

# Flightfax

January 1994 Vol 22 No 4

REPORT OF ARMY AIRCRAFT ACCIDENTS

## BROWNOUT / WHITEOUT *prevention techniques*



**B**rownout or whiteout is often referred to as inadvertent instrument meteorological conditions (IMC) without weather. Although we're in the midst of the winter season when anticipation of whiteout conditions influences planning and mission execution, it's brownout that has contributed to one Class B and two Class A accidents thus far in FY 94. Fortunately, there were no fatalities, but all these aircraft sustained extensive damage. In just the past 3 years, there have been 87 Class A through E accidents and incidents involving brownout or whiteout conditions.

### Accident causes

Inexperience or lack of recent training in dusty or snow-covered terrain is often a cause of accidents involving brownout or whiteout. Acquiring or maintaining proficiency in a snow-covered or dusty environment requires training. Other causes of brownout/whiteout accidents include complacency, overconfidence, fatigue, and the environmental effects of extreme heat and cold.

During Desert Shield/Desert Storm, we quickly learned from our mistakes in the desert and became proficient at operating in dusty

environments. But that was 2 years ago! Many of our "younger" aircrews today haven't had the benefit of that kind of experience.

### **For safer operations . . .**

Take time to talk to your unit instructor pilot about any specific questions you may have regarding operating an aircraft in snow or dust. This is especially important if you've never encountered full brownout or whiteout conditions and you know that you'll be operating in areas conducive to these conditions. Even if you have had experience in operating in snow and dust, your skills may be a little rusty if you haven't done so in a while. Make maximum use of every training opportunity, but make sure it is under appropriate supervision.

Whether you're a relatively new aircrewmember or one who has been around for a while, you'll probably benefit from a review of the procedures outlined in the flight manuals and some recommended tips and techniques from aviators who have had considerable experience operating in snow and dust.

#### ■ **Review flight manuals.** FM 1-202:

Environmental Flight outlines specific techniques and procedures for operating in snow-covered and dusty environments. The appropriate takeoff, landing, and inadvertent IMC procedures are outlined in the ATMs. Review these procedures *before* you find yourself in over your head.

■ **Follow recommended procedures.** The best advice "seasoned" aviators can give to those less experienced in operating in areas where brownout or whiteout conditions are likely to be encountered is to—

- Plan every takeoff or approach.
- Expect to brownout or whiteout.
- Maintain proficiency in instrument takeoffs

(TTOs), unusual attitude recovery, and inadvertent IMC procedures.

- Commit to IMC when necessary and go around; don't hesitate. Remember, it is much smarter to execute the go-around than to press a situation that is not coming together. You are no less an aviator or crewmember for having to execute a go-around.

Commanders should reassess their unit's mission essential task list and reevaluate the current training program. Future training may be required to ensure safe operations and required proficiency levels in the environments where brownout and whiteout conditions occur.

Commanders must ensure that—

■ Units are identifying the hazards, assessing the risks, and applying appropriate control measures before executing missions under these adverse conditions.

■ Unit SOPs adequately address controls.

■ Units are using the crawl-walk-run approach to training crews and individual crewmembers to operate safely over dusty or snow-covered terrain.

■ Resources such as flying hours and academic training time are set aside for quality training in these environments.

■ Instructor pilots are training inexperienced aviators and conducting refresher training for all aviators.

■ Experienced aviators are mentoring the less-experienced aviators.

### **Recommended techniques for takeoffs**

■ Talk about your takeoff before execution. Assign each crewmember specific tasks, discuss contingencies, identify lowest obstacles/terrain, and so forth.

■ Know the performance values from your performance planning card. Do not become complacent or overconfident in the power of your aircraft. Plan loads so out-of-ground-effect power is available whenever possible.

■ Execute an instrument takeoff IAW the aircraft's ATM, or use a rolling takeoff as an option from suitable areas.

■ Use staggered/echelon formations during multiship operations.

■ Maintain sufficient separation (30 seconds to 1 minute) to allow the previous aircraft's dust or snow cloud to dissipate during multiship operations.



### Recommended techniques for landings

■ Talk about your landing before execution. Assign each crewmember specific tasks, discuss contingencies, identify lowest obstacles/terrain, and so forth.

■ Maintain orientation during approach by keeping something in view that won't move; for example, big rocks, small vegetation, or trees.

■ Shoot the approach to a point on the ground. Commit to the approach, but be prepared to execute a go-around if necessary. If ground contact is lost or it becomes apparent contact will be lost, go around.

■ Beware of fixation. Landing in snow bowls or sandy areas with little vegetation reduces contrast used to determine sloping terrain.

■ Drop things that can provide contrast, shading, and wind direction; enable the crew to detect slopes; and provide a visual reference during the approach. Pine boughs, rucks, and bean bag lights work well.

■ Alert the other crewmembers if you are having difficulty maintaining visual contact with the ground. They may be able to see well enough to take the flight controls and land or takeoff or just guide you. If not, execute IMC procedures *without hesitation*. Indecision and hesitation can cause pilots to become disoriented and crash. If visual contact with the ground is lost or it becomes apparent contact will be lost, remember to execute the following inadvertent IMC procedures:

- Wings level
- Maintain heading
- Apply climb power
- Adjust airspeed

■ Use a roll-on or run-on landing where possible to keep the snow or dust cloud behind the aircraft.

Have the crew chief, flight engineer, or gunner call the cloud; for example, "cloud is at the tail, wheels, etc." If you're unable to use a roll-on or run-on landing approach, execute a VMC approach to the ground with a steeper than normal approach angle. The touchdown roll or slide should be kept to a minimum.

■ As another landing technique, come to a high hover over your intended landing point and then slowly hover straight down, blowing snow or dust away. Be prepared to commit to and execute a go-around if visual contact with the ground is lost or it becomes apparent visual contact will be lost.

