

maintenance fax



VOL. 2, NO. 8 ■ 29 MAY 1974

mishaps for the period of 16 APR-15 MAY 1974

POP-OFF LID ?

Ever wonder what can happen if the transmission oil filler cap on the OH-58A helicopter is improperly installed? The accompanying photographs show one result.

Witness marks are aligned and filler cap appears secure (photo 1). However, space between serrated collar and filler flange is greater than width of collar.

During operation, pressure builds up within transmission housing, unseating filler cap, and blowing it into flight controls (photo 2).

When cap is properly seated and secured, space between flange and serrated collar is less than collar width and witness marks are aligned (photo 3).

Although use of witness marks on transmission oil filler caps is not required, these marks help alert flight crews to a possible unsafe condition and their use is recommended.

Our thanks to the Canadian Helicopter School for furnishing us these pictures that were taken after an actual occurrence was detected just moments before the affected aircraft was to have been lifted to a hover.

Champagne corks are intended and expected to pop off; transmission oil filler caps are not. Make sure those on your aircraft are properly installed.



PHOTO 1



PHOTO 2



PHOTO 3



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UTILITY/ATTACK DIVISION

MAJ CHARLES E. TOOMER, Chief, 558-4198

SP6 ROLAND L. ALLEN, JR.

Two incidents and eight precautionary landings were reported.

UH-1

1 INCIDENT ■ Tail rotor drive shaft cover and one section of the drive shaft found damaged during post-flight inspection. Caused by screw driver left under drive shaft.

8 PRECAUTIONARY LANDINGS ■ Pilot smelled rubber burning during climb. Postflight inspection revealed short shaft grease boot torn. ■ Two powertrain mishaps were reported. The 42° gearbox chip detector light illuminated. Wires on plug were improperly installed. Crewchief of another aircraft noticed oil on cabin floor during landing. Caused by transmission being overfilled. ■ Two hydraulic mishaps were reported. Pilot noted hydraulic fluid odor. Inspection revealed tail rotor servo line had hole chafed in it. Another pilot smelled hydraulic fluid. Caused by irreversible valve preformed packing damage. ■ Pilot smelled fuel during landing. Preformed packing O-ring found pinched. ■ Pilot felt binding in tail rotor pedals during landing. Both pitch chain links on tail rotor assembly were incorrectly installed. ■ Aircraft was hovering when smoke came from battery. Battery was not serviced during last PE IAW TM 55-1520-210-20.

AH-1

1 INCIDENT ■ Main rotor blade was damaged on runup. Caused by tools left on main rotor head following adjustment of drag braces.

OTHER TYPE MISHAP ■ During preflight, three hanger bearing clamp bolts were found in the area of the No. 3 hanger bearing. A small hole was also found in the tail rotor drive shaft cover. A fourth bolt with nut and 11 washers were found in the tail boom.

IT HAPPENED AGAIN

During preflight inspection, a UH-1 tail rotor slider was found on an AH-1G Cobra. Following are the correct part numbers and federal stock numbers for UH-1 and AH-1 aircraft:

UH-1B/C/D/H/M	Slider	P/N 204-010-720-5, FSN 1615-859-6111
AH-1G (Pusher) (Left side)	Slider	P/N 204-010-720-5, FSN 1615-929-1017
AH-1G (Tractor) (Right Side)	Slider	P/N 204-010-720-7, FSN 1615-350-4427

LOH DIVISION

LTC DAVID L. BOIVIN, Chief, 558-4202

SFC DONNIE T. FARRAR

One precautionary landing was reported.

OH-58

1 PRECAUTIONARY LANDING ■ Master caution and engine chip detector lights illuminated. Metal fuzz was found on engine upper chip detector plug. Engine had not been flushed in 190 hours. *Although the crewchief, maintenance supervisor, and tech inspectors check aircraft records to make sure a required inspection or service is not overdue, it is the pilot's responsibility to also check records available to him before attempting flight.*

USAAVSCOM MESSAGE

071455Z May 1974

SUBJECT: CLN FSN 9150-223-4003, Grease, Aircraft, MIL-G-3545C Batch/Lot 13764 DOP Nov/73
SOWESCO Contract DSA600-74-C-1218 (Gen-74-19).

1. Subject materiel has been found to contain visible unknown particles and is suspected of failing the workmanship requirement of the spec.
2. Recommend all Army activities under your command be notified to place subject materiel in hold status, repeat, place SOWESCO Batch/Lot 13764, DOP NOV 73, Contract DSA600-74-C-1218 in hold status.
3. Report locations and quantities of subject product placed in hold status to DGSC, Richmond, VA, DGSC-OB2, with info copy to USAGMPC, STSGP-S, by 24 May 1974. □

CARGO/SYSTEMS DIVISION

CW4 GERALD D. YERBEEK, Chief, 558-4202

SFC REGINALD G. FARRIS

Two precautionary landings were reported.

CH-47

2 PRECAUTIONARY LANDINGS ■ No. 1 engine low oil caution light illuminated. Oil pressure fluctuated from 53 psi to zero. Engine was shut down and single engine landing performed. Caused by failure of engine oil filter O-ring due to improper installation. ■ Improperly installed oil filter on No. 2 engine caused fire detector system element probes to short out, illuminating fire warning lights. Element probes were cleaned and engine oil filter properly seated. □

FIXED WING DIVISION

LTC CHARLES E. HUMPHRIES, Chief, 558-3901

SP6 ROBERT WASHINGTON

Three precautionary landings were reported.

U-10

1 PRECAUTIONARY LANDING ■ After aircraft was banked to left, excessive pressure was required to level aircraft. Inspection revealed oil temperature thermocouple lodged in aileron control chain.

U-8

1 PRECAUTIONARY LANDING ■ Electrical odor was noted in cockpit during takeoff on an IFR service mission. Pilot remained in closed traffic and landed. Inspection revealed cleaning fluid on radio RT349/ARC55. Fluid had not been completely removed from radio following cleaning. Residual fluid was removed and aircraft released for flight.

T-41

1 PRECAUTIONARY LANDING ■ Engine chip detector light came on. Portion of a Dzus fastener was found on magnetic chip detector plug. Engine was inspected for internal damage. □



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THIS MONTH'S MAINTENANCE-RELATED MISHAPS BY TYPE AIRCRAFT

TYPE AIRCRAFT	FAC- TOR	CLASSIFICATION				SYSTEMS																	
	INSP/MAINT PROCEDURE	ACCIDENT	INCIDENT	FORCED LANDING	PREC. LANDING	AIRFRAME	LANDING GEAR	ENGINE	TRANSMISSION	PROP/ROTOR	HYDRAULIC	INSTRUMENTS	ELECTRICAL	FUEL	FLIGHT CONTROL	UTILITY	POWER TRAIN	ARMAMENT	INJURIES	FATALITIES	AIRCRAFT LOSS	FIRE	
UH-1	9		1		8				2	1	2		1	1			2						
AH-1	1		1							1													
OH-58	1				1			1															
CH-47	2				2			2															
U-10	1				1									1									
U-8	1				1							1											
T-41	1				1			1															
TOTAL	16		2		14			4	2	2	2		2	1	1		2						

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PRELIMINARY ARMY AIRCRAFT MISHAP DATA

FLIGHT FAX

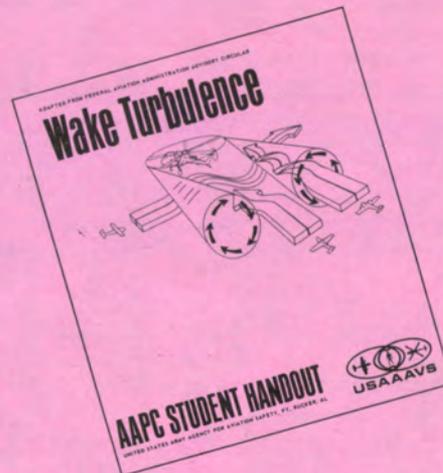
VOL. 2, NO. 1 ■ 10 OCT 1973

mishaps for the period of 21-27 SEP 1973

NOW I LAY ME DOWN

A UH-1 was on an instrument training flight with clear weather and unlimited visibility. The air was extremely smooth with very few bumps. A large jet of the 727 variety, on final descent for a commercial airport, passed approximately 7 to 8 miles ahead and 1,000 feet above the Huey. Prevailing winds were from the rear of the Huey and by all standards should have blown any wake turbulence away from it. Two to three minutes after the jet had passed, the Huey suddenly started a rapid but not violent right roll. Left cyclic was applied, with no effect. With the cyclic on the left stop, and I suspect bent a little past the stop, the aircraft continued its right roll until it finally stopped with a right bank of 130°, according to the pilot's attitude indicator. Further movements of the cyclic (fore and aft) had no effect. The aircraft was then given full right pedal and full power was added to prevent the possibility of severing the tail boom. This resulted in a vertical nose-down attitude with the airspeed indicator on zero. The aircraft was then pulled out of this steep dive, ending up level with 110 knots airspeed and a loss of 1,500 feet of altitude. Throughout this near inverted flight the aircraft went through numerous vibrations and gyrations such as: mast bumping, transmission rock, rotor head stress, transmission mounting points stress, and lift link stress. The aircraft is now going through extensive tests and inspections for possible overstress of airframe and dynamic components.

