Flightfax

ARMY AVIATION RISK-MANAGEMENT INFORMATION

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POOR DECISIONS TRAGIC RESULTS

Weather was poor. Conditions were deteriorating. Still, they took off.

Why did they take these risks?

A recent accident illustrates how risk-taking behavior can lead to a tragic chain of events. The result was destroyed equipment, crew injuries, and death.

Poor judgment does not reserve itself to any category of aviator. Low-time and high-time pilots alike can make poor decisions. When a poor decision is made, it can be fatal, not only for the offender, but for the crew and passengers as well.

The following account, which traces the mission and planning of an ill-fated flight, demonstrates the consequences, which arose from risk taking and violation of Army flight regulations.

A case in point

An instructor pilot with 3900+ hours was preparing for an instrument refresher training flight just before the Thanksgiving holidays. The weather had been poor for the previous three days and very few flights had launched. The pilot had approximately 450 hours and flew infrequently as a staff officer. Two crew chiefs were aboard the flight. The weather the day of the accident was poor in the morning, improved a little during the day, and then deteriorated again that evening. Ceilings were 200 feet overcast around 0900 with 2 statute miles visibility and a temperature/dew point spread of 13/13 degrees. Around 1300 the weather came up to 1000-foot ceiling, overcast, 10 statute miles visibility, and 17/14 temperature/dew point spread. By 1600 that day, when formal flight planning for the training mission began, conditions were still VFR.

Mission Planning

The aircraft assigned did not have a glide-slope receiver and at 1630 the IP directed the crew chief to physically inspect the aircraft to verify whether or not the aircraft had a glide slope. After their review of the aircraft, it was determined that the aircraft was not glide-slope equipped.

At 1710 the IP called the flight service station (FSS) for weather and received a forecast for his destination airfield at 1800 of winds variable at 3 knots, 2 statute miles visibility, mist, overcast 600 feet, temperature 15, dew point 14 and a temporary condition from 1800 – 2400 hrs of ½-statute mile visibility, fog, overcast at 200 feet.

Risk-taking behavior #1

Did not receive weather briefing from a military facility IAW AR 95-1 and local SOP.

He also received METAR (Aviation routine weather report) observations for his two en-route destinations for training approaches. The first airport was 55 miles to the east and was reporting winds 000 at 00 knots, ¼-mile visibility, fog, temperature and a dew point of 14 at 1650.

The second airport was 27 miles west of the first airport and 33 miles east of the departure airport. The second airport's METAR report cited winds 000 at 00 knots, 10 statute miles visibility, broken 800 feet and overcast 1100 feet, temperature 15 and dew point 14.

Risk-taking behavior #2

Did not associate hazards of a minimal temperature and dew-point spread, temporary condition, deteriorating forecast conditions, and added hazards associated with night instrument flight.

At 1715 the IP filed his flight plan with the FSS. Navigation equipment installed included a VOR and ADF. The planned approach at final destination had ceiling and visibility landing minima of 400-1/2. IAW AR 95-1 an alternate was required if ceiling and visibility were less than 800-1 1/4. The flight plan indicated 2 hours and 26 minutes of fuel on board.

Risk-taking behavior #3

No alternate airfield planned or filed in the flight plan, in contravention of AR 95-1.

Mission planning and training continued for the pilot using the general planning and FLIP until approximately 1800 hours, 15 minutes past the filed departure time. The IP turned in his DD 175, DD 175-1 and risk assessment to operations. The mission briefer approved the mission, and the crew conducted their preflight inspection of the aircraft at approximately 1805.

Risk-taking behavior #4

The mission briefer failed to ensure forecast weather conditions met the requirements of AR 95-1 and the local SOP. Specifically, a non-military facility provided the weather forecast, and an alternate airfield was required but not designated.

The Flight

The flight took off at 1832, using a standard instrument departure en route to the first airport, to conduct an instrument approach and a missed approach for training. At the second airport another training instrument approach and missed approach were to be conducted, followed by an instrument approach at their destination airport for termination of the flight.

The flight to the first airport was relatively uneventful. At 1906 the crew was conducting the VOR approach at the first airport. Radar showed the aircraft was on course and had no apparent difficulties executing the approach. The crew made the missed approach and continued to the second airport.

At the second airport, radar and ATC communications revealed the crew had some difficulty with identifying and intercepting the approach course. The approach clearance was cancelled, the aircraft was vectored to re-intercept the course, and the crew flew an ILS approach to localizer minimums at 1929. Radar data again shows the aircraft on course throughout the approach. The crew executed the intended missed approach and was given vectors for the return leg to their destination airport.

While en-route to their destination, the crew acknowledged having the current ATIS information – 100 feet vertical visibility, ¼-statute mile visibility, fog, temperature 13, and dew point 13. After being vectored onto the approach course, the crew executed an ILS approach to localizer minima, and then executed a missed approach at 1957 because they could not identify the runway environment. Radar data shows that the crew flew the approach course without significant deviation down to minimums. The crew requested vectors for a second ILS approach. At 2013 the tower radar identified the outer marker and the crew acknowledged the transmission as they began their second approach. This was the last transmission from the crew.