■ Maintain sufficient separation (30 seconds to 1 minute) to allow the previous aircraft's approach cloud to dissipate during multiship operations. Obviously, this helps prevent aircraft from inadvertently rolling or sliding into one another. For an additional buffer from excessive ground roll, use staggered/echelon formations where the landing or pickup zone permits. For multiship operations, be flexible enough to change landing direction if wind shifts occur.

■ Land into the wind where possible. Landing into the wind helps dissipate the obscuration and reduces the time you are operating in the "cloud."

### Recommended techniques for taxiing

Air and ground taxiing present the greatest challenge in the snow and dust environment, particularly around airfields and other aircraft. When air taxiing, keep the snow or dust cloud behind you by operating at or above effective translational lift. Use nonflying crewmembers to keep an eye on the cloud and keep you informed of its position during taxi and landing. Ground taxi operations can be conducted on improved terrain over observed distances. You may have to stop occasionally, reduce power/pitch application, and observe the next planned distance and terrain.

### Crew coordination

Active crew coordination will help ensure safe operations and should be used to the fullest extent possible. Pilot briefings should stress crew coordination so that each pilot knows exactly what is required of him or her should brownout or whiteout occur. Keep talking during the approach or takeoff. Use your nonflying crewmembers as well; they may see things that you do not.

### NVG considerations

The first snowfall of the year is not the time to fly



high optempo multiship operations under NVGs or NVDs! Night operations take considerable planning and preparation, even more so in snow-covered or dusty environments.

NVGs or NVDs may help you see through thin obscuration. Use of a landing or pink light pointed directly below the aircraft may assist in maintaining visual contact with the ground. But you must be aware that in some situations, the use of the light may degrade visibility even more. Be prepared to turn off the light immediately should this occur. Beware of fixation on an object to the exclusion of other tasks associated with taking off or landing. Prior crew coordination is extremely critical under these conditions.

### Prepare now

Operating in limited-visibility conditions whether those conditions are caused by the weather or by blowing dust or snow can be challenging, risky, and potentially destructive, but it can be done safely without the loss of life or equipment.

Review and follow the proven procedures outlined in the FMs and ATMs and the advice of those experienced in operating in snow and dusty conditions. By understanding the special requirements for operating in snow and dust and receiving the necessary training, you can gain or regain the confidence and proficiency needed to perform safely in these adverse conditions. □

—LTC William A. Tucker and MAJ Richard Young, Aviation Branch, DSN 558-3262/2119, commercial 205-255-3262/2119

## First quarter of FY 94

The good news that began during the last half of FY 93 carried forward into early FY 94.

If we had not been able to reverse the alarming Class A accident trend in early FY 93, our record would have been the worst in over a decade. Leadership within the Army did not allow that to happen. Command emphasis on safety across the force helped us reverse that upward trend in accidents and close out FY 93 on a positive note.

Thanks to command involvement and solid risk management, we were able to get safety back on track and go 87 days during the last half of FY 93 without a Class A flight accident. We were also able to go 116 days without a Class A flight accident involving human error. In fact, the last 9 months of FY 93 were better than the FY 92 hallmark record.

### The good news goes on

Not a single flight fatality occurred during the last 134 days of FY 93. The safety momentum we regained during the last half of FY 93 also carried forward into the first quarter of FY 94. We were 77 days into the first quarter of FY 94 before we lost a crewmember in an aviation flight accident. A 211-day record of no flight fatalities is a monumental accomplishment by any standard. This accomplishment takes on even greater significance when considering that this is the first time we have ever completed the last quarter of a fiscal year and more than three-fourths of the first quarter of the next fiscal year without a flight fatality since the aviation accident data base was established on 1 January 1972.

### Class A Accidents through December

	Month	Class A Flight Accidents		Army Military Fatalities	
		FY93	FY94	FY93	FY94
1st Qtr	October	6	2	2	0
	November	2	3	6	0
	December	0*	2	0	2
2d Qtr	January	1		0	
	February	5		8	
	March	1		5	
3d Qtr	April	4		0	
	May	1		1	
	June	0		0	
4th Qtr	July	0		0	
	August	1		0	
	September	2		0	
<b>Total</b>		<b>23</b>	<b>7</b>	<b>22</b>	<b>2</b>

\*An accident previously reported as Class A has been downgraded

### Recap of FY 94 Class As

Although Army aviation units recorded seven Class A accidents during the first quarter of FY 94,

there were only two fatalities compared to nine during the same period in FY 93. The following is a recap of the seven Class A accidents that occurred during the first quarter of FY 94:

■ **UH-1H.** At about 5 feet AGL while attempting a night unaided VMC approach, the pilot made control inputs to decelerate the aircraft. The rotorwash from the aircraft began building a dust cloud around the aircraft. The pilot lost visual contact with the intended landing point in the dust cloud but continued the descent. The aircraft touched down in a tail-low attitude, rocked forward on its nose, momentarily became airborne, moved right, and impacted the ground in a nose-low, right-side-low attitude. The aircraft rolled right, coming to rest inverted. Two crewmembers sustained injuries, and a CH-47 crewmember in the near vicinity was also injured when he was struck by flying debris.

■ **UH-60L.** During an NVG formation landing to a dusty landing strip, the pilot lost visual contact with his intended termination point. In contravention of the requirements of TC 1-212, Task 2003, the pilot brought the aircraft to an inadvertent hover before attempting a go-around. The aircraft drifted right into the trees, descended vertically onto a 3-foot-high bank that paralleled the right side of the landing strip, rolled left off the bank, and came to rest on its left side. This was the pilot's first encounter with in-flight total brownout conditions. The crewmembers received only minor injuries, but the aircraft sustained major damage.