CW2 Jerry W. Marshall
Flight Instructor
Aviation Support Facility, COARNG



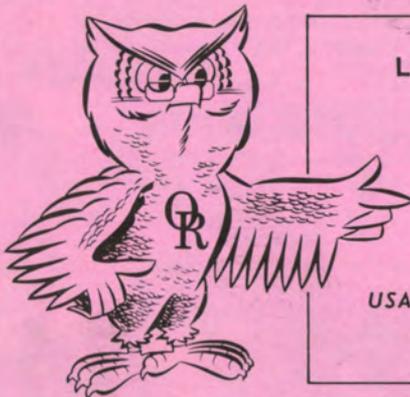
It is hoped other pilots will learn something from this experience. For more information on wake turbulence, see "Visualize the Invisible," April 1973 *U.S. Army Aviation Digest*. A pamphlet on wake turbulence, prepared by USAAAVS, can be obtained by writing to Commander, USAAAVS, ATTN: FDAR-EP, Fort Rucker, Alabama 36360.

QUALITY CONTROL RESPONSIBILITIES

The reputation of a unit and the success of its maintenance effort depends to a great extent on the dependability and integrity of the personnel assigned to quality control. All decisions made by the technical inspectors must be based on information received from technical publications and as free from opinionated concept as humanly possible to merit the confidence and active support of all maintenance activities.

FM 29-36

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LOSS OF COMBAT EFFECTIVENESS FROM THIS WEEK'S MISHAPS

FATALITIES:	0
INJURIES:	0
AIRCRAFT LOSSES:	0
ESTIMATED COSTS:	\$76,203

USAAAVS: AUTOVON 558-6510/4714

Commercial AC 205, 255-6510/4714

U.S. ARMY AGENCY FOR AVIATION SAFETY FORT RUCKER, AL 36360

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UTILITY/ATTACK

Fatalities: 0 ■ Accidents: 0
Injuries: 0 ■ Estimated Costs: \$0

DIVISION

■ MAJ Charles E. Toomer, Chief

Three forced landings and 18 precautionary landings were reported.

UH-1

2 FORCED LANDINGS ■ Engine failed during PRACTICE AUTOROTATION. Metal filings were found in fuel filter. Suspect fuel control failure. ■ Loud bang was heard during landing, followed by yaw to left. Pilot entered autorotation and landed. Inspection revealed gear teeth stripped off on bevel gear zero, lower drive (FSN 2840-858-8434) at power setting 6800.

17 PRECAUTIONARY LANDINGS ■ Engine fuel pump light illuminated during approach for landing. Inspection revealed fuel control malfunction. ■ Engine rpm buildup occurred during flight. Suspect fuel control malfunction. ■ Engine chip detector light came on. Center pole of magnetic detector plug vibrated loose, causing short. ■ Hydraulic pressure loss occurred during flight. Caused by irreversible valve failure. ■ Hydraulic pressure warning light illuminated during night flight. No loss of pressure was experienced and cause was undetermined. ■ Pilot heard shrill noise during cruise flight. Hydraulic pressure light illuminated and hydraulic system failed on final. Caused by fatigue failure of metal tube assembly (P/N 205-076-201-1). ■ Aircraft was hovering when pilot noticed binding in right pedal. Caused by tail rotor servo malfunction. ■ Transmission oil pressure fluctuated 4 to 5 pounds during cruise flight. Cause undetermined. ■ Transmission oil pressure warning light came on. Caused by internal malfunction of transmission pressure switch (FSN 6620-067-4946). ■ One-to-one vertical vibration occurred during turn. Postflight inspection revealed broken teflon bearing protruding from race. ■ Transmission chip detector light came on during flight. Inspection revealed normal wear. ■ During approach to pinnacle landing, a noise was heard similar to inverter shutting down, and engine oil temperature rose. Cause undetermined. ■ Aircraft rocked to rear during landing. Pilot lifted aircraft to hover and heard loud rapping noise. Cause undetermined. ■ Pilot smelled odor of overheating electrical components. Power-on descent was made at airport. Wrong size light bulb was installed in dome light. ■ Main generator caution light illuminated during cruise flight. Suspect main generator failure. ■ Engine chip detector light came on during takeoff. Caused by loose wire on chip detector terminal. ■ Heavy rain showers were encountered in cruise flight. Pilot landed because of poor visibility in rain.

AH-1

1 FORCED LANDING ■ Aircraft was at 3-foot hover when engine failed. Cause undetermined at this time.

1 PRECAUTIONARY LANDING ■ Transmission temperature light illuminated during landing approach. Caused by defective thermostatic switch (FSN 5930-299-1066). □

LOH

Fatalities: 0 ■ Accidents: 2
Injuries: 0 ■ Estimated Costs: \$41,203

DIVISION

■ LTC David L. Boivin, Chief

Two accidents, two incidents, and eight precautionary landings were reported.

OH-58

1 INCIDENT ■ Aircraft (with gross weight of 2,400 pounds at DA of 7,000 feet) was at 30-foot hover in order for crew to observe troops on other side of knoll. Pilot made left pedal turn which placed aircraft in 10-knot direct tailwind position. Left pedal became ineffective when increased demand for power caused rotor rpm to bleed off to 270. Hard landing resulted when pilot lowered collective in attempt to regain power and rpm. *Pilots beware, a left pedal turn requires more tail rotor pitch (to overcome torque), thus more power, than a right pedal turn. This may start your world spinning when any or all of the following conditions under high power requirements are encountered: hover out of ground effect, high gross weight, high DA, and strong cross- or tailwinds.*

7 PRECAUTIONARY LANDINGS ■ IP turned generator switch off when d.c. amp meter indication rose from 10 amps to 150 plus. EIR submitted on battery failure. ■ TOT went to 805° when aircraft was picked up to hover. Cause unknown. ■ During hover, linear actuator failure caused N2 to decrease to 100 percent with beeper ineffective. EIR submitted. ■ Low rpm warning light came on in cruise flight when N2 decreased to 95 percent. Any change in collective caused N2 to fluctuate. Cause unknown. ■ Broken wire to magnetic plug caused transmission chip detector light to illuminate. ■ Special oil samples were submitted on two aircraft after their tail rotor chip detector lights came on because of metal fuzz and chips on magnetic plug.

OH-6

1 ACCIDENT ■ Aircraft landed hard and main rotor blade flexed down and severed tail boom during PRACTICE TOUCHDOWN AUTOROTATION.

1 PRECAUTIONARY LANDING ■ Small metal particles were found on magnetic plug after engine chip detector light came on. Special oil sample submitted.

TH-55

1 ACCIDENT ■ During 180° PRACTICE TOUCHDOWN AUTOROTATION, main rotor blade chopped off portion of tail boom after touchdown. Cause unknown; however, too low an airspeed prior to the flare, an overapplication of aft cyclic by student pilot after touchdown, a faulty oleo strut, high DA and/or poor wind conditions could have been a factor.

1 PRECAUTIONARY LANDING ■ Tail boom support strut bent when skid assembly caught on sewage drain inlet grate during ground taxi.

THOUGHT FOR THE WEEK

EITHER GREASE IT OR CHALK IT UP: Pilots beware! Marking the skin of an aircraft with a pencil can cause erosive chemical reaction. A re-"mark"-able example of this occurred when a technical inspector drew a pencil line around a crack in the skin of an aircraft wing. Amazingly, the crack disappeared a couple of months later. In fact, the entire disc fell out and disappeared. Scribe lines (made with any sharp object) can produce similar results, so when it is necessary to mark the aircraft skin, use chalk or grease pencils which are harmless. □

CARGO

Fatalities: 0 ■ Accidents: 0
Injuries: 0 ■ Estimated Costs: \$0

DIVISION

■ CW4 Gerald D. Verbeek, Acting Chief

Four precautionary landings were reported.

CH-47

4 PRECAUTIONARY LANDINGS ■ Severe shudder was felt in aircraft during cruise flight and landing was made to open field. Cause unknown. MOC and test flight were conducted, but malfunction could not be duplicated. Aircraft was released for flight. ■ Aircraft yawed violently 20° left and right three times, and landing was made. Hardover in yaw channel was caused by excessive water in SAS static lines. SAS system was drained and balanced, and aircraft released for flight. ■ Aircraft was on climbout when a shudder was felt and loud noise was heard. Second noise was heard during deceleration and aircraft was landed. Shudder was felt in forward portion of aircraft only. Loose nut in pneumatic line between No. 1 and No. 2 flight boost reservoir caused air to seep into No. 2 flight boost system. System was bled and aircraft returned to service. ■ No. 1 engine chip detector light illuminated. Caused by metallic fuzz on plug. Plug was cleaned and aircraft returned to flyable status.

Additions to Crash Facts for the week of 14-20 September 1973.

One incident was reported. Estimated Cost: \$758.

CH-47 INCIDENT ■ Aircraft was in low-level cruise with external piggyback load of A22 bag with ammunition boxes. A22 bag hit tree while aircraft was turning right. Bag swung up and hit left side and ramp of aircraft. □

FIXED WING

Fatalities: 0 ■ Accidents: 1
Injuries: 0 ■ Estimated Costs: \$35,000

DIVISION

■ LTC Charles E. Humphries, Chief

One accident, one incident, one forced landing, and seven precautionary landings were reported.

U-6

1 ACCIDENT ■ Engine failed at 150 feet after takeoff for test flight. Pilot executed shallow right turn in attempt to land in open field. Aircraft impacted on up-slope of small hill and rolled into trees short of open field. Both wings were damaged, left landing gear buckled under, and tail section crumpled. Aircraft remained upright and the crew escaped injury. Engine is being evacuated for teardown analysis.

U-21

1 INCIDENT ■ Just before aircraft turned on base leg for landing, right wing leading edge struck large bird.

T-41

1 FORCED LANDING ■ Engine started missing and running rough in climb at 5,000 feet. Pilot continued climb to 6,000 feet and engine continued missing intermittently. Pilot returned to home base and engine quit on long final. When cranked, engine would catch but would not continue to run. Aircraft was landed on overrun without power. Postlanding check revealed fuel nozzles had malfunctioned and required replacement.

