even painful at times. While performing a routine maintenance action, I found out that a little attention to detail and forethought could have saved me and my eyes a lot of pain. Donning my Personal Protection Equipment (PPE) could also have spared me a trip to the hospital and saved my Safety Officer from having to do some paperwork.

Three of us from the Power Plants Shop went to perform a "Low Fuel" light check on the EA-6B Prowler sitting in the hangar bay. This was the final check to complete our portion of the Phase Inspection. The task would require installing a fuel transfer rig so that we could move fuel from the main bag to the wings or external tanks, allowing us to confirm that the "Low Fuel" light came on at the right time. Once we ensured the "Engine Fuel Master" switches were off, I started to disconnect the main fuel line from the starboard engine, *sans the required eye protection*. After loosening the last four nuts of the securing line, I took hold of it near the attachment so that I could remove the last nut by hand. As it was nearly off, I could feel the pressure still in the line. Suddenly, fuel shot out of the fitting in a fan-shaped pattern. I turned my head, but wasn't fast enough to avoid being sprayed in the face, and was sprayed from head to toe.

Now the pain set in. Because it hurt too much to keep my eyes open, I needed a shipmate to guide me to an eyewash station. Not only did I need to flush fuel out of my eyes, but my mouth as well. My clothes were completely soaked with fuel. After I removed them, I was rushed to the hospital to ensure there was no permanant eye damage.

I can handle the taste of JP-8 (though I would prefer to avoid it), but I could have done without that trip to the hospital. The maintenance manual warns that face and eye protection should be worn when working on fuel systems. Next time, I'll remember that warning. Had I been wearing my eye protection, a lot of pain could have been avoided, and a shower and change of uniform would have fixed me right up. ✈

ADAN Storms is a member of the VAQ-134 Power Plants Work Center. At the time of this writing, the squadron was deployed to Incirlik AB, Turkey.

Food for thought. When you see a fellow maintainer not wearing his/her PPE, remind them that damaged PPE is replaceable. Human body parts aren't. — The Editors

All Go To No Go

Even though this event occurred several months ago, history often finds a way of repeating itself. In case you missed it the first time around, here's a flight safety crosstell that we found in the files under the heading of "The Unusual and The Infrequent."

The KC-135 completed a successful night AR and off-station transition, and began its descent to home station with the aircraft commander flying the aircraft from the right seat. While leveling at 13,000 ft, approach control informed the crew which runway was active and directed them to descend to 7,000 ft. Intending to ensure the throttles were in idle, the AC inadvertantly lifted them and retarded the throttles beyond the idle detent to *cut-off*, at which point *all four engines promptly shut off*. The IP in the left seat successfully restarted all four engines, all systems checked okay, and the aircraft proceeded with an otherwise uneventful recovery and landing.

As told in the original flight safety crosstell, here are the more important lessons learned:

- The KC-135 is one of the few heavy aircraft where the throttle is used to cut off the engine. The AC on this mission was a crossflow pilot from C-141s. Like most heavies, the C-141's engines can't be shut down using the throttles.
- It's not uncommon for crossflow pilots to revert to techniques learned in their first major aircraft under periods of task saturation (the "Law of Primacy").
- Since crossflow pilots are typically highly experienced, the need to emphasize throttle technique may have been underestimated by the schoolhouse. Per the CCTS Stan/Eval Chief at that time, initial qualification didn't address throttle management, nor did it underscore to initial qual trainees that there's an increased possibility of inadvertant engine shutdown due to throttle design.

One of the recommendations from this flight safety crosstell was that there be special emphasis placed on throttle management techniques for pilots crossflowing to the KC-135...

All Touch, No Go

It was a straightforward, run-of-the-mill, local night student sortie for the mishap aircraft, a T-37 Tweet. After completing the local orientation route, the Tweet returned to the home drome for some overhead patterns. Upon entry into local airspace, the IP demonstrated an overhead touch-and-go pattern and landing. The IP then performed a closed pattern to inside downwind, extended the speedbrake, and once established on inside downwind, transferred control of the Tweet to the student pilot for the touch-and-go. The student pilot gave the "Gear Down" call, the RSU confirmed gear down, and everything seemed hunky-dory. Then the touch-and-go became all "touch" and no "go." Post flight inspection of the Tweet revealed the landing gear handles were in the "Up" position.