■ **AH-64A.** During a night formation departure in marginal VFR weather, the PC lost sight of the lead aircraft. The PC placed his aircraft in a deceleration and concentrated on regaining visual contact with the lead aircraft. He failed to monitor instrumentation and maintain ground reference. As a result, the PC allowed the aircraft to descend in a rearward drift and make ground contact. Both pilots were injured, and the aircraft sustained extensive damage.

■ **OH-58A.** During an NVG nap-of-the-earth (NOE) training mission, the aircraft arrived at the starting point of the NOE route. The crew brought the aircraft to a hover while awaiting spacing from another aircraft as it proceeded down the NOE route. The aircraft crashed from a hovering position, injuring both crewmembers.

■ **OH-58C.** During a night-aided flight, four aircraft in a right echelon formation entered inadvertent IMC. Upon completing a precautionary landing due to the weather, crews discovered that

Chalk 2 was missing. Chalk 2 was later located crashed. The two crewmembers were killed.

■ **OH-58C.** While attempting a day landing to a field location with a 3- to 5-degree right cross slope, the PC focused his attention inside the cockpit to check instrumentation instead of observing the aircraft's rate of closure and longitudinal alignment. As a result, the aircraft drifted laterally to the right, its right skid made ground contact, and a dynamic rollover condition was encountered. The crew was uninjured, but the aircraft sustained major damage.

■ **OH-58C.** During a terrain flight training mission at an approximate altitude of 50 feet above the highest obstacle and 90 KIAS over a forested area, the OH-58C aircraft experienced an engine failure/malfunction. Due to the lack of a suitable landing area, the IP autorotated to zero airspeed at the top of the trees. The vertical descent through the trees terminated with a hard landing at low rotor RPM. Both pilots received injuries, and the aircraft sustained major damage.

### **Keeping the emphasis on safety**

The key to reducing accidental losses is training to standards and enforcing standards. Safety must be a priority in everything we do.

General Gordon R. Sullivan, Chief of Staff of the Army, urges commanders to continue to "keep the emphasis on safety, confirm proficiency in the basics, realistically assess proficiency levels, evaluate risks, and enforce command responsibility through every level to the pilot-in-command." General Sullivan also continues to challenge all commanders, crewmembers, and maintenance personnel to "internalize force protection and risk-management procedures and be aggressive in making them a part of every activity."

### **Accepting responsibility for safety**

It's a commander's or leader's responsibility to make safety a standard and a condition for every task. With continued solid leadership and dedication to force protection (safety), missions can be accomplished safely, mission by mission. Accepting the responsibility for safety and moving from "safety consideration" to "safety integration" will enable us to reap the benefits of conserving our resources and preserving our warfighting force for future conflicts. When that happens, the statistics will take care of themselves.

FY 94 can be the best year ever in aviation safety. It's up to all of us. Accept your responsibility for safety, and we will make it happen. □

# Reverse-thrust landing wasn't necessary

**D**uring a night landing roll following a 3-hour reconnaissance mission, the right (No. 2) propeller of an OV-1D failed to enter reverse pitch when the pilot-in-command (PC) placed the power levers into the reverse-thrust position. The aircraft entered an uneven reverse-thrust condition that resulted in the PC losing directional control of the aircraft. As a result, the aircraft veered off the left side of the runway and was destroyed by a postcrash fire.

## Lack of training

The uneven-thrust condition was compounded by the PC's incorrect use of differential power instead of immediately going to minimum reverse power or ground idle as required by the operators manual. In uneven reversing, control of the aircraft is directly proportional to the amount of power being applied.

There are no flight simulators or authorized in-flight training maneuvers with which to practice uneven-thrust conditions during attempted reverse-thrust applications. However, there is a recurring training requirement to discuss, in detail, the characteristics, aircraft reactions, and consequences of this condition in accordance with FC 1-217: Aircrew Training Manual, Surveillance Airplane, OV-1, Task 1031. Trainers and aviators should ensure that these required discussions receive increased emphasis.

## Maximum reverse-thrust landings not needed

The original design of the OV-1 was one of short takeoff and landing capability and maximum reverse-thrust landings were needed. However, there is no longer a need to ride the stall buffet to touchdown on an unimproved strip and come to a roaring, dusty stop with maximum reverse thrust.

Changes in mission doctrine, additional weight, larger engines, and length of improved runways and surface conditions negate the requirement to perform maximum reverse-thrust landings. Although a

minimum-run landing is still described in the operators manual, a lack of need and the risks associated with the maximum reverse-thrust maneuver relegates it to a contingency status. In essence, we do not need to perform maximum reverse-thrust landings.

## Braking is preferred method

The operators manual states "if runway length permits, normal braking can be applied; otherwise, the propeller should be reversed to stop the aircraft." Full or moderately high reverse-power settings on a runway with adequate braking distance does not meet the intent of that statement. And the normal landing as described in the aircrew training manual requires aerodynamic braking followed by normal braking or reverse thrust, as necessary, to stop the aircraft.

Today, normal OV-1 operations are off of runways 4,500 feet or longer in length. Landing distance for an 18,000-pound aircraft, flaps at 45 degrees, outside air temperature of 20°C, pressure altitude of 2,000 feet, and calm winds is 2,800 feet. This is the total ground roll distance with no reverse thrust and full braking.

The PC was landing the OV-1D on a 6,000-foot runway when he selected reverse thrust to stop the aircraft. He had plenty of runway to stop the aircraft with aerodynamic and normal braking. If he had done so rather than using reverse thrust, he probably would have maintained control of the aircraft and another Class A accident could have been prevented.