1 PRECAUTIONARY LANDING ■ Engine quit momentarily at 500 feet agl during climbout, then ran extremely rough. It ran smoother with boost pump on "low." Fuel flow went from 13 gph to 8 gph at climb power setting (25 inches manifold pressure/2600 rpm). Aircraft was returned to home field. Fuel line to No. 3 cylinder had broken, apparently causing fuel leak and loss of pressure. Break occurred at fuel manifold end of line.

OV-1

1 PRECAUTIONARY LANDING ■ No. 1 engine chip detector warning light came on. Caused by small metal particle on magnetic plug. Plug was cleaned and reinstalled, engine was run for 20 minutes without getting a warning light again, special oil sample was taken, and aircraft was released for flight.

T-42

1 PRECAUTIONARY LANDING ■ No. 1 alternator failed after takeoff. Caused by broken wire to field lead of No. 1 alternator.

U-8

4 PRECAUTIONARY LANDINGS ■ Pilot was executing simulated single-engine procedure during training flight when No. 1 engine chip detector warning light came on. Aircraft was returned to home base. Post-landing examination of oil found wear metal content. Resample of oil revealed gear tooth from failed accessory drive gear. ■ During VFR training flight, IP was demonstrating single engine flight at 5,500 feet msl by shutting down and feathering No. 1 engine. Repeated attempts at restarting engine were unsuccessful. Engine started normally after landing at home base. ■ No. 1 engine chip detector warning light came on during cruise flight. Wire to No. 1 magnetic plug came loose, causing illumination of warning light. ■ Engine fluctuated plus or minus 200 rpm during climbout. Pilot descended to 4,000 feet, engine ran smooth, and landing was made. Caused by malfunction of altitude compensating mechanism. Component was changed, and aircraft was test flown and released. □

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FLIGHTFAX

VOL. 2, NO. 10 ■ 12 DECEMBER 1973

mishaps for the period of 23-29 NOVEMBER 1973

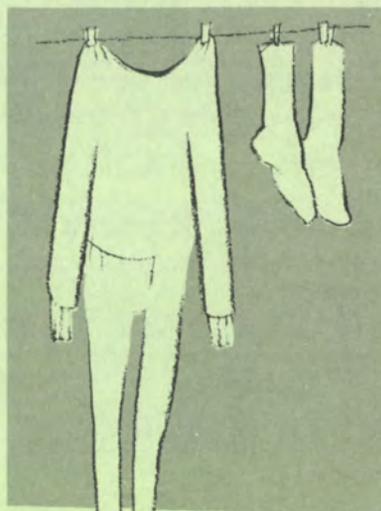
PILOT MISHAP DATA

During the last few months, USAAAVS has received numerous requests for mishap data on pilots. To assist in obtaining this information expeditiously, the following guidelines are provided:

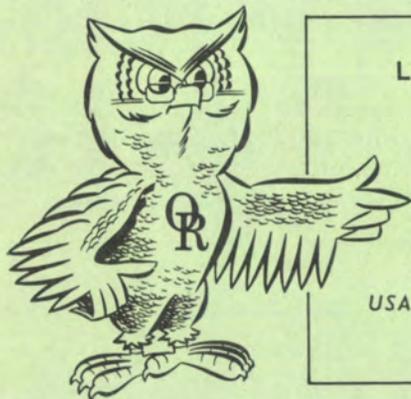
- This information will be made available to commanders under either AR 95-63, paragraph 1-16, for selecting IP's or .SIP's, or AR 385-10, paragraph 4-3c, for presenting individual safety awards.
- The request must contain a statement setting forth the purpose for which the information will be used.
- The request will be sent to Commander, USAAAVS, ATTN: FDAR-PO, Fort Rucker, Alabama 36360. Only formal written requests or DA messages over a command signature will be honored.

Thoughts for a SAFE winter

Ole Man Winter has reared his ugly, cold head and lowered temperatures in the aviation world. To cope with the lower temperatures, many crewmembers have donned their winter long johns. A word of caution to all—be sure you wear undergarments that are compatible with your Nomex flight suits and gloves. Wool cotton winter underwear is the only type that should be worn under the Nomex flight suit. The wearing of nylon insulated undergarments can be a matter of life and death if you're involved in a postcrash fire. Nylon melts below the Nomex flight suit melting point, which will result in burns. The wearing of nylon glove inserts with Nomex gloves can result in severe burns. Nylon inserts are not recommended for wear with the Nomex flight gloves. Wool/cotton socks are a must for the well-dressed aviator, plus they do not burn as rapidly as the nylon type. The wearing of improper apparel to augment the aircraft heating system is a no-no and one of the fastest ways to enter the Pearly Gates before your time.



WOOL/COTTON



LOSS OF COMBAT EFFECTIVENESS FROM THIS WEEK'S MISHAPS

FATALITIES:	2
INJURIES:	0
AIRCRAFT LOSSES:	1
ESTIMATED COSTS:	\$521,778

USAAAVS: AUTOVON 558-6510/4714

Commercial AC 205, 255-6510/4714

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FORT RUCKER, AL 36360

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UTILITY/ATTACK

Fatalities: 2 ■ Accidents: 1
Injuries: 0 ■ Estimated Costs: \$518,833

DIVISION

■ MAJ Charles E. Toomer, Chief

One accident, two incidents, and 21 precautionary landings were reported.

UH-1

1 INCIDENT ■ Main rotor blades struck tree during final approach to LZ, damaging both blades.

20 PRECAUTIONARY LANDINGS ■ Battery shorted internally and sprayed electrolyte on windshield. ■ Fuel pressure dropped to zero in flight. Fuel pressure transmitter (P/N MS 28005-1) failed. ■ IP heard noise in main generator and landed. Motor generator (P/N MS 21983-1) was found defective and replaced. EIR submitted. ■ Egt, engine oil pressure, and temperature fluctuated intermittently in flight. After landing, maintenance personnel found cannon plug had vibrated loose, causing intermittent shorting and fluctuation of engine instruments. ■ Pilot encountered unforecast snowstorm and made precautionary landing. ■ Aircraft was on downwind leg of traffic pattern when engine oil temperature increased to 120°. Carbon buildup caused oil cooler to seize. ■ Four aircraft had hydraulic failures. All were caused by broken or cracked lines. ■ Fire warning light illuminated in cruise flight. Caused by failure of control alarm box (P/N 227-28-5A). EIR submitted. ■ Master caution lights of two aircraft illuminated, with no other indication of malfunction. Master caution panel of one aircraft was found inoperative and second aircraft was test flown but malfunction could not be duplicated. ■ Transmission chip detectors of two aircraft illuminated. One was caused by short in wiring and normal wear fuzz caused the other. ■ Three tail rotor chip detector light illuminations were reported. Two were caused by shorts in wiring and one by normal metal wear. ■ Engine chip detector lights of two aircraft illuminated. One was caused by normal metal wear and the other by a broken electrical wire.

AH-1

1 ACCIDENT ■ Aircraft broke up in flight and crashed. Both crewmembers were killed. Suspect failure of main rotor blade spar. Investigation continues.

1 INCIDENT ■ Tail rotor struck vertical fin during shutdown, causing 6-inch tear in skin. Cause unknown.

1 PRECAUTIONARY LANDING ■ Engine chip detector light came on in cruise flight. Caused by normal metal wear. □

LOH

Fatalities: 0 ■ Accidents: 0
Injuries: 0 ■ Estimated Costs: \$2,030

DIVISION

■ LTC David L. Boivin, Chief

Four incidents, one forced landing, and nine precautionary landings were reported.

OH-58

6 PRECAUTIONARY LANDINGS ■ Engine oil pressure dropped 30 psi and oil temperature increased to 115° C. during test flight. Suspect deteriorated oil cooler. ■ Engine rpm increased to 106 percent when collective was slightly reduced for descent. Pilot increased collective to control N2 rpm, but it surged to 111 percent before manual control took effect. Suspect partial governor failure. ■ Faulty pressure switch caused hydraulic pressure light to come on. EIR not reported! ■ Cause unknown for tail rotor chip detector light illumination. ■ Engine chip detector lights of two aircraft came on in flight. Cause unknown.

TH-55

4 INCIDENTS ■ Three aircraft received dented tail boom tubes when their main rotor blades flexed down and struck the tail booms during shutdown. Aircraft had been recalled in anticipation of a frontal passage (which caused a wind shift during the rotor coastdown period). ■ Hard landing with sideward movement occurred during termination of 180° PRACTICE TOUCHDOWN AUTOROTATION.

1 FORCED LANDING ■ Engine quit during normal approach to stagefield lane. EIR submitted on engine failure. A WELL DONE for a successful power-off emergency landing goes to IP Anthony V. Hutson, Boss Aviation, USAAVNS.

3 PRECAUTIONARY LANDINGS ■ Pilot smelled burning rubber and noted alternator discharging. EIR submitted on alternator failure. ■ IP experienced severe and rapid power loss while hovering aircraft, and muffled noise was heard in engine area. Engine continued to run, but sufficient power was not available to hover. No. 2 cylinder injector line was replaced. ■ Engine overspeed (to 3400 rpm for 1 second) occurred during power recovery from 180° autorotative turn to stagefield lane. SP had zeroed out airspeed at 75 feet agl as he rolled out of turn. When SIP initiated power recovery, SP made abrupt throttle application, resulting in engine overspeed.