Radar data shows that the crew flew on course down to localizer minimums. Several hundred feet short of the runway the aircraft track began to veer left of course. The aircraft slowed to 60 knots and descended another 100 feet as it traveled 3/10 of a nautical mile past the runway approach end. At this point, radar identification was lost. From the last known radar position, the aircraft turned approximately 180 degrees and traveled the 3/10 nautical miles back towards the approach end of the runway. At 2017, 4 minutes and 20 seconds after crossing the outer marker, the aircraft impacted the ground. The aircraft was in a 30-degree nose-down level attitude.

The consequences

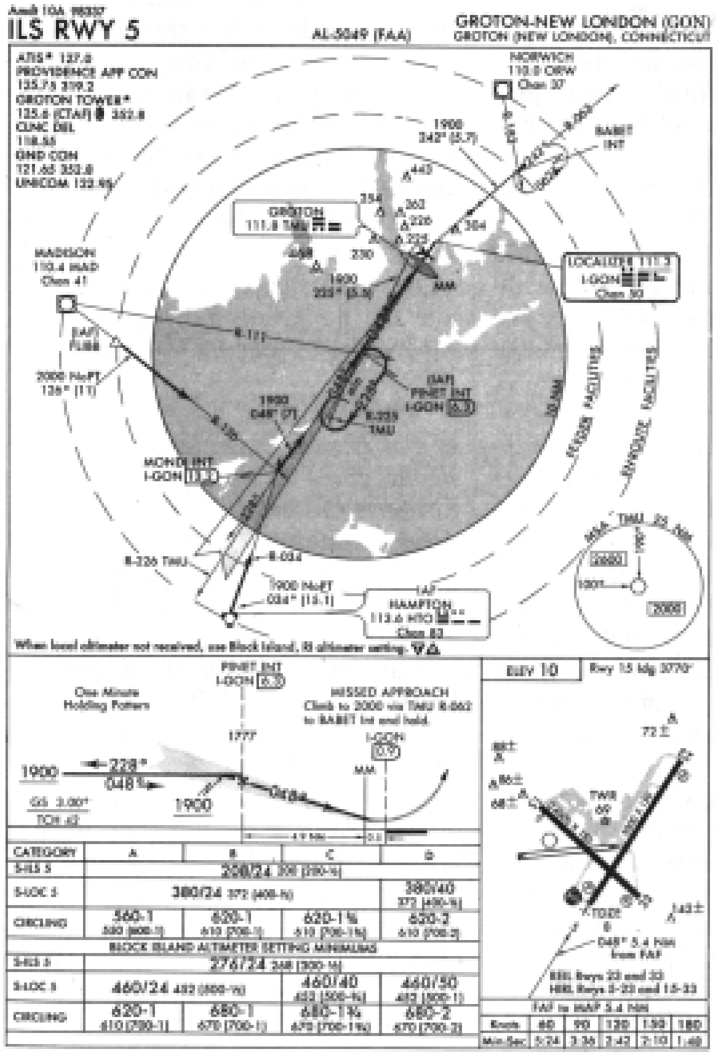
The resultant crash force was 57 G's. The IP and one crew chief were killed on impact. The pilot and other crew chief were ripped out of the aircraft as it disintegrated along the wreckage path. The expulsion of the pilot and crew chief dissipated resultant impact forces so that survival was possible. The pilot and surviving crew chief sustained serious life-threatening injuries. The aircraft was destroyed.

