Flightfax

ARMY AVIATION
RISK-MANAGEMENT
INFORMATION

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SPOTLIGHT
CH-47

SAFETY PERFORMANCE REVIEW

A look at the issues

Uncommanded flight-control inputs

The May 1998 issue of *Flightfax* contained the first-person accounts of the crew of a CH-47 that did a barrel roll. As a result of that incident, Aviation Safety Action Message CH-47-98-ASAM-01 (151327Z Oct 98) requested information from users on uncommanded control inputs. Input from users confirmed that this was not the only incident of uncommanded flight-control input experienced in the CH-47 community in the last several years. According to the Analytical Investigation Branch at Corpus Christi Army Depot, 21 activities responded to the ASAM, reporting 27 AFCS/electrical malfunctions, 4 hydraulic-related malfunctions, 4 unknown causes, and 3 suspected ice-and-water contamination incidents. Following are some examples.

■ While in cruise flight at 10,000 feet msl and 126 KIAS, the aircraft experienced an uncommanded pitch down of 20 to 25 degrees. When the PC applied aft cyclic, the aircraft pitched up then down before the PC regained control. The aircraft lost 500 to 1,000 feet of altitude during the sequence. When there were no additional problems, the crew elected to continue flight to their destination; they flew another 2 hours without further incident. It was later determined that the incident was caused by failure of the pitch axis portion of the AFCS. It is suspected that, during the sequence, excessive control inputs led to excessive flapping and lead-lag, resulting in failure of the shock-absorber mounts.

■ During flight-control check, the crew experienced control binding, with the cyclic limited to 4 inches forward movement and 1.5 inches lateral movement. The crew chief stated that the forward head was moving while the aft head was stationary. Pressure was in normal ranges, and the problem persisted for 5 minutes. The situation could not be duplicated by maintenance, but an actuator problem was suspected.

Update

Last year, a CH-47 miraculously returned to a wheels-down attitude at 250 feet agl after rolling 360 degrees in flight. The Army Safety Center, the CCAD Investigative Analysis Unit, AMCOM, and Boeing continue to monitor and evaluate all CH-47 flight-control anomalies to determine the cause of the incident. Following is a recap of ongoing actions:

■ AMCOM's Systems Engineering Department and CH-47 PEO/PM are currently preparing an ASAM that addresses findings, recommendations, and corrective actions developed to date.

■ A dehydrator will be issued in the near future to remove contaminants from flight hydraulic systems.

■ All chrome-plated aluminum end caps on servo-cylinders will be removed and replaced with chrome-plated stainless-steel end caps.

■ Several operational controls will be implemented to enhance early detection of flight-control lockup.

■ By-the-book maintenance is being emphasized. For example, mechanics must ensure that all hydraulic lines or components are capped and plugged as soon they are disconnected; all previously used or leftover hydraulic containers must be disposed of; and all hydraulic components received from the supply system must be drained properly.

—MSG Ruben Burgos, Aviation Systems & Investigation Division, DSN 558-3703 (334-255-3703), burgosr@safety-emh1.army.mil

■ While attempting to lift to a hover during slope operations, the SP noted control binding. When the other pilot tried his controls, he got the same outcome. They found no binding when they checked the cyclic boot, so they shut down the aircraft. Maintenance could not duplicate the problem, and the aircraft was released for flight. Several weeks later, another IP was flying the aircraft when it experienced severe vibrations to the point that cockpit instruments could not be read. The crew conducted an emergency shutdown without further damage. Transmission problems were suspected.

■ While conducting a flight-control check during run-up, the crew experienced control binding, grinding noise was heard in the forward transmission, and the forward blade bounced up 6 inches. This event occurred primarily when the cyclic was in the full right position and the crew was moving the cyclic from full forward back through the 4-inch forward to neutral position. Further examination revealed the lower part of the swashplate would make a bouncing movement, accompanied by a loud popping sound. No control stops were reached during movement, and the anomaly was repeatable. When the forward swiveling actuator was replaced, the problem could not be duplicated, so the aircraft was released for flight.