THOUGHT FOR THE WEEK

IF IT'S ENUFF TO MAKE YOU SHUDDER, ISN'T IT ENUFF TO MAKE YOU STOP? Aviator "Weatherall" was preparing for his RETURN flight HOME AT NIGHT when he received a severe weather watch for thunderstorm activity. "Weatherall" was "warned" once again about the weather while hovering his "fair-weather bird" for takeoff. An airborne flyer radioed that visibility was diminishing at "Weatherall's" destination and that he should hurry his VFR departure (?). No hurry, no flurry for "Weatherall" knew the area well and besides he had lots of flight hours under his belt. He'd just follow that highway for orientation. After takeoff the vehicle lights were bright at first but all too soon they became faint to dimmer. "Weatherall" was unpleasantly surprised by the darkness: no moon, no stars, no horizon, and now no headlights! However, one twinkling light in the distance beckoned the lonely pilot homeward. Soon the rotating beacon began to bother "Weatherall" as it flickered reflections off the dingy white gloom hanging about the aircraft. After experiencing a peculiar sensation and fearing vertigo, "Weatherall" started talking to himself: "Make 180 degree turn—slight—that's too much—left cyclic—stop—didn't correct—more left cyclic—wow—ball is to the left—airspeed diminishing—all instruments are moving—**FELT THE HELICOPTER SHUDDER OR WAS IT ME—don't know how to correct—can't interpret the tumbling instruments—roll out level—decrease collective—keep throttle on—600 fpm descent—30 K airspeed—slight forward cyclic—rooftops appearing—out of clouds—yank collective!**" However, the OH-58A struck the ground with a backaching force that drove the pilot violently downward. It bounced back into the air and nosed over with pilot flailing about the cockpit. As aircraft came to rest (its final rest), the pilot found himself miraculously alive. Though injured, he found it easier walking home than flying and shuddering. *Pilots should talk to themselves before flying into weather with a VFR aircraft and talk their over-confident selves out of it and avoid the shuddering.* □

CARGO

Fatalities: 0 ■ Accidents: 0
Injuries: 0 ■ Estimated Costs: \$0

DIVISION

■ CW4 Gerald D. Verbeek, Acting Chief

Four precautionary landings were reported.

CH-47

4 PRECAUTIONARY LANDINGS ■ Aircraft was in flight when pilot felt pitch inputs from both SAS systems. Maintenance officer passenger saw nut fall from SAS closet and identified it as the upper retaining nut on the SAS pitch variable register. Aircraft was landed with minimum control inputs, and repairs were made on ground. Suspect improper torque on lock nuts (adjustment on transducer assembly No. 2 pitch SAS linkage) by avionics personnel. ■ Crewmembers heard thumping sound in aft transmission area during cruise flight. Transmission chip detector light came on and aft transmission oil pressure began steady slow drop to 18 psi. After landing, numerous steel flakes and slivers were found on chip detector plug. Aft transmission (P/N 114D2200-7) had 50 hours remaining to TBO time change. ■ Aircraft had completed landing to miniport when flight engineer noted fuel leaking from No. 2 engine area. O-ring seal failed in fluid pressure filter. Seal was replaced and aircraft was returned to service. ■ No. 1 engine oil low caution light came on during cruise flight. Crew chief confirmed that oil was flowing from No. 1 engine. Engine was secured and aircraft returned to base and landed without incident. No. 1 engine oil filter was improperly installed, resulting in premature failure of O-ring.

ATTENTION CH-54 USERS: Your EIR's have been going to the wrong office in St. Louis. Please address future EIR's to:

Commander
U.S. Army Aviation Systems Command
ATTN: AMSAV-LSA
P. O. Box 209
St. Louis, MO 63166

This is necessary if your EIR is to be processed in the most expedient manner possible. □

FIXED WING

Fatalities: 0 ■ Accidents: 0
Injuries: 0 ■ Estimated Costs: \$915

DIVISION

■ LTC Charles E. Humphries, Chief

One incident and one precautionary landing were reported.

U-21

1 INCIDENT ■ Copilot heard unusual thump from rear of aircraft during takeoff roll. Nothing unusual was noticed by pilot and takeoff was continued. Postflight inspection following 1.6-hour flight revealed one of two fixed dipole antennas mounted on underside of fuselage had separated from aircraft. Antenna was found on runway near an arresting cable. The cable rides 2½ inches above the runway surface, supported by 5-inch-diameter rubber rollers spaced at 10-foot intervals. Antenna tip apparently contacted a 1-inch-wide roller with sufficient force to cause separation of antenna from its mount.

OV-1

1 PRECAUTIONARY LANDING ■ Cockpit filled with smoke during takeoff for test flight. Postlanding check revealed oil on voltage regulator. Regulator was replaced and aircraft released for flight. □

NATIONAL GUARD

Fatalities: 0 ■ Accidents: 0
Injuries: 0 ■ Estimated Costs: \$212

BRIEFS for Month of November

■ LTC Charles E. Humphries
Chief, Fixed Wing Division

One incident, three forced landings, and 25 precautionary landings were reported.

OH-6

1 INCIDENT ■ Lower left windshield was damaged when aircraft struck bird during downwind leg of traffic pattern.

1 FORCED LANDING ■ Engine failed when power was applied for recovery from simulated forced landing during training flight. Fuel pump tube assembly retainer nut had been undertorqued.

3 PRECAUTIONARY LANDINGS ■ Transmission chip detector warning light came on in flight. Postlanding check in open field revealed one large metal particle and numerous metal filings. Suspect bearing failure. ■ Oil chip detector light reportedly came on during training flight. Aircraft was landed in nearby field. Nothing further was reported except that there were no maintenance or materiel deficiencies. It is assumed the magnetic plug for whatever component was affected had accumulated a slight amount of fuzz and that all necessary corrective measures were taken. ■ Engine-out light flashed and audio sounded once during night training flight. Instruments checked normal. Smoke was detected in cockpit, descent was initiated, and engine-out light flashed and audio sounded again. White glow was reflected in chin bubble on left side of aircraft. Fire was suspected and immediate landing was made. Examination revealed harness assembly had grounded after 2.3 hours of operation since installation.

OH-58

2 FORCED LANDINGS ■ Pilot was performing autorotation from hover during transition training and engine failed when he rolled throttle back to idle stop. Cause of failure could not be determined. Disposition of aircraft was not reported. ■ Engine relight warning light came on in flight. Pilot reset warning system and

started precautionary landing. Relight warning light came on a second time at about 50 feet and engine quit at about 5-10 feet. Pilot performed successful forced landing from hover.

1 PRECAUTIONARY LANDING ■ Pilot was hover-taxiing when hydraulic pressure caution light came on. Aircraft was landed. Hydraulic switch failed. EIR not reported.

CH-54

1 PRECAUTIONARY LANDING ■ Engine missed once during flight. Caused by water in fuel system.

OV-1

1 PRECAUTIONARY LANDING ■ Pilot was preparing to land when landing gear indicator indicated right main gear was not locked when gear was extended. Visual inspection by mirror in cockpit confirmed gear was not locked. Gear was recycled with the same results. Pneumatic gear extension system was activated, gear indicated locked, and aircraft was landed. No maintenance or materiel deficiencies were reported. What prevented the gear from locking down normally was not reported.

UH-1

19 PRECAUTIONARY LANDINGS ■ Transmission oil pressure gauge fluctuated. Aircraft was landed at nearest available landing area. Nothing further was reported. ■ Fire warning light came on while aircraft was in holding pattern. Aircraft was immediately landed and examination revealed control alarm (FSN 6340-627-6180) had failed internally. ■ Fire warning light came on during climb for test flight. Visual inspection and test of all components of fire detection system could identify no deficiencies. Condition could not be duplicated. ■ During test flight, following work on tail rotor drive train, tail rotor chip detector warning light came on. Cause has not been determined. ■ Master caution light came on during level flight, with no illumination of segment lights. During approach to open field, left and right fuel boost and engine fuel pump segments came on. Master caution panel was flown to site and installed by maintenance personnel. Maintenance pilot checked aircraft and returned it to home base. ■ Engine oil pressure low warning light came on during cruise flight, followed by loss of engine oil pressure. Twenty pounds of engine oil pressure remained at landing. Postlanding check determined adapter assembly had cracked at welded area, resulting from improper maintenance procedures during installation and/or removal of assembly. ■ Tail rotor chip detector warning light came on during cruise flight. Maintenance and materiel deficiencies were reported negative so it is assumed an accumulation of fuzz caused magnetic plug to activate. ■ Fire detect light came on during training flight. Postlanding examination generated suspicion of fire detect control box unit (FSN 6340-627-9181). ■ Tail rotor chip detector warning light came on intermittently. Caused by fuzz on magnetic plug. Special oil sample was submitted for analysis. ■ No. 1 hydraulic system failed on short final. Caused by failure of cylinder assembly (FSN 1650-183-5949, P/N 204-076-005-11). ■ Engine chip detector light came on for the second time that day. Fuzz was found on magnetic plug. Special oil sample was submitted and aircraft was grounded, pending results of oil analysis. ■ Engine chip detector warning light came on during takeoff. Fuzz was found on magnetic plug. Special oil sample was submitted. Aircraft was run for 15 minutes after plug was cleaned and reinstalled, and then released for flight. ■ Master caution light came on during cruise flight. No segment lights illuminated. Caused by malfunction of master caution panel. ■ Hydraulics failed in cruise flight and running landing was made at destination. Hydraulic line from pump to filter had broken at filter end. ■ While performing practice NDB approach, master caution and hydraulic caution lights came on. Landing was made and examination revealed cracked fitting on hydraulic line. Which line or fitting was not identified. ■ Engine chip detector warning light came on during climb. Metal particles were found on magnetic plug. Oil sample was submitted and aircraft grounded for engine change. Engine history: model T-53 L-11D, 312 hours since overhaul. This aircraft had two engine chip detector light illuminations, resulting in two precautionary landings, several days previous. At that time the aircraft was grounded, pending results of spectroanalysis of special oil sample. The laboratory reported no abnormal wear and aircraft was released for flight 23 flight minutes prior to this precautionary landing. ■ Fire detector light came on during flight and aircraft was landed. Fire detection system was checked and functioned normally. No cause for fire detection light illumination was found. ■ Pilot smelled battery fumes in flight. Immediate landing was made and examination revealed failure of two NICAD battery cells. Battery was disconnected, and aircraft restarted with an APU on authorization of maintenance

officer and flown to home base. Battery had two dead and two weak cells. Suspect aircraft was started with low state of charge, causing reverse polarity in one or more of the weak cells. ■ Crew smelled hydraulic fluid during takeoff. Examination following power-on landing revealed failure of O-ring of filter bypass indicator (FSN 5330-584-1840).