Airspeed during the final approach is the key to an accurate touchdown. Stopping an aircraft requires runway distance. If runway length permits, braking should be used as the primary means to stop the aircraft. Maximum reverse thrust should be used only as an alternate. □

POC: Mr. Henry Thomas Lindsay, Army Aviation Center, Directorate of Evaluation and Standardization, DSN 558-3475, commercial 205-255-3475

# Attention Black Hawk crews

**T**he UH-60 with its dual engines brought a safety margin to utility helicopter operations that wasn't possible with single-engine aircraft. However, as mission demands expand and new equipment is added, Black Hawks frequently operate at higher gross weights than in the past.

UH-60 crews should be aware that operating in the height-velocity-avoid regions can be hazardous to them, too, if one engine becomes inoperative. The

avoid regions vary based on gross weight and atmospheric conditions encountered.

Pilots should review the information in the operators manual on the height-velocity-avoid regions for single-engine failure and avoid flying in these danger zones as much as possible. □

POC: Mr. Michael Lupo or Mr. Dennis Menckowski, Utility Helicopters Project Manager's Office, Aviation and Troop Command, DSN 693-3210, commercial 314-263-3210

# Broken Wing awards

*The Broken Wing award is given in recognition of aircrewmembers who demonstrate a high degree of professional skill while actually recovering an aircraft from an in-flight failure or malfunction necessitating an emergency landing. Requirements for the award are spelled out in AR 672-74: Army Accident Prevention Awards Program.*

## ■ CW3 Sherman Bennett, Company B, 4th Battalion, 228th Aviation Regiment, APO AA.

The UH-1H was Chalk 2 in a flight of four conducting a combined air assault when a power loss occurred. The flight was in mountainous terrain at 90 knots and 700 feet AGL, masked between two ridgelines, flying the length of a steep, cavernous valley that presented no suitable forced landing area. CW3 Bennett, the pilot-in-command, was on the controls. N2 dropped to 5800 RPM as he reacted immediately and instinctively by entering autorotation. As CW3 Bennett reduced the collective, RPM recovered momentarily to 6200 to 6400, but when he applied power, rotor and engine RPM again deteriorated. CW3 Bennett entered autorotation again and performed emergency governor operations. Power was briefly regained for 5 to 10 seconds and then again deteriorated. CW3 Bennett continued with the autorotation, now at only 150 feet AGL. As the aircraft continued along the valley, a small field came into view to the left. He selected this area and maneuvered the aircraft for a landing while simultaneously trying to conserve as much rotor RPM as possible. Just before touchdown, the aircraft rotated 90 degrees to the right due to deteriorating rotor RPM and the accompanying loss of tail rotor authority. CW3 Bennett completed a controlled upslope (10-degree) touchdown



without injury to the 10 people on board or further damage to the aircraft.

■ CW3 Robert Mitchell Mason, Company C, 2d Aviation Regiment, 2d Infantry Division, APO AP. During an AH-1E reconnaissance flight, CW3 Mason chose an overwatch position about 200 feet below the military crest of a steep, rocky hillside. As he hovered slowly up the hillside, the copilot was continuously monitoring TGT to ensure temperature limits would not be exceeded. As CW3 Mason explained the tactical considerations of this particular overwatch position, they heard loud reports and felt airframe vibrations indicative of an engine compressor stall. As the copilot relayed the high TGT readings, CW3 Mason immediately reduced the collective and evaluated the situation as an engine compressor stall. The aircraft began to spin about the mast at an increasing rate. Realizing that he now had a tail rotor failure as well as a compressor stall, CW3 Mason began to roll the throttle off to autorotate. At their present position, it became apparent that they would land with a tremendous right downslope. Coordinating the throttle to control the amount of turn so as to touch down with the aircraft nose downhill to avoid a rollover situation, CW3 Mason simultaneously applied cyclic to avoid ground contact until the aircraft was aligned for a successful downhill landing. The in-flight emergency was caused by a severe compressor stall, resulting in a No. 4 tail rotor drive shaft failure.

■ Mr. William J. Lavallee, civilian instructor pilot, Fort Campbell. The crew had just conducted a tactical refueling operation. At 300 feet AGL about 25 minutes into the second leg of a 4-hour, NVG, low-level navigation training flight, the rated student pilot initiated an auxiliary fuel transfer from the internal fuel tank and confirmed positive fuel transfer. About 3 minutes later, the MH-6J engine failed. The student pilot initiated a straight ahead autorotation, and Mr. Lavallee took control of the aircraft. He immediately initiated a steep left turn to the only available and suitable landing area. A mayday call was made to the lead aircraft in the flight. As they were passing through 100 feet AGL, Mr. Lavallee leveled the aircraft. He spotted a drainage ditch and a barbed wire fence line, initiated a slight right turn, and completed the autorotation. The aircraft came to a stop following a 20-foot ground run. □

## Information based on preliminary reports of aircraft accidents

### Utility

#### UH-1 Class A

H series - During night unaided VMC approach, crew encountered brownout conditions on final approach. Aircraft impacted ground and came to rest on its top side. Two crewmembers sustained injuries, and a CH-47 crewmember in near vicinity was also injured when he was struck by flying debris. 9407

#### UH-1 Class C

H series - While conducting power check at 5-foot hover for IFR departure, PC heard rumbling noise. Aircraft experienced tail rotor failure during landing attempt, rotated 30 degrees, and impacted ground.

#### UH-60 Class C

A series - After landing in LZ for third time and discharging passengers, crew turned aircraft 90 degrees. A bamboo stalk that had been flattened by rotor wash flexed up, striking main rotor blades.

A series - Crew repositioned aircraft for HIT check. HIT check was completed, and crew shut down aircraft. On post-flight inspection, crew chief found damage to all four blade tip caps.

L series - At 9,500 feet MSL, aircraft began loud whine, followed by an explosive sound and failure of No. 2 engine. PC began descent and completed roll-on landing without further incident. Inspection revealed high-speed shaft failed, resulting in No. 2 engine shutdown.