Fortunately, neither pilot was injured in this mishap, and since flaps were down and the speedbrake was deployed, the aircraft "only" suffered $19,000 damage.

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The repair cost included an engine change, since one of them had been FOD'd out by debris from the speedbrake.

Subsequent testing of the aircraft revealed that the audible gear warning system and gear handle warning lights were functioning properly, so what had gone wrong? AETC Manual 3-3, Volume 2, *Mission Employment Primary Flying, T-37*, paragraph 7.7, says it all: "The importance of using the 'Before Landing' checklist on night landings and of making sure the gear is down and locked before turning onto final cannot be overstressed." AETC Handout F-V5A-A-IT-HO, *T-37 Instructor Techniques*, page 3-3, paragraph 12, states: "Check that the gear comes down and that hydraulic pressure returns to normal."

Lest we forget, one of Murphy's Corollaries states: "If a regulation is not followed, another more complicated one will be written." Besides, whether you're a nugget or a seasoned aviator, using those checklists every time just makes good sense.

All Go, No Slow

The A-10 had completed an uneventful night CAS mission and was on short final. The pilot pulled the throttles to idle in the flare but, instead of the expected smooth, straight-in glide, he felt the aircraft yaw to the left. He kicked in right rudder to compensate for the unexpected yaw and observed both throttles were positioned at idle. But a scan of engine instruments showed the No. 2 engine was still running at 86 percent. He continued the landing and pulled the right engine Fire Handle, immediately shutting down the offending engine. Once the crippled Warthog was stopped safely on the runway, he shut down the No. 1 engine and the aircraft was towed back to the ramp.

Afterwards, the pilot attributed his quick recognition of the unanticipated yaw problem to having read about and been briefed on another A-10 mishap. In that one, a Class A mishap, the Accident Investigation Board President opined that a broken throttle cable had caused an unresponsive engine that led to similar yaw control problems in the landing flare. Cost of that mishap was estimated at more than $2 million dollars. Cost of this one? About $1400. Hand salute!

I Go + You Go = Whoa! Whoa!

A medevac-type Bell Jet Ranger was on an out-and-back mission to pick up a critical care patient. The helicopter was operating VFR and on the return leg to a civilian hospital. The flight had been entirely okey-dokey so far, when thunderous noise suddenly filled the cockpit and (so rumor has it) the pilot almost became a critical care patient himself. Overcoming the initial shock, he scanned his engine instruments and the rest of the cockpit carefully. Seeing nothing out of the ordinary, he continued the flight and worked to regain his composure and understand what it was that had just happened--or almost happened.

Meanwhile, the crew of the B-1B Lancer that had been flying a TFR sortie and doing 470 knots at 1000 ft AGL on an IR to a military range was also doing *its* collective best to start breathing again. Considering that the B-1B had done a max thrust, max-G climb to avoid the co-altitude helicopter and still only missed it by a few hundred feet, well, near mid-air collisions don't come much closer than that.

The Lancer crew passed details of the NMAC to Range Control; Range Control passed the NMAC details to the nearby military RAPCON; and the RAPCON queried the Jet Ranger pilot for his aircraft identification and flight information. The Lancer crew continued the mission and filed a HATR on return to home station.

Investigation revealed the Jet Ranger pilot was indeed operating under VFR and had tried unsuccessfully to contact the nearby military RAPCON. He stated that he was aware of the range and had intentionally flown clear of it to avoid any potential conflicts. What he didn't realize was that while he had avoided the range proper, he was flying through a military training route connected to the range.

Since this event occurred, the military RAPCON has distributed pamphlets detailing local MOA, MTR, and range airspace boundaries, as well as local ATC facility information. Also, the medevac service provider has strengthened notification and coordination procedures. These actions should preclude future "misunderstandings."

Bottom Line: Both crews were operating their aircraft properly and in accordance with Air Force and FAA regulations. They were both in the right. But if not for the B-1B crew's outstanding see-and-avoid skills, both crews would be dead, too. Well Done! ✈


Whether You're Leaving
or Returning Home...
Best Wishes For A
Safe And Happy
Holiday Season!
FLYING Safety