■ While transitioning through an airfield corridor at 700 feet agl and 100 KIAS, the aircraft began uncommanded left and right yaws starting at 5 degrees and increasing to 15 degrees. When the aircraft reached a 15-degree left bank, the PC applied right pedal and started a left, 10-degree bank to set up for landing. As pressure was applied, both pedal and cyclic froze in a left-bank attitude. Airspeed dissipated to zero; the crew described the aircraft's reaction as similar to that of a Huey with hydraulics off. The thrust was functioning, and, suddenly, all controls were free and functioning properly. As the crew set up for landing, the aircraft began to yaw again, and cyclic and pedals froze. At 100 feet agl, the controls released and functioned properly and the crew executed a roll-on landing. Everything was working properly, so the crew began a normal shutdown. Three steps into the checklist, the aircraft began to vibrate to the point that the gauges were unreadable, and things were flying around in the cockpit. The crew conducted an emergency shutdown as the aircraft continued to vibrate violently. A CH-47 maintenance officer witnessed the shutdown, and reported that the rotor system looked as though the pedal were displaced. After shutdown, the aft pivoting actuator was excessively hot, and the No. 1 jam indicator was popped.

Cooling fan drive shaft

The Chinook community has been experiencing problems with the oil cooler fan shaft in the combining transmission area. Safety-of-flight message CH-47-98-SOF-02 (161231Z Jul 98) imposed flight restrictions, additional preflight-inspection procedures, and a recurring inspection every 4 flight hours. These requirements remain in effect, and all personnel should review the message to ensure that it is being complied with.

Let's take a look at a couple of the incidents that led to release of this SOF message.

■ During taxi for takeoff, the IP noticed illumination of master caution with associated transmission hot capsule. After isolating the problem to the No. 1 engine transmission, the IP immediately performed emergency shutdown of both engines. Postflight inspection revealed a severed transmission cooling fan drive shaft and metal flakes on the combining transmission filter.

■ No. 1 engine transmission oil temperature rose rapidly through 130°C. When power was reduced, the temperature was passing 140°C. An emergency engine shutdown was completed with the temperature peaking at 145°C. At shutdown, the No. 2 engine and combining transmission oil temperatures were 120°C and rising. Maintenance found the combining transmission cooling fan shaft was sheared.

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A look at the numbers

FY98 was a good year for the Chinook community. We had no Class A accidents—and, therefore, no fatalities (for the second year in a row), 3 Class B, 16 Class C, 3 Class D, 116 Class E, and 1 Class F. Damage costs totaled $1,887,015 and injury cost was $24,631, for a total cost of $1,911,646.

Table 1. CH-47 accident experience

FY	A	B	C	D	E	Fatalities	Total Cost
94	2	2	8	21	242	5	$28,045,061
95	2	0	7	8	218	6	18,971,713
96	2	0	15	9	192	5	36,151,899
97	1	3	11	3	182	0	13,936,699
98	0	3	16	3	116	0	1,911,646
Total	7	8	57	44	950	16	$99,017,018

Analysis indicates that the top three areas that require attention are engines, electrical systems, and flight-related incidents (mostly inadvertent cargo release).

Engines

Engine problems accounted for nearly a fourth of all Chinook mishaps during FY98. The areas that most need attention are the torque-metering system and the power controls. The Chinook community is anxiously waiting the fielding of the T55-GA-714A engine, which will bring improvements to all areas of the power plant, including the fuel authority digital electronic control (FADEC) system. The T55-GA-714A has proved itself on special-operations aircraft, where it drastically reduced the number of engine-related accidents.

Electrical systems

The one Class A accident attributed to the electrical system during the past 5 years accounted for five fatalities. Electrical-system problems also accounted for 36 Class E mishaps during the period. CH-47-97-ASAM-07 (141323Z Apr 97) outlined measures to reduce the possibility of electrical-power loss. Consideration also is being given to introducing an improved circuit-breaker panel for the improved cargo helicopter (ICH) and current models. Further, Boeing has recommended several options to reduce water entry into the electrical system, which is also a source of H-47 electrical problems.