NATIONAL GUARD 360-DAY MISHAP DATA

	Last 30 Days	Last 90 Days	Last 180 Days	Last 360 Days
Injuries	0	1	16	20
Fatalities	0	3	7	7
Dollar Costs	\$212	\$486,975	\$1,601,462	\$1,903,873

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PRELIMINARY ARMY AIRCRAFT MISHAP DATA

FLIGHTFAX

VOL. 2, NO. 11 ■ 19 DECEMBER 1973

mishaps for the period of 30 NOV-6 DEC 1973

US ARMY AVIATION
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*Season's
Greetings*

The personnel of the U.S. Army Agency for Aviation Safety join me in wishing you a Merry Christmas and safe and Happy New Year. We hope 1974 will be a year of accomplishment in your personal and professional lives.

ORVAL

CH-47 ADVISORY MESSAGE

Message 121720Z Dec 73, from Commander, USAAVSCOM, St. Louis, MO, subject: Advisory Message for CH-47A, B, and C Helicopters, is quoted for information:

A. TM 55-1520-209, -PMD, -PMI, and -PMP.

B. TM 55-1520-227, -PMD, -PMI, and -PMP.

1. SUMMARY OF PROBLEM: A number of forward and aft transmission mounting bolts, P/N's 114D2162-1 and -2 respectively, have been found with corrosion and internal cracks. The bolts have been redesigned and procurement is being expedited.

2. Until the redesigned bolts are available the following critical inspection shall be conducted at the next and all subsequent daily, intermediate, and periodic inspection intervals:

Inspect the forward and aft transmission mounting points (four places each) to ensure that the mounting bolts and nuts are in place. Replace all missing or broken hardware.

3. Reference A and B manuals will be revised to reflect the above requirements.

4. Do not arbitrarily replace bolts. Spare bolts are in short supply at this time and unnecessary replacement will result in serious NORS situation.

UTILITY/ATTACK

Fatalities: 0 ■ Accidents: 2
Injuries: 0 ■ Estimated Costs: \$133,000

DIVISION

■ MAJ Charles E. Toomer, Chief

Two accidents, one incident, and 20 precautionary landings were reported.

UH-1

2 ACCIDENTS ■ During slope operation training, aircraft rolled on right side and sustained major damage. There were no injuries and no fire. ■ Aircraft was landed nose low on ridgeline landing zone. As aircraft rocked back pilot took controls and lifted aircraft to hover. Once at hover, pilot felt unusual vibration and lost directional control, spinning approximately 360°. Throttle was closed and aircraft was maneuvered to open field below ridgeline. Upon touchdown, aircraft skidded into dike and rolled on right side. Adverse winds and turbulences along ridgeline were present and possibly contributed to the accident.

18 PRECAUTIONARY LANDINGS ■ Fire detector warning light illuminated in cruise flight. Fire alarm control box (P/N 227-02851) failed. EIR submitted. ■ Master caution light illuminated with all instruments normal and no segment lights on. Fault function indicator panel (P/N 249-100) failed internally. EIR submitted. ■ Pilot noticed slight yawing of aircraft and fluctuation of N1 during climbout and returned to airfield. Suspect fuel control malfunction. EIR submitted. ■ Pilot heard loud popping noise coming from engine while hovering for takeoff. Suspect compressor stall. ■ Aircraft momentarily lost power in cruise flight. Pilot landed at nearest airport. Cause of power loss unknown, pending investigation. ■ Engine chip detector light came on in flight due to normal wear fuzz on magnetic plug. ■ Tail rotor chip detector lights of two aircraft illuminated. One was caused by normal wear fuzz and no cause could be found for the second. ■ Pilot noticed vibration during approach. Vibration increased and immediate landing was made to field. Vibration was caused by failure of 42° gearbox output quill (P/N 204-040-003-35). ■ Six aircraft hydraulic caution lights illuminated, with three experiencing hydraulic pressure loss. Two were caused by failure of irreversible valve (P/N 204-076-0551), one by leaking hydraulic supply line, two by hydraulic pressure switch (P/N 204-076-057-1) failure, and no cause could be determined for the other. ■ Transmission oil pressure dropped to zero during approach. Primary internal transmission oil filter gasket (P/N 48-431-629-1) failed. ■ Transmission chip detector lights of two aircraft came on in flight. Contaminated oil is suspected cause of one illumination and transmission was changed on second aircraft. One EIR submitted.

AH-1

1 INCIDENT ■ During height velocity testing, test pilot chopped throttle at 40 knots, 400 feet, and 9,500 pounds gross weight. Aircraft touched down hard, resulting in incident damage.

2 PRECAUTIONARY LANDINGS ■ No. 1 hydraulic caution light illuminated, along with low grinding noise on downwind of traffic pattern. Cause unknown. ■ No. 2 hydraulic system failed during landing. Servo actuator (P/N 41103740) failed. EIR submitted. □

LOH

Fatalities: 0 ■ Accidents: 0
Injuries: 0 ■ Estimated Costs: \$0

DIVISION

■ LTC David L. Boivin, Chief

Six precautionary landings were reported.

OH-58

5 PRECAUTIONARY LANDINGS ■ Transmission oil pressure warning lights of two aircraft came on in flight. Suspect carbon on pressure switch of one. The other had a faulty low side pressure sensing switch. EIR submitted. ■ Pilot reduced power to start descent from 5,000 feet and when he applied power (40 lbs. torque) to stop descent, N2 dropped to 98 percent. Power was reduced to 30 percent and N2 returned to 103 percent. This same sequence occurred again at 4,500 feet while pilot was making approach to airfield. On short final, N2 decreased to 94 percent as pilot pulled power to terminate approach. Neither MOC nor test flight could duplicate N2 fluctuations. ■ Chip on magnetic plug caused transmission chip detector light to illuminate. During MOC, light came on again and metal fuzz was found on plug. Transmission was flushed and aircraft released for flight. ■ Engine chip detector light came on during hover. Cause unknown. Oil sample was submitted for analysis.

TH-55

1 PRECAUTIONARY LANDING ■ IP noted vibration during hover. Crank case cracked near No. 3 cylinder. EIR submitted.

CRACKACTION: The special inspection of OH-58A servo actuators that was inadvertently deleted from the dash 20 will be reinserted ASAP with the following corrections: Inspection interval will be increased to 100 hours; serial number range of cyclic and collective servo actuators requiring inspection for cracks will be changed to include SN 8383 through 9318. The aircraft manufacturer did not initiate an equipment inspection list (DA Form 2408-18) to indicate a recurring inspection of servo actuators was due. Therefore, all OH-58A helicopters should be reinspected ASAP to insure affected servos have been inspected and records properly annotated. *Cracks have been found in 65 servo actuators;* however, none have been reported since June 1973. Further information is provided in USAAVSCOM Technical Advisory Messages dated 071615Z Dec 73 and 072000Z Dec 73.

THOUGHT FOR THE WEEK

'TIS WHAT SPARKS YOUR ONE AND ONLY FLAME: The OH-58A auto relight system is designed to automatically energize the engine ignition system so that power is supplied to the engine's ignition exciter when a rapid drop of compressor discharge pressure (Pc) occurs due to engine flameout. The system discriminates between Pc encountered during normal engine operation and those Pc's which occur at the following power levels when a flameout occurs: Reignition occurs when engine N2 rpm decreases to 95 ± 1 or N1 rpm drops to 55 ± 3 percent with throttle at full open (governed) position. At other than full open throttle positions, the sensing unit is disabled to prevent erroneous reignition when pilot has rolled throttle on or off. A reignition time delay of 3.5 ± 0.5 seconds is provided after throttle has returned to the full open (governed) position to prevent reignition while rpm is increasing to above 95 percent N2. Also, to avoid power train damage, peak torsional oscillations are allowed to dissipate by delaying reignition for 570 milliseconds after a flameout is sensed. Following this preset time delay, an internal relay is activated to provide power to the engine's ignition exciter for a period of 2.8 ± 1.0 seconds. If a restart is effected by the auto relight system, the ignition is automatically turned off and the system is automatically reset to sense any subsequent flameouts. Should a second flameout occur during a reignition period, power to the ignition exciter will be interrupted for the preset period (570 milliseconds) and then reignition will again be requested. However, if a relight does not occur during the several attempts in one entire cycle (2.8 ± 1.0 seconds) the relight system cannot reset itself for another reignition attempt (because the Pc must be increased sufficiently to reset the system). However, the pilot still has a manual airstarting capability before making the ultimate forced landing. The only other action required on the part of the pilot is to reset (extinguish) the signal light that remains on each time the system functions (either by test or as the result of an actual flameout). Note that the capability of the system to automatically function on subsequent flameouts is not dependent upon the pilot extinguishing the signal light. The new two-position (spring loaded to on) switch cannot deactivate the system—it only resets the signal light. To enable OH-58A pilots to comply with the caution listed in paragraph 2-11, dash 10 (system off above 9,000 feet pressure altitudes to preclude compressor surge), the ignitor circuit breaker (which incorporates the auto relight system) must be pulled. However, pilots should insure this circuit breaker is in below 9,000 feet and when attempting starts. Since the OH-6 has the same engine, its relight system functions similarly to the OH-58A with slight variations due to particular engine/aircraft combinations. Regard your one and only flame with understanding or your demands may only receive the whisper of sweet nothin's—instead of the roaring sound of a healthy engine! □

Fatalities:0 ■ Accidents:0
Injuries:0 ■ Estimated Costs:\$0

CARGO

DIVISION

■ CW4 Gerald D. Verbeek, Acting Chief

Three precautionary landings were reported.