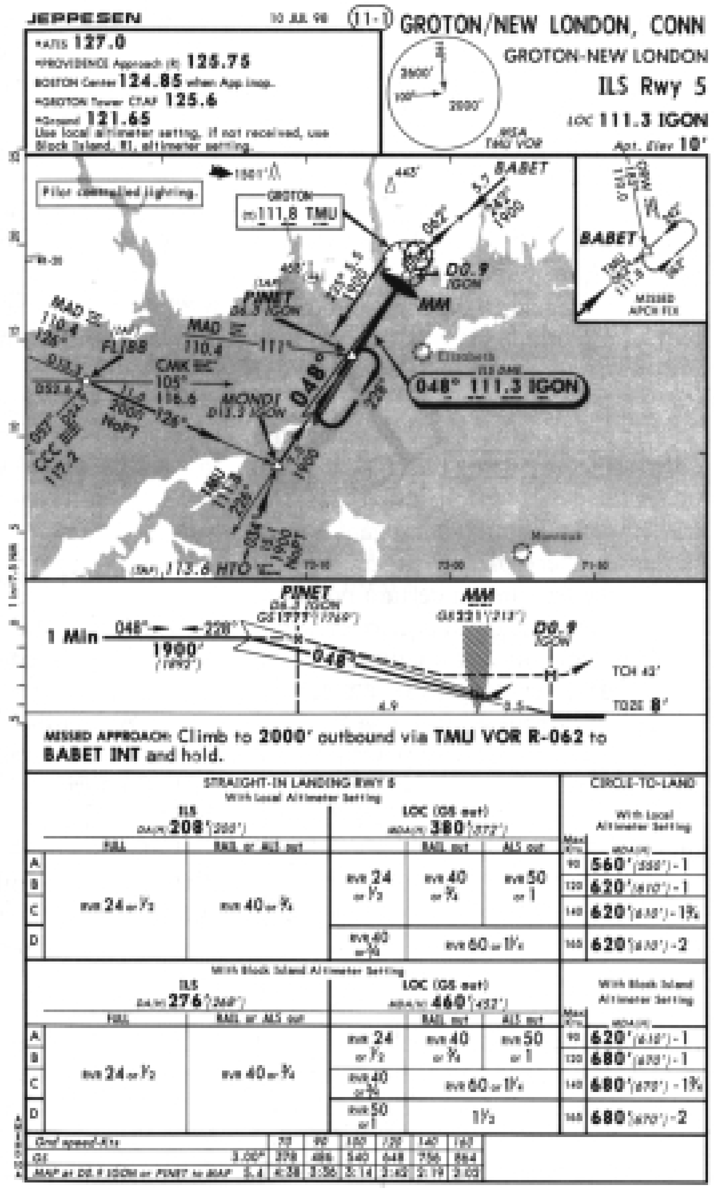
Conclusion

This accident was avoidable. Army flight operations are controlled and regulated for a reason. Major airlines and Part 135 operators use detailed operations manuals and procedures, just as we use SOP's and AR's, to reduce some decision making in the interest of safety and risk management. Major airline and military accident statistics strongly suggest that our operations are safer than General Aviation, because the military and Major airlines utilize more controls. If the SOP's and regulations are not enforced by supervisors and followed by our pilots, then we lose invaluable checks and balances to keep our operations safe.

IFR QUIZ • COLD ILS APPROACH

This ILS takes you across the frigid waters of Long Island Sound to the Connecticut coast.





1. The minimum safe altitude for this procedure is based on—
   A. TMU
   B. MAD
   C. HTO
   D. GON

2. Which of the following routes requires the execution of a procedure turn?
   A. When inbound from FLIBB to MONDI
   B. When inbound from HTO to PINET
   C. When outbound from TMU to PINET

3. What is 5.5 miles from TMU on a heading of 225 degrees?
   A. MONDI
   B. PINET
   C. BABET
   D. The missed approach point

4. You're on the transition from TMU to PINET at 1,900 feet. When crossing PINET, you should—
   A. Make the appropriate holding pattern entry and upon returning to the fix, make one turn in holding
   B. Make whatever course reversal is necessary to get established inbound
   C. Proceed to MONDI, reverse course and intercept the localizer inbound
   D. Make the appropriate holding pattern entry and upon returning to the fix, proceed straight in

5. Which of the following is not an initial approach for this procedure?
   A. TMU
   B. PINET
   C. FLIBB
   D. HTO

IFR QUIZ • COLD ILS APPROACH

❶ Activate on 125.6 when Twr inop.

❷ Closed to wingspan over 80' and/or apch speed greater than 120 kts.

TAKE-OFF

	Rwy 23		Rwy 5			Rwy 33			Rwy 15
			With Min climb of 240'/NM to 400'			With Min climb of 380'/NM to 1900'			
	Adequate Vis Ref	STD	Adequate Vis Ref	STD	Other	Adequate Vis Ref	STD	Other	
1 & 2 Eng	1/4	1	RVR 16 or 1/4	RVR 50 or 1	300-2	1/4	1	1500-3	300-1
3 & 4 Eng		1/2		RVR 24 or 1/2			1/2		

FOR FILING AS ALTERNATE
Authorized Only When Tower Operating

	Precision	Non-Precision
A	600-2	800-2
B	700-2	
C		
D		

CHANGES: Communications.

6. Which of the following is not an approved transition for this procedure?
   A. TMU R-225
   B. HTO R-034
   3. MAD R-111
   4. MAD R-126

7. What are the minimums for a Category B aircraft on the straight-in localizer using the Block Island altimeter?
   A. 380/40
   B. 460/24
   C. 380/24
   D. 460/40

8. The DME to identify PINET is based on—
   A. HTO
   B. TMU
   C. GON
   D. IGON

9. The DME to identify MONDI is based on—
   A. TMU
   B. IGON
   C. MAD
   D. HTO

10. DME can be used to identify the missed approach holding fix.
   A. True
   B. False

11. The missed approach holding pattern is standard.
   A. True
   B. False

12. The ILS uses a standard three-degree glideslope.
   A. True
   B. False

13. What is the elevation of the touchdown zone?
   A. 10 feet
   B. 8 feet
   C. 42 feet
   D. 5 feet

14. This airport can always be used as an alternate.
   A. True
   B. False

15. Which statement is correct regarding the alternate minimums?
   A. The precision approach alternate minimums are non-standard for Category B, C and D aircraft; the non-precision approach alternate minimums are standard.
   B. The precision approach alternate minimums are standard; the non-precision approach alternate minimums are non-standard.
   C. The precision approach alternate minimums are standard; the non-precision approach alternate minimums are standard.
   D. The precision approach alternate minimums are non-standard; the non-precision approach alternate minimums are non-standard.

16. This airport has a departure procedure.

   A. True
   B. False

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ANSWERS

1. A is correct. The MSA is based on TMU VOR.

2. C is correct. When proceeding from TMU to PINET, a course reversal is required.

3. B is correct. There is a published transition from TMU to PINET at 1,900 feet.

4. D is correct. After making the appropriate holding pattern entry, it isn't necessary to make any turns in holding if you're already at the minimum altitude. ATC expects you to proceed straight in when crossing the fix unless otherwise authorized.