L series - During external load hookup, left sling became entangled with left wheel of M119 howitzer, causing gun to roll over.

### Attack

#### AH-1 Class C

F series - Engine oil cooler fan failed during cruise flight, causing engine oil temperature to exceed 125°C. Engine oil temperature reached 150°C at landing.

#### AH-1 Class E

F series - As aircraft lifted off to a hover, maintenance rollaway toolbox began to roll. Crew chief was unable to stop the toolbox before it rolled into parked OH-58, causing damage to the battery/avionics access door.

#### AH-64 Class C

A series - During pilot night vision system training period in aircraft qualification course, pilot in back seat was performing rolling takeoff. After takeoff, pilot attempted to reset stabilator and inadvertently depressed stores jettison button.

A series - Crew was performing pre-takeoff checks when the APU clutch failed, damaging No. 7 drive shaft and antifail device and breaking the bi-pod mount on the APU. Aircraft was shut down on pad.

A series - While en route for instrument training, PC in rear seat noticed rumbling noise in engine area, followed by aircraft vibrations. Crew performed emergency landing and shutdown. On postflight inspection, crew opened cowlings and found fire in APU area. Fire crews immediately extinguished fire.

A series - While at 150-foot AGL hover in battle position, pilot/gunner noticed that aircraft was descending and alerted PC. Postflight inspection revealed damage to two tail rotor blades.

A series - During gunnery training using H972 dummy detonating rockets, rocket detonated prematurely (about 1 foot from mouth of rocket tube).

### Cargo

#### CH-47 Class C

D series - Crew saw bright flash of lightning to front of aircraft while in cruise flight. Crew noted no cockpit indications and returned to home base without further incident. Post-flight inspection revealed damage to three main rotor blades.

### Observation

#### OH-58 Class A

A series - During NVG nap-of-the-earth (NOE) training mission, aircraft arrived at starting point of NOE route. Crew brought aircraft to a hover while awaiting spacing from another aircraft as it proceeded down NOE route. Aircraft crashed from hovering position. 9408

C series - Four aircraft in right echelon formation entered inadvertent IMC. Upon completing precautionary landing due to weather, crews discovered that Chalk 2 was missing. Chalk 2 was later located crashed. Two fatalities. 9409

### Fixed wing

#### U-21 Class C

A series - While performing power approach precision landing, crew failed to ensure gear was down before touchdown. When propellers made contact with runway, IP took controls and pulled nose up. Crew placed gear handle in down position. Main gear touched down while gear was in transit and partially extended. Aircraft came to rest about 2,500 feet down runway from point of initial propeller contact.

### Messages

■ Aviation safety action maintenance mandatory message concerning night vision goggle (NVG) compatibility rework of master warning panel assembly on all UH/EH/MH-60 series aircraft (UH-60-94-ASAM-01, 162100Z Nov 93). Summary: The current master warning panel assemblies in the UH/EH/MH-60 do not meet the necessary requirements to be considered aviator's night vision imaging systems (ANVIS) acceptable due to their excessive brightness and crew station reflections when the lighting dimmer controls are reset to the daytime

mode. The purpose of this message is to require units to rework all UH/EH/MH-60 master warning panel assemblies for ANVIS compatibility. Contact: Mr. Brad Meyer, DSN 693-2085, commercial 314-263-2085.

■ Aviation safety action maintenance mandatory message concerning one-time inspection of cartridge-type fuel boost pump on all OH-58A/C aircraft (OH-58-94-ASAM-02, 172210Z Nov 93). Summary: Several incidents have occurred where the shutoff arm of the cartridge-type fuel boost pump was found bent. This condition is unacceptable and may result in power loss or flameout from restriction of the fuel flow. The purpose of this message is to require a one-time inspection of the cartridge-type boost pump and fuel pressure caution system. Contact: Mr. Brad Meyer, DSN 693-2258/2085, commercial 314-263-2258/2085.

For more information on selected accident briefs, call DSN 558-3262, commercial 205-255-3262.



Report of Army aircraft accidents published by the U.S. Army Safety Center, Fort Rucker, AL 36362-5363. Information is for accident prevention purposes only. Specifically prohibited for use for punitive purposes or matters of liability, litigation, or competition. Direct communication is authorized by AR 10-29. Address questions about content to DSN 558-3262. Address questions about distribution to DSN 558-2062.

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# CY 93 Flightfax Index

AAAA winners—April

Accident investigation—a necessity for safety—March

Accident reports (command misuse of protected portions is prohibited)—March

Accidents (notification of Army ground accidents caused by acts of nature)—September

A closer look at FY 93 accidents and rates (review of Class A-C accidents through 30 April, causes, and conclusions)—May

AH-64 accident occurs due to incorrect installation of Hellfire missile rack—December

AH-64 destroyed in microburst—July

AH-64 update (analysis of accidents and recommended prevention measures)—July

Aircraft forms and records need close attention—October

Aircraft PM in the cold—September

Aircrew Coordination Program (recap of history, status, and future plans)—December

Airspace classification charts (correction to charts shown in November 1992 issue of *Flightfax*)—January

Another look at FY 92—January

Army Aircraft Safety Performance Review (1992 edition) now available—May

Army Aircraft Safety Performance Review (1993 edition coming in 2d quarter of FY 94)—December

Army Safety Leadership on Risk Management video available—June

ASMIS modem (new telephone number for)—December

A timely reminder (approach holiday season with caution)—November

Attention all maintenance personnel and test pilots (Aviation Vibration Analyzer is newest piece of diagnostic equipment used for rotor tracking and balancing)—January

Attention: new FAX number for submitting PRAMs—December

Aviation NVG maintainers receive new guidance (GEN-93-ASAM-05, 091330Z Mar 93)—April