Flight-related incidents

Inadvertent release of external loads accounts for a relatively large number of H-47 accidents. Analysis shows that the majority of these accidents are attributable to flight-crew actions and that most of them occur during hover or transitional flight.

Table 2. Inadvertent-cargo-release mishaps

FY	A	B	C	D	Injuries	Total cost
96	0	0	5	5	2	$274,631
97	0	1	3	0	1	781,039
98	0	1	7	2	4	311,907
Total	0	2	15	7	7	$1,367,577

The relatively high number of mishaps helped determine that improvements are needed. Removing the human element from a system through engineering improvement is always the preferred solution. Operational controls are a good short-term solution, but engineering controls will bring forth long-term results.

The external-load-control grip on the flight-engineer station is not only next to but is identical to the press-to-talk button. With the added factors of no illumination and heavy workload, crews are inadvertently releasing loads. In some cases, loads are released when the control grip is accidentally bumped or dropped.

A few years ago, a modification work order (MWO) was introduced to recess the cargo-release button to prevent accidental release of loads. However, that MWO did not solve the problem. Some believe that the MWO does not protect the button from being activated.

It is evident that we are dropping cargo due to a design flaw. There are operational controls to prevent this from happening, such as not using the control grip for communication. However, operational controls cannot guarantee that this won't happen again. So, the program managers are considering replacing the current switch with a covered switch that can be activated only by flipping the cover to expose the switch.

Many of these incidents occur during night and/or NVG operations. One cannot prevent inadvertent activation of the cargo-release switch when feeling to locate the right button to push. Sometimes one can inadvertently activate the switch when trying to locate the control grip itself. The Program Manager is considering requiring that the Flight Engineer School stress the correct procedure as an interim control. This would require that the flight engineer stay away from the control grip during flight and reach for the control grip only when release of the load is desired.

Several months ago, Fort Bragg's 18th Airborne Corps Safety Office was notified of an unusual finding that proved to trigger inadvertent cargo release. Following is a synopsis:

Hazard: Corrosion on the cargo-hook emergency-release switch can cause inadvertent jettison of external loads on C/MH-47D/E helicopters

Description: A CH-47 unit found corrosion on the overhead control panel for the "cargo hook emergency release all switch." Improper installation of three connectors (2 on pin 5, 1 on pin 6) leaves a paper-thin gap between connections on pins 5 and 6. Corrosion buildup on these two pins allows for a path of electrical conduction, needing only a single drop of water to complete the circuit. A detailed review of TM 55-1520-240-T3, page 16-2.8, confirmed that all three cargo hooks will open if the electrical connection between pins 5 and 6 of the cargo-hook emergency-release switch is shunted. Corrosion in this control panel exists in varying degrees across the unit fleet. It is a fact of life that moisture is going to get into these areas, either from rain or condensation. Improperly applied corrosion preventing compound (CPC) can contribute to the problem as well.

Control measures:

- Perform a visual inspection of the overhead control switches for possible corrosion and correct installation stack-up.
- Correctly apply CPC in accordance with TM 1-1500-344-23, paragraph 3-7 and table 3-5, or TM 55-1520-240-23-2, task 2-374. Proper use of MIL-C-81309 Type II CPC normally requires a follow-up coat of additional CPC.

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A look at the mishaps

Class B

■ **During taxi to parking, the aft rotor blades contacted a windsock as the Chinook turned left onto the parking pad.** All three blades were damaged. This is nothing new; we've been doing this with aircraft since there have been aircraft. The recurring theme is the need to have ground guides in appropriate places. The operators' manual contains guidance on ground-guide positions; take the time to use them.

Class C

■ **As the Chinook exited the water during NVG amphibious operations, the loading ramp tore free and sank.** The operation was being conducted in a higher-than-authorized sea state, and the pilot allowed the aircraft to drift aft. Proper crew coordination might have prevented this accident. Crew coordination is more than positive transfer of the flight controls and checklist call-and-response. It's also any member of the crew—in both the cockpit and the cabin—speaking up whenever they see something that doesn't look right.