5. A is correct. There is a published transition from TMU to PINET, but TMU is not an IAF.

6. C is correct. The MAD R-111 isn't an approved transition.

7. B is correct. The Block Island altimeter localizer minimums are: an MDA of 460 feet and RVR of 2,400 feet.

8. D is correct. When crossing PINET, localizer (IGON) DME is used.

9. B is correct. Both charts show IGON DME 13.2 at MONDI.

10. False. The missed approach hold is based on a radial from TMU, which doesn't have a DME.

11. False. The missed approach hold is non-standard.

12. True. Both charts show a glideslope angle of 3.0 degrees.

13. B is correct. NOS shows this on the airport diagram adjacent to the approach end of Runway 5, while Jepp lists the TDZE on the profile view.

14. False. You can file this airport as an alternate when the Class D airspace is operating.

15. A is correct. The alternate precision approach minimums are standard for Category A, non-standard for Category B, C, and D.

16. False. No separate departure procedure is listed.

We were all asleep!

On standby for Desert Storm, our date of departure was about two weeks away. The Division had decided to modify three UH-60 aircraft, which required about four days at Shreveport, Louisiana. With only 2 weeks left in country, no one wanted to spend that much time away from family. So the three crews were composed of all of the WO1 pilots in the company, with a solitary CW4 sent along to supervise.

He just happened to be our Instrument Examiner and always in a bad mood. All Army pilots know what I am talking about when I call him a " screamer." Too many years at Fort Rucker as an Instructor Pilot.

We were supposed to leave Hunter as a flight of three at about 0800. We arrived at work earlier than normal and prepared for our trip. Various maintenance delays resulted in an 1800 departure.

We arrived at one of our planned stops in Meridian, Mississippi at approximately 2200. We had one more leg to go, but all of the WOJGs decided that we were too tired to continue on and started taking our overnight bags off the aircraft. Then the screamer came over and started screaming. We discussed crew rest and duty day extensions. Against our will, he called and got authorization to continue. Of the five WO1 pilots in our group, all had been made PICs in the last six months. I had been a PIC for only a month and knew that butting heads with one of our Instructor Pilots was a bad idea. Besides, we were getting ready for a war.

We departed Meridian at about 2300 for our last hour of flight. We decided to fly on an instrument flight plan, each aircraft leaving about five minutes apart. Once we were airborne and climbed to 4000 feet, I commented about how smooth the air was. The UH-60 is very easy to fly on nights like this. One very rarely has to touch the controls. About 45 minutes into the flight I heard ATC calling our tail number, asking our intentions. That is when I realized that I HAD BEEN ASLEEP! I looked at the other pilot - he was slumped over in his seat. HE WAS ASLEEP TOO! I looked in the cabin and saw our crew chief lying on the passenger seats having sweet dreams. THE ENTIRE CREW HAD BEEN ASLEEP!

I called ATC back and asked for vectors for our approach. When advised of our location, I realized that we had been asleep for at least five minutes. Fortunately for us, we were still on course and altitude. Thank God for Flight Path Stabilization and smooth air.

We landed at Shreveport and never mentioned what had happened to anybody. But that experience really made an impression on this inexperienced aviator. Five months later, I was a CW2 PIC in Saudi Arabia. Because of the nature of our business, I was placed on missions that had us out for days at a time. We shuttled the Division staff around the country as they prepared for the ground war. I called back to our operations every day and let them know where I was. I was crewed with another CW2, and we were pretty much on our own. On several occasions, dust storms would roll in, and we would fly for hours in terrible conditions.

One particular day we ended up flying north to the Iraqi border from the Division Rear. The weather was terrible the entire flight. After about six hours of picking our way through sucker holes, at less than 200 feet off the ground, we arrived at our destination, and our Staff officers went to their meeting. The crew broke out their sleeping bags and claimed a spot in the aircraft. I was sure we were done for the day.

After about an hour the Colonel and his staff reappeared. They asked us how soon we could depart back to the rear. That would involve at least a three-hour flight with Night Vision Goggles. I did the math in my head. I could call back and get a duty day extension, but should I? The weather was not getting any better. I considered my options. I remembered my enlisted days as a grunt at the 2/ 502nd Infantry. We complained about pilots and their need to sleep. I realize now how foreign the concept of crew rest is to those raised on the Ranger mentality that sleep is an optional luxury. But the Shreveport experience was still fresh in my memory.

I told the Colonel that I thought it would be unwise to fly back tonight. I blamed it on the weather. I explained that we could depart after about four or five hours of sleep, given that the weather would improve, and he would be back by mid-morning. He walked away and talked to his staff. I heard some laughing. He came back and told me that he was borrowing a car and that his staff would enjoy driving him for the next ten hours, while he slept. He said the car would be more comfortable anyway. They packed into a nice Toyota Landcruiser and drove off.

We arrived at the Division Rear by 10:00 the next morning. I reported to the Colonel, expecting some grief. Not saying a word about the drive back, he informed me of the flying that was to be done today. I found out later that he had discussed the situation with my bosses earlier that morning, and they had backed me 100%. In fact, later on that year, after the war was over and we were waiting to leave Iraq, I heard that the Colonel had bragged about the young CW2 that made him drive (or at least his staff drive) for ten hours. I guess he kind of respected that.

On numerous occasions since that experience, I have been forced, as every Army Aviator has, to make decisions that concern the safety of others and myself. Some have been very unpopular with the soldiers that I was supporting and my chain of command. But I have learned that you end up coming out ahead in the long run. I believe I may be alive today because of the lesson that I learned on that flight to Shreveport, Louisiana.