CH-47

2 PRECAUTIONARY LANDINGS ■ During instrument approach, CE saw hydraulic leak at utility pressure filter. Inspection revealed O-ring (FSN 5330-804-5695) was damaged at installation. ■ No. 2 engine fire light illuminated in flight. Engine was shut down and landing was made. Investigation revealed No. 2 engine fire detector element was chafed.

CH-54

1 PRECAUTIONARY LANDING ■ Second stage servo caution light came on during hover. Caused by defective pressure switch (FSN 5930-458-9517). EIR submitted. □

FIXED WING DIVISION

US ARMY AVIATION
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Fatalities: 0 ■ Accidents: 0
Injuries: 0 ■ Estimated Costs: \$0

■ LTC Charles E. Humphries, Chief

Five precautionary landings were reported.

OV-1

3 PRECAUTIONARY LANDINGS ■ Right side entrance hatch blew open during takeoff. Postlanding examination could detect no malfunctions or failure of hardware. ■ Pilot was preparing to land at destination during IFR training flight when No. 2 engine chip detector warning light came on. Magnetic plug and oil screens were cleaned, engine was restarted, and warning light did not illuminate. Approximately 30 minutes after departure, warning light came on again. Aircraft was again landed, magnetic plug and screens cleaned, engine drained and flushed, and oil cooler line removed and inspected. Engine was serviced and operationally checked, and aircraft was flown to home base without further incident. When screens were examined at home base, sufficient metal particles were found to require engine change. ■ No. 2 engine was shut down during aviator standardization training and failed to restart. Postlanding check revealed N1-N2 shaft clearance may have been inadequate.

T-42

1 PRECAUTIONARY LANDING ■ When gear handle was placed in down position during approach for landing, green light illuminated, indicating gear was down. However, nose wheel position indicator showed nose wheel was still in up position. Gear was recycled and emergency gear extension system was used, but nose gear still indicated up. Tower personnel reported all gear appeared down during flyby so crew, having exhausted ways of getting a complete down-and-locked indication, landed safely. Retaining nut (P/N A1872-012-1) had backed off nose wheel landing gear indicator link, causing up indication regardless of landing gear position.

U-3

1 PRECAUTIONARY LANDING ■ Aircraft developed slight vibration during liftoff and required considerable left aileron. Copilot noticed front portion of anti-ice panel had come loose. Caused by improperly fastened dzus fasteners.

U-21 OPERATORS' NOTICE

A message from Commander, USAAVSCOM, dated 51900Z Dec 73, requests implementation of MWO 55-1510-209-30/26, installation of propeller low stop proximity switch and sensor (U-21A, JU-21A, RU-21A, RU-21D), be held in abeyance until further notice. Several U-21 units have experienced premature failure of solid state switch (P/N 2-899-111-3) shortly after incorporating above MWO. An engineering investigation to determine the exact cause of failures is underway.

CHECK THAT PITOT HEAT

If you are going to fly IFR or you suspect there is a possibility of icing or other requirement for pitot heat before starting your engine, have your fire guard physically check for heat by feeling the pitot tube. Be aware of the proper method of operating pitot heat while the aircraft is on the ground. □

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FLIGHT FAX

VOL. 2, NO. 12 ■ 26 DECEMBER 1973

mishaps for the period of 7-13 DECEMBER 1973

① APPROVED FUELS ②

SOURCE	PRIMARY OR STANDARD FUEL	ALTERNATE FUEL	
U.S. MILITARY FUEL	JP-4 (MIL-T-5624)	JP-5 (MIL-T-5624)	
NATO CODE NO.	F-40 (WIDE-CUT TYPE)	F-44 (HIGH FLASH TYPE)	
COMMERCIAL FUEL (ASTM-D-1655) AMERICAN OIL CO. ATLANTIC RICHFIELD RICHFIELD DIV. B.P. TRADING CALTEX PETROLEUM CORP. CITIES SERVICE CO. CONTINENTAL OIL CO. GULF OIL EXXON CO. USA MOBIL OIL PHILLIPS PETROLEUM SHELL OIL SINCLAIR STANDARD OIL CO. CHEVRON TEXACO UNION OIL	JET B AMERICAN JP-4 ARCOJET B B.P.A.T.G. CALTEX JET B CONOCO JP-4 GULF JET B EXXON TURBO FUEL B MOBIL JET B PHILJET JP-4 AEROSHELL JP-4 CHEVRON B TEXACO AVJET B UNION JP-4	JET A AMERICAN TYPE A ARCOJET A RICHFIELD A CITGO A CONOCO JET-50 GULF JET A EXXON A MOBIL JET A PHILJET A-50 AEROSHELL 640 SUPERJET A JET A KEROSENE CHEVRON A-50 AVJET A 76 TURBINE FUEL	JET A-1/NATO F-34 ARCOJET A-1 RICHFIELD A-1 B.P.A.T.K. CALTEX JET A-1 CONOCO JET-60 GULF JET A-1 EXXON A-1 MOBIL JET A-1 AEROSHELL 650 SUPERJET A-1 JET A-1 KEROSENE CHEVRON A-1 AVJET A-1
FOREIGN FUEL BELGIUM CANADA DENMARK FRANCE GERMANY (WEST) GREECE ITALY NETHERLANDS NORWAY PORTUGAL TURKEY UNITED KINGDOM (BRITAIN)	NATO F-40 BA-PF-2B 3GP-22F JP-4 MIL-T-5624 AIR 3407A VTL-9130-006 JP-4 MIL-T-5624 AA-M-C-1421 JP-4 MIL-T-5624 JP-4 MIL-T-5624 JP-4 MIL-T-5624 JP-4 MIL-T-5624 D. ENG RD 2454	NATO F-44 3-6P-24e UTL-9130-007/UTL 9130-010 AMC-143 D. ENG RD 2493 D. ENG RD 2498	

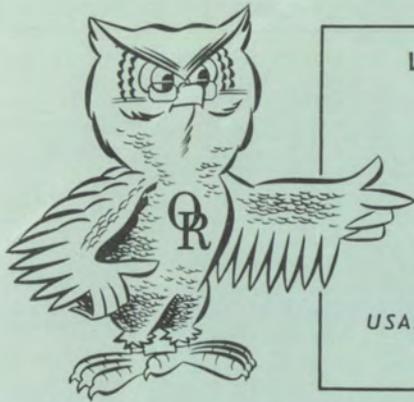
NOTE

Anti-icing and Biocidal Additive for Commercial Turbine Engine Fuel—The fuel system icing inhibitor shall conform to MIL-I-27686. The additive provides anti-icing protection and also functions as a biocide to kill microbial growths in aircraft fuel systems. Icing inhibitor conforming to MIL-I-27686 shall be added to commercial fuel, not containing an icing inhibitor, during refueling operations regardless of ambient temperatures. Refueling operations shall be accomplished in accordance with accepted commercial procedures.

WHAT IF JP-4 IS NOT AVAILABLE? What type of fuel should a pilot attempt to obtain and use if his turbine engine aircraft's primary fuel (JP-4) is not available? Reference should be made to the applicable dash 10 operator's manuals for priority fuel usage. The information on the chart is currently being prepared for inclusion in all dash 10 operator's manuals. (The appropriate dash 10 manuals for those aircraft with T55-L-7 series engines will incorporate their own peculiar APPROVED FUELS chart.)

This chart will replace the tables of approved fuels currently printed in dash 10 manuals. TB 55-9150-200-25 (Engine and Transmission Oils, Fuels, and Additives for Army Aircraft) is also being changed to include the information on this chart. It is recommended that a copy of the chart, with note, be inserted in each log book of turbine-powered aircraft.

If the engine manufacturer recommends U.S. Military JP-4 as the primary fuel and it is not available, use one of the approved commercial fuels listed under column 1, "Jet B," ahead of alternate fuels in column 2. Questions regarding chart information should be addressed to Commander, USAAVSCOM, ATTN: AMSAV-FKP, St. Louis, MO 63166.



LOSS OF COMBAT EFFECTIVENESS FROM THIS WEEK'S MISHAPS

FATALITIES: 2
INJURIES: 1
AIRCRAFT LOSSES: 1
ESTIMATED COSTS: \$2,135,278

USAAAVS: AUTOVON 558-6510/4714
Commercial AC 205, 255-6510/4714

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UTILITY/ATTACK

Fatalities: 0 ■ Accidents: 0
Injuries: 0 ■ Estimated Costs: \$75,000

DIVISION

■ MAJ Charles E. Toomer, Chief

Two incidents and 25 precautionary landings were reported.