■ **During a left cross-slope landing, the left drag link assembly (P/N 114l2329-2) failed, allowing the left landing gear to collapse, further damaging the airframe and components.** Previous Aviation Safety-Action Messages (ASAMs) (CH-47-96-ASAM-01 and CH-47-98-ASAM-02) had identified the cause of drag-link failures as stress corrosion cracking (SCC). All CH-47D aircraft in salt-water areas operate in a highly corrosive environment that contributes to SCC and premature failure of the drag link. Units in such areas should ensure they are complying with appropriate inspections and maintenance procedures.

■ **Senior instructor (SI) suffered back injury during live rescue-hoist training.** The crew was conducting qualification training for two flight engineers in preparation for an upcoming support mission. The SI was required to lift and pull the hoisted person into the aircraft. After assisting 14 individuals, the SI noted that his back was sore, but he completed the mission. Seven days later, he went on sick call, at which time he was placed on quarters for 48 hours and restricted duty for 10 days due to pulled back muscles. It might seem easier to do the job yourself, but if you press beyond your limits, you can take yourself out of the picture for a long time.

■ **The Chinook encountered turbulence during terrain flight, and a crewmember fell and struck his head on the cabin floor.** The safest place for all crewmembers to be is strapped into a seat. In the cabin, being attached to the safety restraint harness pigtail is not enough. Even when attached, if it's extended all the way, a crewmember will still be bounced off the cabin floor and ceiling in the event of a crash.

Class D

■ **An M119A artillery piece was damaged during rehearsal for an air-assault demonstration.** The PI allowed the external load to touch down before the aircraft came to a stabilized hover. The artillery piece turned over and was damaged before the crew chief was able to release it. During demonstrations and air shows, aviators are sometimes tempted to try to get just a little more out of the aircraft or push their own limits a bit further. History, however, has proved that demos and air shows are not the places to push the envelope.

—CW4 Keith B. Freitag, Aviation Systems & Investigation Division, DSN 558-3262 (334-255-3262), freitagk@safety-emh1.army.mil

Shortfax
Keeping you up to date

No rides for Santa

A unit recently asked about using Army aviation assets for Santa to make an appearance at a military installation. Sorry, it's against regulations. According to AR 360-61: *Community Relations*, paragraph 13-7c, units may "not use Army aviation assets to transport persons costumed as Santa Claus, Easter bunnies, witches, or any other holiday-related character, whether the person is military or civilian, on or off a military installation."

So, if your unit gets a request to fly Santa or to provide a paratrooper to be Santa and make a grand entrance to the local tree-lighting ceremony, you will have to decline.

—MAJ Cindy Gleisberg, Command Judge Advocate, USASC, DSN 558-2924 (334-255-2924), gleisberc@safety-emh1.army.mil

CH-47 individual training: DES observations

In the numerous aviation assessments the Cargo Branch of DES conducted during FY98, most units performed well during the flight-evaluation portion. Those problems encountered centered on the administrative portion of the Aircrew Training Program (ATP). Assessments revealed a need for cargo units to focus attention in the following areas: FAC levels, RL progression, the commander's evaluation, and training documentation. Let's look at those areas more closely.

Flight activity categories

Unit commanders designate each position FAC 1, FAC 2, or FAC 3 based on the proficiency level required by the position. TC 1-210 prohibits the changing of FAC levels merely to reduce individual or unit flying-hour requirements. However, review of training records have revealed cases of FAC level assignments not being based on position requirements but, rather, to relieve individuals of their ATP requirements.

Another problem has to do with FAC 3 designations. Aviators designated FAC 3 must be qualified in their primary aircraft. Some units are assigning FAC 3 designation to aviators who are awaiting the qualification course although they are not yet qualified in the unit's primary aircraft. Other units are assigning FAC 3 designation to recent graduates of the Initial Entry Rotary Wing Course or aircraft qualification course who are on their first utilization tour. These individuals require training and evaluation on base tasks (geographical/environmental considerations), mission tasks, applicable special-mission tasks, and local-area orientation. DES recommends that these individuals be assigned to a flight/crewmember position as soon as possible after arrival in the unit.