—CW3 Paul Kahler, Tennessee National Guard, DSN 768-3694 (615-355-3694), kahlerpa@pa.arng.army.mil

The Army Aviation Broken Wing Award recognizes aircrewmembers who demonstrate a high degree of professional skill while recovering an aircraft from an inflight failure or malfunction requiring an emergency landing. Requirements for the award are in AR 672-74: Army Accident Prevention Awards.

CW3 Alan Gollmyer

1st Cavalry Division, Ft Hood TX

CW3 Alan Gollmyer was performing duties as an Instructor Pilot in an AH-64D Longbow Apache. On extended final approach, the APU fire button illuminated and the voice message enunciated. Both cockpits began to fill with smoke.

Although the written procedure for an APU fire was to land as soon as possible and perform an emergency shutdown, the aircraft was approximately 400 feet above the ground at 30 knots airspeed. CW3 Gollmyer realized that it would take too much time to land before the fire in the APU compartment spread beyond containment.

In direct contradiction to the published emergency procedure, CW3 Gollmyer pressed the APU fire button and immediately discharged both fire bottles into the compartment. He immediately expedited his descent and made a mayday call to the control tower.

The front seat crewmember was having difficulty seeing in the smoke-filled cockpit and opened his canopy door to the intermediate position. CW3 Gollmyer landed the aircraft and told the co-pilot to egress the aircraft. As he did so, his kneeboard lodged on the cyclic. CW3 Gollmyer maintained positive control of the cyclic and again instructed the co-pilot to egress and clear the cyclic. As the co-pilot egressed, CW3 Gollmyer performed an emergency shutdown of the aircraft's engines. When the rotor RPM had slowed sufficiently, he applied the rotor brake. When he exited the aircraft, he left the battery on so that the force trim on the controls remained on.

The fire department arrived three minutes later and found that the core of the fire was already extinguished. Their analysis, which was confirmed by the accident investigation, revealed that if CW3 Gollmyer had not taken the action he did, the aircraft would have certainly been lost, and quite probably, the lives of the crew as well.

The operator's manual did not address the use of fire bottles to extinguish an APU fire during flight. In fact, taking action other than the steps listed in chapter nine could result in accident investigation findings against the pilot. CW3 Gollmyer's knowledge of the APU system and the fire-warning system provided the wisdom he needed to save both his aircraft and his crew. His actions required knowledge, courage, confidence, and quick reaction time.

Note: The emergency procedures governing this situation have since been changed in the TM. Though the Safety Center applauds CW3 Gollmyer's outstanding airmanship and application of his experience and knowledge of AH-64D systems to successfully work through his emergency, executing emergency procedures as published will normally offer the aircrew the best option to maintain aircraft control and increase survivability.

—LTC Earl Myers, Chief, Aviation Systems and Accident Division

AH-64 BUCS Update

In the September 1999 issue of *Flightfax*, we gave you the facts pertaining to the AH-64 back-up control system (BUCS) situation. It is time to update you on the efforts of the Red Team and the other DA-level contributors. In this issue, we follow-up with a report on the Red Team's deliberations, provide flight crews operational information on the use of BUCS/EBUCS, and advise you of forthcoming actions.

Recapping the issue

The back-up flight control system (BUCS) and enhanced BUCS (EBUCS) are emergency back-up, fly-by-wire control systems. BUCS is installed on PV530 and subsequent AH-64A Apache aircraft and EBUCS is installed on all lot-2 and later AH-64D Longbow Apache aircraft. (For the purposes of this article, BUCS and EBUCS are synonymous, and the term BUCS can refer to AH-64A or AH-64D model systems.) BUCS permits continued flight in the event of jammed or severed primary mechanical flight controls. Following a recent Apache mishap, HQDA directed a Red Team to assess the AH-64A/D flight control system vulnerabilities with emphasis on lower mechanical controls to include BUCS.

Red Team findings

The Red Team was chartered by DCSLOG and the Safety Center, is led by AMCOM and includes representatives from USAAVNC, DCSLOG, PEO-AVN, TSM Longbow, ARL, and Boeing, with the Safety Center as a consulting member. After four months of analysis and deliberations, the Red Team identified materiel (reference LVDT issue in AH-64-00-ASAM-05), training, and soldier issues and specific actions that are required to reduce risk.

The Red Team reviewed AH-64 aircraft historical flight control system design specifications, combat vulnerability studies, flight control training/operational materials, and mishap statistical data relative to flight control integrity, and noted the following:

1. The primary flight control system on the Apache is a single-path hydromechanical system with limited-authority electrical stability augmentation. This primary system was designed with reduced strength components assuming redundancy provided by a back-up system.

2. The back-up control system is a single-channel, non-redundant, fly-by-wire back-up system that permits controlled flight in the event of a jam or severance in the primary system. The Army, however, is currently operating a mixed fleet of Apaches, some ***with*** BUCS active systems and some ***without*** BUCS active systems.

3. The first 529 A-model Apaches were produced without an active BUCS system due to specification-compliance issues. In 1995, following resolution of aircraft specification issues, the remaining 320 A-models were produced with an active BUCS system. System design improvements resulted in the enhanced BUCS (EBUCS) being developed for the AH-64D Longbow. Incorporation of the design improvements did not come early enough, however, to catch the initiation of the D-model line, and the first lot of D-models (26 aircraft) were produced without an active BUCS system; all subsequent D-model aircraft have an active BUCS system.