Aviation NVG maintenance documentation requirements (GEN-93-ASAM-05, 091330Z Mar 93)—April

## Aviation safety action messages

### ■ Utility

- UH-1 informational message concerning secure voice FM KY-58 radio mount—June
- UH-1H/V maintenance mandatory message concerning oil debris detection system modification to caution panel—August
- UH-1 maintenance mandatory message concerning one-time inspection of tail rotor drive shaft heat shield for debonded liner—August
- UH-1, AH-1, OV-1 maintenance mandatory message concerning special oil sampling and repair of T53 engines with high iron content—August
- UH-1, AH-1, OV-1 series aircraft maintenance mandatory message concerning revision to special oil sampling and repair of T53 engines with abnormal iron content—December
- H-60 Army aircraft revision to UH-60-92-ASAM-06 on one-time inspection for proper hardware on the pedal adjuster

assembly—January

- H-60 Black Hawk aircraft one-time inspection for tail rotor drive shaft viscous damper bearings—January
- H-60 Army aircraft one-time inspection to remove suspect tail rotor pitch beams—January
- H-60 Black Hawk maintenance mandatory message concerning inspection and replacement of ARA crew restraint, buckle/crotch assemblies—June
- H-60 operational message concerning abrupt change in main rotor track/vibrations—June
- H-60 operational message for aircraft with external stores support system (ESSS) and extended-range fuel system (ERFS) mission kits installed—August
- H-60 maintenance mandatory message concerning inspection of ERFS ejector racks on aircraft with ESSS and ERFS mission kits installed—August
- UH-60A, EH-60A, and UH-60L maintenance mandatory message to bias tail rotor rigging 3 degrees on helicopters built prior to S/N 91-26354—January
- UH-60 maintenance mandatory message concerning one-time inspection to determine compliance with system MWOs—June
- UH-60A, EH-60A, and UH-60L maintenance mandatory message concerning one-time inspection and recurring inspection/cleaning of the ESSS valves and pneumatic lines—June
- UH-60 maintenance mandatory message concerning one-time inspection of the hydraulic pump module—September

### ■ Attack

- AH-1E and AH-1F maintenance mandatory message concerning one-time inspection of the hose assembly—June
- AH-1, UH-1, and OV-1 maintenance mandatory message concerning special oil sampling and repair of T53 engines with high iron content—August
- AH-1P/E/F operational message concerning airspeed limit—November
- AH-1, UH-1, OV-1 series aircraft maintenance mandatory message concerning revision to special oil sampling and repair of T53 engines with abnormal iron content—December
- AH-1 maintenance mandatory message concerning one-time inspection of transmission oil cooler lines for proper routing following improved particle separator installation—December
- AH-64 maintenance mandatory message concerning inspection of main landing gear on all AH-64 aircraft—October
- AH-64 maintenance mandatory message concerning procedure to inspect the auxiliary power unit fuel solenoid valve—December

### ■ Cargo

- CH-47D and MH-47D message concerning aft and combiner transmission oil cooler fan bearings—January
- CH-47D, MH-47D, and MH-47E maintenance mandatory message concerning inspection of Hi-Lok fasteners at fuselage station 83 to 120—April
- CH-47D, MH-47D, and MH-47E maintenance mandatory message concerning one-time inspection of hydraulic

pumping unit—April

- CH-47 and MH-47 informational message concerning maintenance information for T55-L-712 engines—June
- CH-47 informational message concerning maintenance on fuel cells—October
- CH-47D, MH-47D, and MH-47E maintenance mandatory message concerning one-time and recurring inspections of rotary wing head bushings—December
- CH-47D, MH-47D, and MH-47E message amendment to one-time and recurring inspection of rotary wing head bushings—December

#### ■ Observation

- OH-6A series I and II aircraft informational message concerning excessive restriction of engine intake air due to the engine inlet barrier filter and compensating provisions—December
- OH-58A/C one-time inspection of main rotor mast nut, screw, and washer—January
- OH-58A/C maintenance mandatory message concerning main rotor hub latch bolts with insufficient threads—January
- OH-58D maintenance mandatory message concerning one-time inspection of cartridge-type fuel boost pump system—February
- OH-58A/C and H-6 series aircraft with T63-A-720 engines maintenance mandatory message concerning recall of suspect fuel hoses—February
- OH-58D maintenance mandatory message concerning updated instruction for troubleshooting the electronic supervisory control—March
- OH-58A/C informational message concerning correction to phased maintenance checklist—August
- OH-58D aircraft maintenance mandatory message concerning one-time and recurring inspection of all T703-AD-700 engine fuel controls for broken bypass cover screws—August
- OH-58D maintenance mandatory message concerning one-time inspection of the engine to transmission drive shaft installation bolts—September
- OH-58D and improved OH-58D maintenance mandatory message concerning additions and changes to the retirement schedule—December

#### ■ Fixed wing

- RC-12N operational message concerning advance notification regarding the operation of the electric flight instrumentation system (EFIS) and other operational issues—June
- OV-1D/RD-1D maintenance mandatory message concerning one-time and recurring inspection of the emergency manual canopy jettison system—June
- OV-1D/RV-1D maintenance mandatory message concerning rescission of OV-1-93-ASAM-01 concerning emergency manual canopy jettison system—August
- OV-1, UH-1, and AH-1 maintenance mandatory message concerning special oil sampling and repair of T53 engines with high iron content—August
- OV-1, UH-1, and AH-1 series aircraft maintenance mandatory message concerning revision to special oil sampling and repair of T53 engines with abnormal iron content—December

#### ■ General

- Maintenance mandatory message prohibiting use of Brayco 599 corrosion preventative concentrate—January