Readiness-level progression

Readiness levels (RLs) identify the training phase in which crewmembers are participating and measure crewmember readiness. RLs provide a logical progression based on task and mission proficiency. Assessment of unit training records and folders revealed the following deficiencies:

- Rated and nonrated crewmembers are not progressed within established guidelines.
- Academic training (when required) is not conducted or documented.
- Minimum training hours are not accomplished.
- Required tasks and maneuvers are not trained and evaluated.
- Progression to the next readiness level is not accomplished in the designated period.

In addition, commanders should establish and publish policy that spells out night-orientation requirements. This may be done in the standardization SOP or in a separate policy letter. TC 1-210 specifically requires that—

- Night-vision goggle RL progression must start no later than the day/night RL1 progression date for aviators in NVG-designated positions.
- Aviators assigned to maintenance officer or maintenance technician positions or designated as MPs or MEs must pass a maintenance test pilot evaluation before being designated RL1.
- All aviators must complete a day and night local-area orientation flight before progressing to RL1.

Commander's evaluation

The purpose of this evaluation is to determine the initial readiness level of newly assigned crewmembers. This evaluation consists of a records review and possibly a proficiency flight evaluation. The records review must include the Individual Flight Record Folder to determine whether the crewmember is qualified for the duties assigned and to ensure that previous ATP requirements (to include APART) have been completed. The records must also be reviewed for waivers, extensions, and medical certification. The crewmember's previous CTL also should be reviewed to compare previous mission tasks to those of the current unit to aid in determining training requirements.

Training documentation

Assessments have revealed that graduates of the Instructor Pilot Course and Instrument Flight Examiner Course have been progressed to RL1 and designated D/N/NVG IP or IE based only on a records check.

A course-completion certificate does not provide documentation that all base tasks and required unit-mission tasks were trained and evaluated during the course of instruction, nor does it document an individual's ability to conduct mission equipment and geographical/installation-specific training and evaluations. In addition, for NVG IP designation, a new IP must complete an NVG IP evaluation given at night in the aircraft by an NVG SP. Refer to MACOM, installation, and unit regulations for additional evaluation requirements.

DES recommends that the initial instructor/evaluator evaluation take place in the aircraft (or simulator if applicable) in the modes and conditions associated with the duty performed.

Summary

- FAC levels should not be changed to reduce unit or individual flying-hour requirements.
- Commanders should carefully consider which aviators will be designated FAC 3. FAC 3 positions should be reserved for staff personnel who are not expected to maintain a high state of proficiency.
- RL progressions must be properly conducted and accurately documented.
- Flight records and training folders of newly assigned aviators should be reviewed in detail to ensure all previous requirements were met and to determine the aviator's training requirements for the assigned position.
- Recent IP/IE graduates are not qualified to perform IP/IE duties until they demonstrate to an SP their ability to train and evaluate the unit's mission tasks and local-area requirements.

Developing, implementing, and maintaining an aircrew-training program is a challenging requirement, and DES stands ready to assist. Call or e-mail us.

—CW4 John Smolka; Directorate of Evaluation and Standardization, Fort Rucker, AL; DSN 558-3475 (334-255-3475), smolkaj@rucker.army.mil

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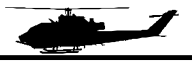

Class B

F series

■ Aircraft landed hard during APART simulated engine failure from a hover. Post-accident inspection revealed damage to transmission and main-rotor-blade grips.

Class E

F series

■ During OGE hover, rectifier caution light illuminated momentarily, then went out. When aircraft was brought to 3-foot hover, alternator and master caution lights illuminated. Aircraft was landed, and maintenance was called. Cause of problem was not reported.

AH64

Class C

A series

■ While firing during a CALFEX, crew misidentified Hellfire target array and subsequently fired two missiles outside the prescribed range azimuth. One of the missiles destroyed four HMMWVs located in parking area; the other missile landed in the vicinity of a nearby firing range, causing no damage.

Class D

A series

■ While turning crosswind in formation flight, aircrew was notified that No. 1 engine cowling door was open. Aircraft returned to airfield and landed without incident. Postflight revealed damage to No. 1 engine cowling door.