4. Army analysis indicates that vulnerability is reduced and that survivability and flight safety reliability are enhanced with BUCS.

The things you should know

Generally, you should understand the following three characteristics:

1. The BUCS system engages in each axis independently and operates only in the axes of a jammed or severed (disconnected) flight control. For instance, a jam or severance in the pitch axis will engage BUCS only in the pitch axis.

2. Once BUCS is engaged, it cannot be disengaged. Specific ground maintenance actions are required to return the primary flight controls to normal operation.

3. The pilots who participated in the BUCS qualification flight tests reported ***similarities*** between flying in BUCS and flying in the

normal mechanical mode with the stability augmentation system (SAS) off. ***To prevent sudden, abrupt control inputs during an in-flight BUCS engagement, the system incorporates easy-on times, one second for severances and three seconds for jams.***

How it works

In addition to the three characteristics above, you should understand how BUCS operates during different situations/ emergencies. Below are five different BUCS activation situations. See if you understand why the BUCS has these characteristics during these situations.

1. BUCS activation by PI decoupling SPAD (AH-64A) or ARDD (AH-64D)
   - The pilot will have control.
   - The copilot/gunner (CPG) can obtain control if the CPG decouples his SPAD/ARDD and activates the CPG BUCS select switch. Control cannot be transferred back to the pilot.
2. BUCS activation by CPG decoupling SPAD (AH-64A) or ARDD (AH-64D)
   - The CPG will have control.
   - The pilot can obtain control by decoupling the applicable pilot SPAD/ARDD.
3. BUCS activation by severance **between** crewstations
   - The pilot has mechanical control.
   - The CPG can obtain control by activating the CPG BUCS select switch.
4. BUCS activation by severance **aft** of the crewstations
   - Either pilot obtains control as soon as a mistrack is sensed.
   - There is a one second easy-on delay to achieve 100% control.
5. BUCS activation by CPG using BUCS select switch
   - BUCS is engaged under CPG control.
   - Control cannot be transferred back to the pilot.

Emergency techniques

Now you need to know some techniques involving BUCS activation during the following four emergencies.

1. Flight control axis jammed If it is determined that a BUCS engagement is warranted due to a jammed flight control axis, make an aggressive application of force in the jammed axes. If more than one axis is jammed, decouple the axis that has the highest priority first. After decoupling the control, center the control. Do what comes naturally and fly the aircraft. Some control will be immediately available and full control will be phased in over a 3-second period. Note that stability augmentation will be lost in the axis engaged in BUCS.

2. Flight control axis severed If it is determined that a BUCS engagement is warranted due to a severed flight control, the aircraft will automatically engage BUCS once the mistrack criteria is met. The flying pilot will most likely discover the aircraft to be in BUCS soon after the severance. Fly the aircraft and wait for full control to be phased in over a 1-second period. Note that stability augmentation will be lost in the axis engaged in BUCS.

3. BUCS ON message or light If the BUCS ON message or light is presented, the pilot and CPG should establish communication. The CPG should extend cyclic stick if stowed and coordinate the transfer of controls as necessary. Lastly, the crew should perform the appropriate aircraft emergency procedure for BUCS ON.

4. BUCS failure notification If the BUCS fail message or light is presented, pilot and CPG should establish communication and avoid rapid or erratic flight control inputs. The CPG should extend the cyclic stick if stowed, and the pilot should attempt to reset the BUCS fail by toggling the appropriate SAS channel on the ASE panel. Lastly, the crew should perform the appropriate aircraft emergency procedure for BUCS FAIL.

The path ahead

Now that you understand the issue, the characteristics of BUCS activations, and the failure modes, you are probably wondering where the Army goes from here. The general path ahead, defined by the Red Team, is to keep BUCS and capture the benefits of reduced **vulnerability**, enhanced **survivability**, and flight safety **reliability**. It is the Army's intention to fix the overall BUCS issue by addressing all materiel issues, by updating manuals, by improving resident training at the schools, and by providing augmented sustainment training to the field.

Specific training changes will occur in the AH-64 aircrew qualification and aircraft maintainer's courses. Currently, TC 1-214, the AH-64A aircrew training manual, and TC 1-251, the AH-64D aircrew training manual, are in rewrite and are scheduled to go to print in FY 00. They will include tasks (oral and flight) related to the back-up flight control system and will be mandatory for all units equipped with BUCS aircraft.

Additionally, on-site training will be made available and scheduled for operational units. It will entail a DES standardization instructor pilot flying with unit instructor pilots to familiarize them with the flight tasks in a ***train-the-trainer*** role. The training team will also leave each unit with a CD-ROM training package that will cover all related-system operation of the back-up flight control system.

—Adapted from AH-64-00-ASAM-04

Accident briefs

Information based on *preliminary* reports of aircraft accidents

AH1

Class E
F Series

■ Aircraft master caution light and engine chip detector segment light illuminated at cruise altitude. A precautionary landing was made to a nearby airfield. A second chip light occurred during engine maintenance checks. Nr and size of particles exceeded allowable limits, so engine was condemned.