- Informational message concerning status of new DA Pam 738-751—January
- Maintenance mandatory message concerning use of dual visor on SPH-4B aviator helmets and related information—March
- General maintenance mandatory message concerning all aircraft equipped with sked litter systems—June
- General informational message concerning status of new DA Pam 738-751—June
- General informational message concerning maintenance checklist procedures to be included in DA Pamphlet 738-751: Functional Users Manual for the Army Maintenance Management System—Aviation (TAMMS-A)—August
- General informational message concerning inappropriate use of nonfire-resistant jackets with the aviation battle dress uniform (ABDU)—August
- General informational message concerning proper control of depot-level repairs—October
- General maintenance mandatory message concerning pitot static systems tester, case grounding—October
- General informational message concerning update to DA Pam 738-751: Functional Users Manual for the Army Maintenance Management system (TAMMS-A)—October
- Aviation Safety Officer Course update—August
- Aviation Safety Officer Course (want to attend?)—August
- Aviation Vibration Analyzer (newest piece of diagnostic equipment used for rotor tracking and balancing)—January
- Aviators needed (USAARL needs aviator volunteers to participate in studies)—February, June, December
- Broken Wing awards (recipients and synopses of emergencies for which awarded)—August, September, October, November
- Brownout incidents on the rise—December
- Cargo (internal items should be properly secured)—November
- CH-47 pilot recounts Class A accident in which all 17 on board walked away—October
- CH-47 video available—October
- Changes to TC 1-212 (STACOM 159)—September
- Changes to TC 1-216 (STACOM 158)—May
- Chlorofluorocarbons/Freon update—February
- Cockpit voice recordings accorded privileged status—April
- Cold weather preventive maintenance, training and maintaining, and leadership challenges—September
- Cold weather tips—September
- Collateral investigations: key to protecting safety reports—March
- Commander's quarterly safety report (includes sample format)—November
- Command misuse of protected portions of accident reports is prohibited—March
- Confidentiality—promises of in limited use accident investigations—November
- Congratulations AAAA winners—April
- Correction to airspace classification charts shown in November 1992 issue of *Flightfax*—January
- Covers and cowlings unsecured are a hazard—November
- CY 92 *Flightfax* index—January
- CY 92 STACOM index—January
- Current NVG messages as outlined in GEN-93-ASAM-02, 211830Z Dec 92—February
- DA Pam 385-1 now available—December

Don't be a Nobody! (Be the Somebody who shares ideas)—February  
*Eliminating the Avoidable Accident* video available—June  
 ESSS/ERFS mission kits (limitations, problems, and corrective actions)—July  
 ESSS information needed—June  
 FAX number for submitting PRAMs to Safety Center—December  
 Fire fighting—what you don't know could hurt you—November  
 Fire (still a danger in crashes)—June  
 Flight helmet (wear it properly or lose it)—August  
 Flight helmets (wear of unauthorized label on helmets)—May  
 Flight physical—a shared responsibility—October  
 FOD (the two meanings)—August  
 Followups of Class A and B accidents previously reported—February, March  
 Forms and records need close attention—October  
 Force protection: FY 93 in review—October  
 FY 93 accidents and rates (a closer look at Class A-C accidents through 30 April and causes)—May  
 FY 93 in review—October  
 H-60 ESSS/ERFS mission kits (limitations, problems identified; corrective actions; and need for risk assessment when using system)—July  
 H-60 safety alert message—September  
 Hazard alert: pen-like and other laser pointers—December  
 Hazard: unsecured covers and cowlings—November  
 Help us help you (need current unit addresses)—March  
 Human error in Class A aviation flight accidents (same problem areas continue to plague operations)—January  
 Incorrect installation of Hellfire missile rack leads to AH-64 accident—December  
 Index (CY 92 Flightfax)—January  
 Index (CY 92 STACOM)—January  
 Individual cold-injury risk factors—September  
 Interim change to TC 1-212 (STACOM 159)—September  
 Internal cargo needs to be properly secured—November  
 Jungle boots unauthorized for flight—December  
 Laser pointers (possible hazard)—December  
 Leadership challenges during cold-weather operations—September  
 Making It Go: Electrical Power for the CH-47D—October  
 Microbursts—July  
 Microburst claims AH-64—July  
 More information on night vision goggles (message diskette and exportable training package information)—May  
 New addresses and telephone numbers for night vision goggle and aircrew coordination information—December  
 New rigging procedures now available—March, May, October  
 Nobody lost—a great message to send (review of CH-47 Class A accident in which 17 people on board escaped injury)—October  
 Notification of Army ground accidents caused by acts of nature—September  
 NVG maintenance documentation and requirements (sample of completed forms and records included)—April  
 NVG maintenance references (recap of current messages)—April  
 NVG message (GEN-93-ASAM-02, 211830Z Dec 92)—February  
 NVG messages (current messages as outlined in GEN-93-ASAM-02, 211830Z Dec 92)—February  
 NVG messages rescinded as a result of GEN-93-ASAM-02, 211830Z Dec 92—February

NVG information on disk and exportable training package information—May, December  
 NVG neck cord (proper wear of)—May  
 NVG RL progression (chart)—March  
 OH-58 trends (increase in hot starts)—May  
 Oil debris detection system (ODDS)—December  
 Operational safety: a personal perspective—August  
 Pen-like and other laser pointers (hazard alert)—December  
 Postcrash fires: still a real hazard—June  
 PRAMs (new FAX number for submitting them to Safety Center)—December  
 PRAMs (streamlined submission requirements and procedures)—August  
 Preventive aircraft maintenance in the cold—September  
 Privileged status of cockpit voice recordings—April  
 Process for NVG RL progression (chart provides quick reference tool)—March  
 Promises of confidentiality in limited use accident investigations—November  
 Properly secure all internal cargo—November  
 Protective clothing and equipment must be serviceable to be useful—June  
 Quarterly safety report (includes sample format)—November  
 Radar altimeter lighting—May  
 Recap of current NVG maintenance references—April  
 Rescinded NVG messages (as outlined in GEN-93-ASAM-02, 211830Z Dec 92)—February  
 Rigging procedures—March, May, October  
 Risk-assessment matrix (new four-level matrix)—November  
 Risk management: a good investment (synopsis of accidents showing what can happen when aircrews fail to manage risks and apply risk management principles)—June  
 Risk management during deployment—November  
 Safe thunderstorms? Not a chance—May  
 Safe winter flying means training and maintaining—September  
 Safety alert message for H-60 units—September