Class E

A series

■ Utility low caution light came on during cruise flight. About 3 minutes later, as aircraft was maneuvering for precautionary landing, utility hydraulic psi caution light came on. Aircraft was landed in highway median without incident. Caused by failure of hydraulic line.

■ During gunnery operations at OGE hover, aircraft experienced uncommanded control inputs. Crew identified the inputs as DASE failure and executed emergency procedures. With DASE off-line, uncommanded control inputs subsided, and aircraft was flown to FARP pad without further difficulty. Maintenance could not duplicate the malfunction; suspected cause was heading and attitude reference system (A-17 series) malfunction.

■ While at a hover, aircraft made sudden, violent, uncommanded forward pitch-down movement. PC applied full aft cyclic with no response. After about 2 seconds, PC regained cyclic control for 5 seconds before aircraft pitched up again. No caution lights came on, and DASE panel switches were all engaged. PC disengaged DASE as aircraft made violent right roll, pitching up simultaneously, and he applied full left forward cyclic with no effect. After 3 to 4 seconds, aircraft rolled back to left. PC then initiated descent to land, continuing to engage DASE with no response. Aircraft landed right-wheel low and tail low, and PC lowered collective until main rotor appeared level. As he began shutdown, cyclic began uncommanded movement again, and PC initiated emergency shutdown. Main rotor continued uncontrolled movement as rotor brake was applied. CPG attitude indicator and RMI were moving and spinning with the generators still on. Subsequent inspection revealed no noticeable damage except to main-rotor seal retaining ring. Investigation is on going.

■ Aircraft was on ground with engines idling when PI heard popping noise from right side. Slight odor of exhaust fumes was noticed just before APU failed. After emergency shutdown, maintenance checked aircraft and found that shaft-driven compressor shaft had sheared. Transmission was flushed and SDC was replaced.

CH47

Class C

E series

■ As aircraft was being back-taxied to parking after hot refueling, right aft landing gear collapsed. Crew raised aircraft and hovered to parking. Wooden pallets were positioned to cushion/support collapsed gear, and aircraft landed without additional damage.

■ Upon touchdown, slingloaded M119 howitzer overturned and rolled. Investigation under way.

Class D

D series

■ During slingload operations, aircraft was being hovered over load from tandem hookup. Hookup team of artillery soldiers misidentified VHF antenna as forward cargo hook and attempted to sling clevis to antenna, which broke at its mount. Maintenance replaced antenna.

Class E

D series

■ Master caution and transmission hot caution lights came on in cruise flight, followed by rise in oil temperature for combining transmission and Nos. 1 and 2 engine transmissions. Crew landed and performed emergency engine shutdown. Caused by failure of combining transmission cooling fan drive shaft. QDR was submitted.

■ While performing flight control hydraulic check, flight engineer noticed aft red blade swing aft significantly. Caused by failure of rotor blade shock absorber outer rod end where it attaches to blade.

■ During hover, crew chief noticed hydraulic fluid leaking from soundproofing in forward pylon area. Inspection revealed that fitting on hydraulic pressure line to winch had come loose. Aircraft was landed and shut down, and crew chief tightened fitting and serviced reservoir.

OH58

Class C

D(I) series

■ During engine start in preparation for RADS check, hot start was experienced, and engine limits were exceeded. Maintenance determined that engine must be replaced.

Class D

D(I) series

■ While demonstrating simulated engine failure (SEF) at altitude with minimum rate of descent airspeed, IP failed to roll throttle back up to 100 percent. Throttle remained at engine idle

through the decel and initial pitch pull. At around 40 feet, IP attempted to roll throttle back up to 100 percent as he applied collective, causing aircraft to land hard, bounce, and rotate about 155 degrees to the right as it slid on runway. Aircraft sustained hard landing, mast overtorque of 124 percent, and engine overtorque of 130 percent.