AH64

Class C
A series

■ Aircraft contacted wires at approximately 150 ft AGL. Lower wire was cut by lower WSPS; upper wire was only partially cut by the upper WSPS. Aircraft was landed without further incident and flown back to unit station following damage inspection. Extent of damage: Main rotor blade and antenna.

■ On postflight, pilot found dent in tail rotor blade leading edge and hole punched into stabilator. Maintenance discovered one screw missing from tail rotor gearbox cover. The backing plate nut had failed and allowed the screw to come out, damaging the T/R and stabilator. The rotor blade and backing plate were replaced, and the stabilator was repaired.

Class E
A series

■ On postflight inspection, crew discovered evidence of a bird strike on gearbox fairing. Fairing was cracked, latches loose, but fairing remained on aircraft. Crew did not hear or know when bird strike occurred. There were no cockpit indications of any malfunction.

■ During hovering flight, crew heard a grinding noise, felt a slight vibration in the airframe, and smelled fumes in the cockpit. Aircraft was landed immediately. Just after landing, No. 2 generator failed. Operator manual emergency procedure was performed, and aircraft was shut down immediately. Postflight inspection revealed smoke was rising from No.2 generator. Parts of the generator were strewn through the transmission bay.

■ Pilot master caution light illuminated during flight with no associated caution/warning lights. Aircraft was landed without further incident.

■ During run-up, no NG indication in either crew station.
Aircraft was shut down without further incident.

■ During hover, the utility hydraulic light illuminated. Aircraft landed without further incident.

■ During run-up, transmission chip light illuminated. Aircraft was shut down without further incident.

■ During cruise, the NR tachometer failed. Aircraft landed without further incident.

■ During run-up, the utility hydraulic bypass light illuminated. Aircraft was shutdown without further incident.

■ During hover, the hot battery light illuminated. Aircraft landed without further incident.

CH47

Class E
D series

■ The aircraft did not respond properly to power steer inputs after landing. The flight engineer checked the right aft wheel and found the tire was flat. Maintenance found the tire tube valve stem had been cut. The tube was replaced.

■ During reposition for flight, No.1 engine normal beep trim static failure occurred. No. 1 engine responded to emergency trim. Aircraft was landed to taxiway, then No. 1 engine torque and N1 rose with no input. Aircraft returned to parking without incident. Problem could not be duplicated.

■ While in cruise flight, the pilot's attitude indicator showed a ten-degree nose-low attitude and the aircraft went into a left turn with heading select engaged. The emergency procedure for VGI failure was completed.

■ During engine start sequence, the No.2 engine would not start. Maintenance replaced the ignitor box.

■ Aircraft was chalk 2 in a flight of four during air movement with M998 cargo HMMWV as slingload. During flight tarp and bow flew off HMMWV and struck bottom of the aircraft, causing damage to the fuselage and rescue hatch door. Load was landed in LZ. Aircraft was repositioned to survey damage. Crew returned aircraft to airfield.

■ During flight, moderate turbulence was encountered with strong up/down drafts. During postflight, it was discovered that the forward yellow dampener was empty due to blown seal. Additionally, the aft left squat switch was installed improperly, causing it to malfunction on landing.

■ During run-up, No.1 generator would not come on-line. Maintenance replaced the generator control unit, and the aircraft was returned to service.

■ During run-up for air assault mission, pilot's torque gauge was inoperative. Maintenance replaced torque gauge, and aircraft was returned to service.

■ While at a hover, IP noted hydraulic fluid on the windscreen. Aircraft was landed. Replaced forward swivel actuator. Bled No. 1 and No. 2 hydraulic flight control systems.

■ During straight and level flight, flight engineer heard loud squealing noise in cabin area. Maintenance panel had Utility Pump Fault light illuminated. Pilots started APU and aircraft returned to home airfield. Utility Hydraulic Pump shaft had sheared.

■ During hover check, No. 1 engine transmission hot light illuminated. Aircraft landed and emergency engine shutdown procedures were completed.

■ During start of No. 1 engine, FE noticed traces smoke coming from engine exhaust. When the PI advanced the ECL to ground and actuated the

For more information on selected accident briefs, call DSN 558-9855 (334-255-9855). Note: Information published in this section is based on preliminary mishap reports submitted by units and is subject to change.

start switch, flames were observed coming from the engine exhaust and burning fuel ran down side of aircraft. Crew aborted start attempt and extinguished fire.

■ After performing HIT check, No. 1 ECL caution capsule would not go out with ECL in flight. Aircraft taxied to parking. Loose wire was repaired, and aircraft was returned to service.

■ On approach to a soccer field, aircraft downwash blew a tent into a parked police car. The ground security team had been told not to put the tent up until after the aircraft landed.

E series

■ (Downgraded from Class C.) During NVG mission training, aircraft's aft rotor system contacted trees during "confined area" approach/landing. Aircraft was repositioned, and a post-flight inspection found damage to all three aft rotor blades.

OH58

Class C

D(R) series

■ During simulated engine failure at altitude, PI reportedly exceeded engine torque limits at 132% for 1 second. (Limits are 131% for 2 seconds). Aircraft landed without further incident.

Class E

C series

■ While in traffic pattern on base leg, transmission oil hot light illuminated. Aircraft was landed to taxiway and shut down without further incident. Maintenance inspection revealed thermo switch failed. Switch was replaced and aircraft was released for flight.