### Safety-of-flight messages

- Operational message concerning cancellation/rescinding of operating restrictions while using JP-8/JP-5 fuel—April
- Technical message concerning one-time visual inspection of T700-GE-701C engine fuel hose assembly on all AH-64A, MH-60K, and UH-60L aircraft equipment with -701C engines—June
- Technical message concerning one-time visual inspection of T700-GE-701-C engine fuel hose assembly for additional serial numbers on all AH-64A, MH-60K, and UH-60L aircraft equipped with -701C engines—June
- Technical message concerning one-time inspection of cyclic control tube for possible interference with lower electrical clamp in the center post area of all OH-58A/C aircraft—June
- Technical message concerning modified procedures for boresighting when using TOW 2 and TOW 2A missiles on all AH-1F aircraft—August
- Technical message concerning inspection of vertical stabilizer barrel nuts and bolts—August
- Technical message concerning one-time records checks of engine

transmissions to identify unserviceable transmissions on all CH-47D, MH-47D, and MH-47E aircraft—August  
 Safety performance review available—May  
 Safety videos available—June  
 Sample of NVG maintenance forms and records—April  
 Share your safety ideas (Don't be a Nobody! Be a Somebody)—February  
 STACOM index CY 92—January  
 STACOM 157 (UH-60 configurations)—February  
 STACOM 158 (changes to TC 1-216)—May  
 STACOM 159 (interim change to TC 1-212)—September  
 Streamlined submission requirements and procedures for PRAMs—August  
 Sullivan sends (a message on protecting the aviation force by risk management)—June  
 Sunglasses (discolored plastic prescription ones could be safety-of-flight hazard)—December  
 Systems managers (Safety Center Aviation Branch points of contact)—August  
 Take care of your own aircrew and aircraft first! (You can't help a downed crew if you become part of the accident data yourself)—June  
 TC 1-212 changes (STACOM 159)—September  
 TC 1-216 changes (STACOM 158)—May  
 That sinking feeling (underwater egress training)—August  
 "The Next Accident Assessment" (an assessment for commanders/leaders to assess the personnel they rate and an assessment for individuals to complete on themselves)—June  
 The privileged status of cockpit voice recordings—April  
 The two meanings of FOD—August  
 Thunderstorms (there are no safe thunderstorms)—May  
 UH-60 configurations (STACOM 157)—February  
 Understanding the ODDS (oil debris detection system)—December  
 Underwater egress training (That sinking feeling)—August  
 Unsecured covers and cowlings are hazards—November  
 Update on release of chlorofluorocarbons/Freon (correction to UH-60-92-ASAM-04, 161330Z Jun 92 and subsequent reprint of message in August 92 issue of *Flightfax*)—February  
 Videos available—June, October  
 Warning label not authorized on aviation flight helmets—May  
 We must stop the bleeding (message from BG R. Dennis Kerr, Director of Army Safety, urging soldiers to increase safety awareness and stop preventable accidents)—January  
 What do I do now? (a former ASO and present accident investigator shares some lesson learned)—March  
 Where did safety go?—March  
 Where is your NVG neck cord?—May  
 Winter flying (being safe means training and maintaining)—September  
 Your flight helmet—wear it properly or lose it—August

## CY 93 STACOM Index

STACOM 156: CY 92 STACOM index—January  
 STACOM 157: UH-60 configurations—February  
 STACOM 158: Changes to TC 1-216—May  
 STACOM 159: Interim change to TC 1-212—September

## STACOM

### Interim change to TC 1-210

The U.S. Army Aviation Center (USAAVNC) Directorate of Evaluation and Standardization and the Aircrew Training Manual Section of the Aviation Training Brigade have received numerous inquiries from the field concerning the flight engineer instructor (FI) designation. Change 1 to TC 1-210: Aircrew Training Program, Commander's Guide to Individual and Crew Training, scheduled to be fielded in the third quarter of FY 94, will clarify this issue.

In order to provide guidance until Change 1 is published, units should change paragraph 3-5c(3) on page 3-14 to read:

**(3) Nonrated crew member flight instructor.**

An FI trains and evaluates nonrated crew members on cargo and utility aircraft per the applicable ATM.

**(a) Prerequisites.** The individual must be MOS-qualified in the tasks he will train or evaluate and meet the requirements stated in the applicable ATM.

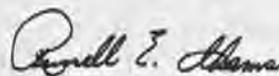
**(b) Qualification requirements.** The individual must successfully complete a DA or USAAVNC FI course in the mission, type, and design aircraft in which FI duties are to be performed. If a DA or USAAVNC FI course is not available for their specific aircraft, commanders may select an individual who meets the above prerequisites. The selected individual will be evaluated by an IP, an SP, or an SI.

The USAAVNC point of contact for TC 1-210 is CW4 Bernard Agnew, DSN 558-3801, commercial 205-255-3801.

STACOM 160

January 1994

Prepared by the Directorate of Evaluation and Standardization, USAAVNC, Fort Rucker, AL 36362-5208, DSN 558-1098/3504. Information published here generally precedes the formal staffing and distribution of Department of the Army official policy. This information is provided to all commanders to enhance aviation operations and training support.



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