Class E

A series

■ During downwind, crew noted lateral vibration and aircraft experienced side slip at 800 feet agl. Pilot evaluated it to be a slight wind gust. However, upon turning base leg, vibrations were again felt, torque became erratic, and low rotor rpm light and audio came on. As collective was lowered, both indications ceased, but returned when collective was increased. Pilot made run-on landing to sod and completed emergency shutdown with no injuries or damage. Caused by governor failure.

C series

■ During low-level autorotation, crew heard high-pitched whine, hydraulic caution light came on, and controls became stiff. Crew performed power recovery and hydraulic failure emergency procedures and landed without further incident.

■ During terrain flight takeoff, aircraft logbook fell off glare shield and into pilot's side chin bubble, breaking it. Aircraft was landed without further incident. Cabin bubble was replaced.

D(I) series

■ During runup, tgt overtemp warning message and audio came on. Engine monitor page read 1180°, and tgt vertical scale displayed 0°. Aircraft was shut down without incident. Caused by faulty tgt wiring harness, which was replaced.

TH67

Class C

A series

■ Aircraft engine temperature reached 930°F for 2 seconds during engine start, exceeding operating limits of 927°F for 1 second.

UH1

Class E

H series

■ Crew heard loud bang, and aircraft yawed right; all instruments read normal. PC declared precautionary landing and landed. Maintenance found that one blade on first stage of compressor section was bent. Suspect FOD.

■ As aircraft touched down on parking pad, crew felt moderate high-frequency vibration accompanied by loud noise. Emergency shutdown was performed. Caused by failure of hanger bearing.

■ Left fuel tank began leaking fuel and landed without incident. Maintenance replaced auxiliary fuel hose to lower fuel cell.

■ N2 rpm indicator went to zero on short final. Aircraft was landed, hovered to parking, and shut down by checklist. Caused by failure of N2 generator.

■ After departing battle position, aircraft experienced uncommanded right yaw with loud popping sound from engine area. Emergency procedures for compressor stall were initiated, and aircraft landed without further incident. Inspection revealed that variable inlet guide vane (VIGV) actuator was out of adjustment.

■ Just after runup, mechanic on flight line noticed smoke coming from engine cowling around combustion section. Operations contacted crew, and emergency engine shutdown was completed. Troubleshooting found moisture around start fuel nozzle.

UH60

Class C

A series

■ Broken landing gear was noted on takeoff from snow landing. Crew elected to return to home station for crash-rescue-assisted landing (air pillows). Post-landing inspection revealed that left main landing gear drag brace was broken. Local board is investigating.

L series

■ Through-flight inspection revealed that tail-rotor de-ice cannon plug on blue blade had separated during flight, damaging tail rotor and one main rotor blade. No indications of separation were noticed during flight, and preflight the day before did not reveal any deficiencies. Further inspection found that bracket assembly had broken off; most likely, it tore the tail rotor de-ice cannon plug off with it.

Class D

A series

■ After MAST mission, PC directed PI to taxi aircraft next to pumping unit for refuel. As rotors slowed during shutdown, blade droop caused three main rotor tip caps to contact apex of hose reel on pumping unit. One tip cap was destroyed.

Class E

A series

■ After HIT check and just before takeoff, crew smelled smoke and determined that the odor was coming from the overhead console. PI saw wisp of smoke near No. 1 a.c. circuit breaker panel. All electrical power was turned off, and aircraft was taxied to nearest pad for termination. Aircraft was shut down without electrical power or APU power. Caused by rheostat failure.

L series

■ During landing to helipad, right-hand drag beam and shock strut broke at wheel, causing wheel to separate from aircraft. Crew returned to hover and flew back to home airfield, where ground personnel assembled landing platform of wood and mattresses to support right side of aircraft. Aircraft landed with no further damage.

■ During NVG formation flight, aircraft struck bird. Aircraft departed the flight and landed at airport 1 mile away. Inspection revealed damage to left cockpit door sliding window upper control cam.

C12

Class E

C series

Postflight inspection after uneventful night flight revealed damage to right wing tip navigation light lens cover, engine inlet lips, and leading edges of both wings beneath de-ice boots. Suspect damage was caused by hail during flight.