UH-1

1 INCIDENT ■ Main rotor blades struck tree during landing to confined area, damaging both blades.

23 PRECAUTIONARY LANDINGS ■ Engine torque pressure dropped to zero and transmission oil pressure fluctuated between 30 and 60 psi during climbout. All other instruments remained normal. Torque pressure gauge and transmission oil pressure gauge failed. EIR submitted. ■ In straight and level flight, instructor pilot heard three loud noises, followed by yawing and pitching of aircraft. Landing was made with power. Suspect compressor stall. ■ Engine made unusual noise during landing. Bleed-air actuator (P/N 1-170-050-09) failed. EIR submitted. ■ Engine rpm dropped to 6200 and N1 stabilized at 60 percent. Instructor performed emergency procedures for underspeeding N1 governor and returned to airport. Suspect governor failure. WELL DONE to CW2 R. C. Hoult. ■ Transmission oil hot light illuminated on downwind. After landing, sending unit was found loose. ■ Collective bounce was encountered in cruise flight. Cause unknown. ■ Engine oil pressure caution light illuminated in flight. Engine oil pressure switch (P/N 218-50A) failed. EIR submitted. ■ Hydraulic caution lights of three aircraft illuminated, with two aircraft having pressure loss. Hydraulic pressure switch (P/N 204-076-057-1) failed on one aircraft and irreversible valves failed internally on the other two. EIR's submitted. ■ Engine fuel pump warning lights of three aircraft illuminated. Malfunction of warning system is suspected cause of one illumination; failure of fuel pumps is suspected cause of the second; and defective pressure switch caused the third. ■ Engine chip detector lights of two aircraft came on. Both were caused by normal metal wear fuzz on magnetic plug. ■ Transmission chip detector light came on during hover. Main transmission was changed due to high metal content of oil. EIR submitted. ■ Transmission oil pressure lights of four aircraft illuminated. Two were caused by rupture of transmission oil lines due to chafing and one by defective pressure switch. Transmission oil was lost from fourth aircraft through an open drain valve. Two EIR's submitted. ■ Fire warning light came on during cruise flight. Caused by short in wiring. ■ Engine oil pressure rose above red line during cruise flight and instructor pilot landed. Caused by failure of oil cooler fan bearings (P/N 9103PP ANG 25, 9103NPP, and 9101NPP FS 160). EIR submitted. ■ Tail rotor chip detector light came on in cruise flight. Small metal particles were found on magnetic plug of 90° gearbox.

AH-1

1 INCIDENT ■ After firing a pair of inert 2.75-inch rockets, rock that was thrown into air by rockets came down through rotor system, damaging leading edge of left stub wing. Pilot initiated pullout at approximately 400 feet and was BELOW 100 FEET when incident occurred.

2 PRECAUTIONARY LANDINGS ■ Aircraft experienced compressor stall in cruise flight. Cause unknown at this time. ■ Engine chip detector light illuminated in flight. Caused by normal metal wear fuzz on magnetic plug. □

LOH

Fatalities: 0 ■ Accidents: 1
Injuries: 1 ■ Estimated Costs: \$21,604

DIVISION

■ LTC David L. Boivin, Chief

One accident, two incidents, two forced landings, and six precautionary landings were reported.

OH-58

1 ACCIDENT ■ Pilot made clearing turn to right after bringing aircraft to hover over parking ramp. During turn, main rotor blades of OH-58 struck main rotor blade of UH-1H parked behind the LOH. Main rotor system and transmission separated from OH-58 airframe and struck left cargo door of UH-1H. OH-58 came to rest in upright position with both skids spread and right chin bubble broken. Passenger received bruised right shoulder. (See Thought for the Week)

2 FORCED LANDINGS ■ During cruise flight at 600 feet agl, *engine-out light* illuminated, then went off. Three seconds later, *engine-out light* came on again and stayed on. Autorotation was made to highway after engine failed. Aircraft was equipped with an auto-relight system which failed to operate. Fuel samples taken from main fuel sump (after aircraft was stored in heated hangar) revealed high water content. Since the engine's operation was normal after the fuel system was flushed, it is suspected that fuel starvation was caused by water forming an ice blockage in the fuel system somewhere prior to the engine-driven fuel pump. This excessive water accumulation probably occurred while aircraft was hanged with a partially full fuel cell. *It should be noted that the auto-relight may have functioned as evidenced by the flickering of the engine-out light. However, it is no "match" for contaminated fuel (see 9-15 November issue of Flightfax's "Thought For The Week").* A WELL DONE for a successful emergency power-off dusk landing goes to CW2 Thomas J. Mocker, Ft. Wainwright, Alaska. ■ Five gallons of fuel had been put into aircraft to check for leaks after installation of new fuel cell. After inspection, pilot elected to fly aircraft 75 feet to refueling point. Two minutes later and half way to the refueling site, engine failed due to fuel starvation. *Mathematically speaking, it is difficult to figure how one can take 5 gallons of fuel minus 1.2 nonusable gallons and hope to complete engine start, runup, and test with enough fuel left over to safely hover 75 feet. Guess the pilot didn't notice the 20-minute fuel caution light on startup, or maybe he did, but thought he had 20 minutes of flight remaining???* Fortunately, this lack of professionalism didn't result in a tragedy!

3 PRECAUTIONARY LANDINGS ■ Pilot made running landing after experiencing hydraulics failure in flight. EIR submitted on hydraulic pump malfunction. WELL DONE to 1LT Ludwig Stockl of the 708th Maintenance Battalion, Germany. ■ Two loud bangs were heard in transmission area during flight. Aircraft was released for flight when MOC and test flight failed to duplicate the sounds. ■ Normal accumulation of metal fuzz on magnetic plug caused tail rotor chip detector light to illuminate.

TH-55

2 INCIDENTS ■ Main rotor blades flexed down and struck tail boom tube during termination of PRACTICE 180° TOUCHDOWN AUTOROTATION. ■ IP and SP found right strut assembly bent upward excessively during afternoon preflight. Cause unknown as morning IP had signed his flights (with included touchdown autorotations and hovering landings) off without reference to the damage.

3 PRECAUTIONARY LANDINGS ■ Aircraft was seen to be emitting smoke from rear of engine area during approach. EIR submitted on failure of No. 2 cylinder assembly (which is being replaced). ■ Transmission warning light illuminated during cruise flight. Aircraft was released for flight after MOC failed to duplicate situation. ■ Loose wire caused engine chip detector light to illuminate during flight.

THOUGHT FOR THE WEEK

BIRDS OF A FEATHER DON'T STRIKE TOGETHER. See bird. Se bird fly! See bird have accident? It is doubtful that you have been a witness to a feather pluckin' accident even though some of them get bruised from making pretty weird landings. However, that's attributed to design error. Birds may get buffeted and battered in unforeseen thunderstorms or pounded with hail, sleet, or snow, but those are weather factors. When a youngster gets ruptured because his mama pushed him out of the nest too soon, that's an example of supervisory error. When a bird can't fly because of a broken wing, there must be deficiencies in the area of maintenance and materiel. An example of bird fatigue is when WOODY WOOD overdoes himself by banging too many trees which results in a sore pecker. These are accidents with definite cause factors, but what about just plain ole bird brain accidents with no rationale such as when a bird goes crashing to the ground because he didn't pay attention to the task at "wing" and quits flapping; or he doesn't watch where he is going and strikes a tree; or he flies into wires because he is lower than he should be; or he blunders about while hovering and clobbers into his feathered friends. Have you ever seen the like? I doubt it! Then why is it that this inferior creature with only a bird brain that can't read, reason or benefit from the experience of others, has little knowledge other than instinct and lacks formal training other than his mama's teachings, flies through life without having accidents? And why is it that we civilized, thinking, reasoning sophisticated human beings do???? □

CARGO

Fatalities: 0 ■ Accidents: 0
Injuries: 0 ■ Estimated Costs: \$0

DIVISION

One precautionary landing was reported.

■ CW4 Gerald D. Verbeek,
Acting Chief

CH-47

1 PRECAUTIONARY LANDING ■ No. 1 engine chip detector light illuminated during sling-load operation. Aircraft was landed in confined area. Normal wear was found on chip detector plug. Plug was replaced and aircraft released for flight. □

FIXED WING

Fatalities: 2 ■ Accidents: 2
Injuries: 0 ■ Estimated Costs: \$2,038,674

DIVISION

Two accidents, one incident, and four precautionary landings were reported.

■ LTC Charles E. Humphries, Chief

OV-1

1 ACCIDENT ■ Approximately 4 minutes after takeoff on IFR SLAR mission, aircraft crashed and burned, resulting in fatal injuries to two crewmembers and total loss of aircraft. Statement of witness indicated possible in-flight fire. Investigation continues.

U-10

1 ACCIDENT ■ Following 1.5-hour VFR service flight, as aircraft was in process of landing rollout, nose started drifting left. Pilot initiated recovery action with full right rudder and right brake. Aircraft continued drifting left with right brake locked. Right main gear collapsed, resulting in sudden stoppage of the engine and damage to right gear, right wing, and propeller.

U-21

1 INCIDENT ■ As power was applied and aircraft started takeoff roll for VFR training flight, it drifted right and IP noted power differential and advised pilot to equalize power. Power was equalized and aircraft started to straighten out. At 75-80 knots, IP noted pilot had almost full left rudder. IP took

aircraft and pulled power, using left rudder, left brake, and reverse on No. 1 engine to keep aircraft on runway. Right main gear tire was completely torn up and wheel was partially ground flat. From indications of tire and wheel marks on runway, suspect partial brake seizure. Aircraft had been flown 1.1 hour that morning prior to this flight.

1 PRECAUTIONARY LANDING ■ Landing gear failed to retract after takeoff. Circuit breaker and relay were checked and gear recycled with no results. Gear handle was then placed down and aircraft landed. Examination determined adapter switch activator (FSN 5930-636-4883) had stuck. Switch was replaced.

C-7

1 PRECAUTIONARY LANDING ■ No. 2 engine began to run rough during cruise flight. Mixture was moved to rich and black smoke and fire were seen coming from exhaust. Engine was shut down and propeller feathered. Postlanding examination at nearby intermediate airport revealed No. 1 cylinder of No. 2 engine had failed.

C-47

1 PRECAUTIONARY LANDING ■ No. 1 engine began to run rough in cruise flight. Engine temperatures and pressures were normal. Engine was secured and aircraft returned to home base for landing. Inspection of oil screen revealed excessive metal particles. Engine change is required. Time since overhaul is 77 hours. Power setting: 21 inches Hg/2050 rpm.