Class E

D(I) series

■ While performing a PAR approach to airfield, the crew noticed a low oil transmission caution message illuminate. The aircraft was landed as soon as possible to a nearby open field. Postflight revealed transmission fluid covering fuselage of aircraft. A DART team was launched. Upon inspection, a fitting on the transmission oil pressure line was found loose. The fitting was torqued and the transmission was serviced with 4 quarts of oil. MOC was OK and aircraft was flown to destination.

Class F

D(I) series

■ As aircraft came to OGE hover, pilot detected a high-pitch howling noise from the engine compartment. No vibrations or abnormal feedback noted. Aircraft landed and recovered from field via ground transportation. Maintenance discovered severe FOD damage to first-stage axial compressor.

UH1

Class E

H series

■ While on the ground master caution came on and would not reset. The Armature relay shorted out the master caution box. They were both replaced.

UH60

Class C

A series

■ Tool was left in deice ring. During run-up for main rotor blade tracking, tool flew off and struck one blade, resulting in leading-edge damage.

Class D

A series

■ While in cruise flight, the aircraft's left oil cooler access door separated from the aircraft, made contact with the main rotor blade, and then impacted the leading edge of the right side of the stabilator. Crew heard the impact and landed at a nearby airport. Access door separated due to failure of its forward hinge.

Class E

A series

■ Flying at an altitude of 250 feet AGL and about 10 knots, the No. 1 engine produced a loud bang. Instruments displayed everything as normal. The pilot then turned right and increased airspeed to 100 knots. Five minutes later, No. 1 engine anti-ice light illuminated. Aircraft landed, then returned to base with no further incidents.

L series

■ Aircrew noticed unusual lateral vibration during formation flight, then again on approach to landing. Aircrew landed and decided not to continue flight. Maintenance discovered that the scraper seal on the blade dampener had failed. Maintenance replaced dampener.

C12

Class D

H series

■ During level flight, the IP noticed an apparent fuel leak on the top of the No. 1 engine cowling. The crew landed without further incident. Maintenance personnel cleaned and inspected the aircraft, noting no maintenance problems. The aircraft was released for flight.

Class E

H series

■ During level flight at 10,000 feet, the PI noticed excessive oil leaking from top of the No.1 engine cowling. The PC confirmed the leak and checked the engine instruments. The crew elected to shut the engine down to prevent a possible fire or damage to the engine from oil loss. The crew executed a single-engine landing without incident. Maintenance found the No.1 engine oil filler cap was loose. After inspecting and servicing the engine, the aircraft was released for flight.

PA31

Class C

■ During landing, all four propeller blades on No. 1 engine contacted the runway. Aircraft completed landing without further incident and taxied to parking.

Corrections to USASC Points of Contact

DSN 558-xxxx
Commercial 334-255-xxxx

Fixed Wing and UAVs
MSG Briggs 3703

Help Desk 1390

Human Factors
LTC Noback 2763

Media and Marketing
Mr. Hooks 3557

Operations System Research
LTC Hunsaker 1496

Safety Awards
Mr. Lovely 1235

Statistics
Mr. Michael 3881

Training
CW5 Wootten 2376

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Electronic Technical Manuals

The Army Materiel Command's Logistics Support Activity (LOGSA) now has the library of technical and equipment publications (except engineering and medical) online. They can be found at

http://www.logsa.army.mil

After entering the site, select Publications and Forms. There are two electronic technical manual links:

* ETMs Bulletin
* ETMs On-Line

The ETM bulletin gives information on the program, and a list of fielded compact discs with ordering information.

Check out these other online sites for official Army publications.

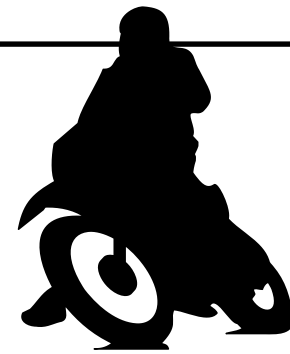
http://www.usapa.army.mil
Administrative departmental publications and forms

http://155.217.58.58
Army doctrinal and training publications

http://www.usace.army.mil-docs
Army engineering publications

http://www.armymedicine.army.mil
Army medical publications

—Wilma Fields, USAMC LOGSA, Redstone Arsenal, AL, DSN 645-8586 (256-955-8586), logetm@logsa.army.mil



POV Fatalities through 31 Dec

FY00	FY99	3-yr Avg
18	36	27

HIGH-RISK PROFILE

Age & Rank:
19-23, E1-E4, O1, O2
Place:
Two-lane rural roads
Time:
Off-duty, 1100-0300
Friday & Saturday nights

TRENDS
1. Speed
2. Traffic rule violation
3. No seatbelt or helmet

IN THIS ISSUE

WS • War Stories, CC • Crew Commo, SF • Shortfax

FY00 Aviation Accidents through 31 December

		Class A	Class B	Class C	Total
ACCIDENTS	Total* Avn Acdts	3	5	18	26
ACCIDENTS	Flight Acdt Rate	Flying hours through 31 Dec are not yet final. 1st Qtr FY00 acdt rate data will be published in Mar.			
RATE COMPARISON	FY00 vs. FY99				
RATE COMPARISON	FY00 vs. 3-yr avg				
Aviation Military Fatalities					2

* Includes Flight and Non-flight aviation accidents.

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