F series

■ Aircraft encountered unforecast moderate icing during cruise flight at 8000 feet. Crew could hear ice shedding from propeller blades as it impacted sides of aircraft. Aircraft departed icing conditions after about 10 minutes. On postflight, crew discovered numerous dents and missing paint chips on left and right front avionics compartment access panel along propeller line.

For more information on selected accident briefs, call DSN 558-2785 (334-255-2785). Note: Information published in this section is based on preliminary mishap reports submitted by units and is subject to change.

Aviation messages

Recap of selected aviation safety messages

Aviation safety-action messages

UH-1-99-ASAM-01, 021402Z Nov 98, maintenance mandatory

The purpose of this message, which revises UH-1-98-ASAM-02 (181421Z Nov 97), is to require mandatory removal of elevators manufactured by Chem Fab Corporation upon reaching the retirement life of 3,600 flight hours or no later than 15 October 2000.

AMCOM contact: Mr. Robert Brock, DSN 788-8632 (256-842-8632), brock-rd@redstone.army.mil

UH-60-99-ASAM-01, 021408Z Nov 98, maintenance mandatory

ASAMs UH-60-98-ASAM-03 (302108Z Oct 97) and UH-60-98-ASAM-05 (301445Z Apr 98) directed removal of swashplate link, P/N 70400-08110-054 or 70400-08110-61, manufactured by TEK Precision Corporation due to analysis indicating that the parts did not conform to process specifications of the original manufactured component. Subsequent analysis revealed that the parts were actually in conformance with specifications and that removing them from service is not necessary. The purpose of this message is to stop any further removal and demilitarization of the parts, which are fully qualified with no limitation on life

AMCOM contact: Mr. Ed Goad, DSN 897-2095 (256-313-2095), goad-er@redstone.army.mil

UH-60-99-ASAM-02, 021746Z Nov 98, maintenance mandatory

The purpose of this message is to—

- Direct inspection of all external rescue hoists manufactured by Breeze-Eastern to ensure that correct tension rollers are installed.
- Inspect for corrosion and correct all external hoist installations to allow proper drainage.

AMCOM contact: Mr. Ed Goad, DSN 897-2095 (256-313-2095), goad-er@redstone.army.mil

Safety-of-flight messages

AH-1-99-SOF-01, 081224Z Oct 98, technical

This message extends the recurring AVA inspection interval from 25 hours to 150 hours for engines with a coated spur gear installed and to 50 hours for engines with a noncoated spur gear (after at least one successful retest has been completed). In addition, the message prohibits the use of the obsolete lock-cup (NSN 5340-00-916-2592) when replacing the spur gear. The improved lock-cup (NSN 5340-01-430-0385) is the only authorized replacement for use on the spur gear.

AMCOM contacts: Mr. Robert Brock, DSN 788-8632 (256-842-8632), brock-rd@redstone.army.mil; or Mr. Howard Chilton, DSN 897-2068 (256-313-2068), chilton-hl@redstone.army.mil

AH-64-99-SOF-01, 191944Z Oct 98, technical

The manufacturer has reduced the service life of some rotating components in the T-700-GE-701 engine. Continued operation beyond the newly established limits could result in engine failure. The purpose of this message is to—

- Identify gas generator rotor modules having Stage 2 aft cooling plates with more than 4000 operating hours and remove them from service.
- Collect operating time data on other affected components. This data will be used to establish revised life limits, which will be published in a future message.

AMCOM contact: Mr. Howard Chilton, DSN 897-2068 (256-313-2068), chilton-hl@redstone.army.mil

POV fatality update through October

Speed ⊙
Fatigue ⊙
No seatbelt ⊙

No new causes, just new victims

FY99	FY98
13	13

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Class A Accidents through October

		Class A Flight Accidents		Army Military Fatalities	
		98	99	98	99
1ST QTR	October	2	1	0	0
	November	1		0	
	December	2		2	
2D QTR	January	1		0	
	February	1		0	
	March	1		0	
3D QTR	April	0		0	
	May	1		0	
	June	2		4	
4TH QTR	July	1		0	
	August	0		0	
	September	0		0	
	TOTAL	12	1	6	0

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