U-8

1 PRECAUTIONARY LANDING ■ As power was reduced to cruise after takeoff, No. 1 engine started losing power and rpm. This condition continued as aircraft was returned to point of departure and landed. Caused by failure of fuel injector pump (FSN 2915-860-9462). Power setting: 31 inches Hg/2750 rpm.

OV-1 INVENTORY

The requirement to inventory assigned aircraft property every 12 months is correct as shown in TM 55-1510-204-20/1, Chapter 3, page 3-18G/3-18D, dated February 1970. The 23-month interval shown in TM 38-750, paragraph 4-16C, dated November 1972, is in error. A forthcoming change to TM 38-750 will reflect a requirement to inventory assigned aircraft property after 12 months' elapsed time since the last inventory.

FIXED WING 360-DAY MISHAP DATA

	Last 30 Days	Last 90 Days	Last 180 Days	Last 360 Days
Injuries	0	0	0	4
Fatalities	2	2	4	19
Dollar Costs	\$2,039,539	\$2,331,748	\$4,412,210	\$5,674,455

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FLIGHTFAX/7-13 DECEMBER 1973



FLIGHTFAX

VOL. 2, NO. 13 ■ 9 JANUARY 1974

mishaps for the period of 14-27 DECEMBER 1973

ICING INHIBITOR REQUIREMENTS

SUBJECT: Safety of Flight Operational Message for Icing Inhibitor Requirement While Using Commercial Jet Turbine Fuels

1. An OH-6A major accident with injuries occurred recently involving the use of commercial type Jet A fuel without the required icing inhibitor additive. It is strongly suspected that fuel icing conditions caused engine failure leading to the accident.

2. Units operating jet turbine aircraft should bring to the attention of all personnel the procedures, cautions, and requirements for adding icing inhibitor to all commercial type jet fuels (which normally do not contain such additives).

3. The following change is currently being made to TB 55-9150-200-25 and appropriate dash 10's and is applicable to present operations:

"The fuel system icing inhibitor shall conform to MIL-I-27686. The additive provides anti-icing protection and also functions as a biocide to kill microbial growths in aircraft fuel system. Icing inhibitor conforming to MIL-I-27686 shall be added to commercial fuel not containing an icing inhibitor during refueling operations regardless of the ambient temperatures," repeat, regardless of ambient temperatures. "Refueling operations shall be accomplished in accordance with accepted commercial procedures." The above quoted information is from USAAVSCOM Power Plants Branch letter, dated 16 November 1973, which approved the pending change.

4. Questions regarding this change should be addressed to commander, USAAVSCOM, ATTN: AMSAV-RKP, St. Louis, Missouri 63166.

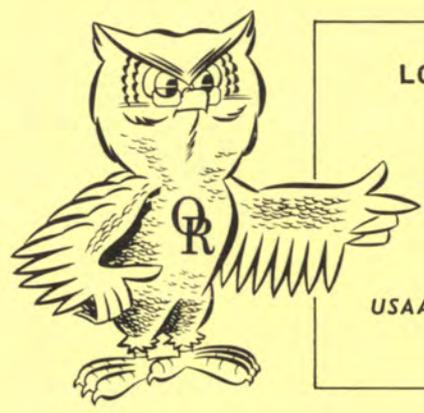
CH-47 SAFETY-OF-FLIGHT ADVISORY MESSAGE

Message 211830Z Dec 73, from Commander, USAAVSCOM, St. Louis, MO, subject: CH-47-1973-1 Safety-of-Flight Advisory Message (Operational) for CH-47A Aircraft, is quoted for information:

1. We have received additional data on the

CH-47A ISIS System that shows that the ISIS indicators must be checked at 2½-hour intervals rather than 10 hours, as originally determined.

2. In forthcoming change to TM 55-1520-209-10, Change 6, paragraph 3, the references to 10-hour maximum interval between ISIS indicator inspections will be changed to 2½ hours maximum.



LOSS OF COMBAT EFFECTIVENESS FROM THIS WEEK'S MISHAPS

FATALITIES:	0
INJURIES:	2
AIRCRAFT LOSSES:	0
ESTIMATED COSTS:	\$56,119

USAAAVS: AUTOVON 558-6510/4714
Commercial AC 205, 255-6510/4714

U.S. ARMY AGENCY FOR AVIATION SAFETY FORT RUCKER, AL 36360

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UTILITY/ATTACK

Fatalities: 0 ■ Accidents: 0
Injuries: 0 ■ Estimated Costs: \$25,000

DIVISION

■ MAJ Charles E. Toomer, Chief

Five incidents, two forced landings, and 27 precautionary landings were reported.

UH-1

3 INCIDENTS ■ Main rotor blades of three aircraft struck trees. One incident occurred during hover and two during landings in confined areas.

1 FORCED LANDING ■ Engine failed in traffic pattern. Suspect fuel starvation. Fuel quantity gauge was inoperative and 20-minute fuel light did not illuminate.

21 PRECAUTIONARY LANDINGS ■ Tail rotor chip detector lights of four aircraft came on. One was caused by failure of magnetic plug and three by normal metal wear fuzz on magnetic plug. ■ Unusual vibration occurred during simulated tail rotor failure. Caused by FM antenna mount which moved because of missing screw. ■ Hydraulic pressure warning light came on in flight with no loss of pressure. Pressure switch replaced. ■ Engine fuel warning lights of two aircraft illuminated. Damaged fuel pumps were found on both. ■ Engine chip detector lights of three aircraft illuminated. Normal metal wear fuzz was found on all three. ■ Crew detected what seemed to be fuel fumes. Engine-cleaning solvent was found to have leaked into cargo compartment. ■ Transmission chip detector light came on during landing. Magnetic plug replaced. ■ Crew chief saw oil spray from 42° gearbox area. Input quill seal failed and oil was lost. ■ During simulated hydraulics-off landing, power could not be reduced below 15 psi torque. Worm gears were adjusted in torsion/tension straps and aircraft was released for flight. ■ Aircraft vibrated for 2 minutes in flight. No. 4 tail rotor hanger bearing failed. ■ Engine oil pressure gauge fluctuated in flight. Oil pressure indicator replaced. ■ Pilot experienced control feedback in cyclic during takeoff. Caused by tight bolt on cyclic servo. ■ Fire warning lights of two aircraft illuminated in flight. Electrical short in detector system caused one illumination and ice caused the other. ■ Loud bang was heard in engine compartment. Cause unknown.

AH-1

2 INCIDENTS ■ Two aircraft were damaged by severe mast bumping and pylon rock during termination of practice autorotation.

1 FORCED LANDING ■ Engine quit during hover. Suspect fuel starvation.

6 PRECAUTIONARY LANDINGS ■ Aircraft developed severe 1:1 vertical vibration. One main rotor feather bearing failed. ■ Aircraft struck tree. No damage. ■ Engine oil temperature exceeded red line on two aircraft. One was caused by loose cannon plug. The cause of the other is undetermined. ■ Tail rotor chip detector light came on. Small piece of metal was removed from 90° gear magnetic plug. ■ Transmission oil temperature rose to 110° C. Cause undetermined. □

LOH

Fatalities: 0 ■ Accidents: 1
Injuries: 2 ■ Estimated Costs: \$30,119

DIVISION

■ LTC David L. Boivin, Chief

One accident, one incident, and 13 precautionary landings were reported.

OH-58

8 PRECAUTIONARY LANDINGS ■ Engine oil bypass light illuminated due to oil loss from broken oil pressure line (compressor to accessory gearbox). EIR submitted. ■ Engine flamed out immediately after aircraft entered UNFORECAST snowing conditions at night. IP manually restarted engine after entering autorotation. Aircraft was NOT equipped with auto relight system nor reverse flow inlets. ■ Transmission oil pressure warning light illuminated. No faults could be detected; however, the system pressure was adjusted from 45.5 to 50.5 psi. ■ Normal accumulation of metal fuzz on magnetic plug caused engine chip detector light to illuminate. ■ Carbon buildup on magnetic plug caused transmission chip detector light to illuminate. ■ Aircraft was grounded pending oil analysis after metal fuzz accumulation on magnetic plug caused transmission chip detector light to illuminate twice within 14 flight hours. ■ Tail rotor chip detector lights of two aircraft came on. Caused by normal wear of metal.

OH-6

1 ACCIDENT ■ Pilot autorotated aircraft to residential street after he noted engine-out warning light and audible signal. Landing gear collapsed, main rotor blades were damaged, and tail boom was severed. Suspect engine failure due to possible fuel icing. *Type Jet A fuel was being used with no icing inhibitor added.*

3 PRECAUTIONARY LANDINGS ■ Complete loss of electrical power was experienced after pilot noticed cockpit light dimming. Generator was recycled with all nonessential electrical equipment turned off. Generator reverse current cutout and relay failed. EIR not reported. ■ Oil splattered windshield. Caused by loose torquemeter line. ■ Normal accumulation of metal fuzz on magnetic plug caused transmission chip detector light to come on.

TH-55

1 INCIDENT ■ Solo student found tail rotor blade tips damaged (from runway contact) during afternoon preflight. Cause unknown as morning IP had signed both student flights (which included touchdown autorotations) off without reference to damage.

2 PRECAUTIONARY LANDINGS ■ Airspeed indicator failed in flight. EIR submitted. ■ Failure of main rotor damper assembly caused excessive vibrations during PRACTICE AUTOROTATIVE DESCENTS. EIR submitted.

THOUGHT FOR THE WEEK

A "COLD AND WET ONE" CAN HANG IT UP: One very cold day about this time last year, a maintenance officer was attempting to perform a 3-day runup on an aircraft that had been left outside during a preceding rainstorm. During engine start procedures, the main mast sheared off! It is suspected that water (which was later found in the transmission) formed ice which held the gears, causing the spray clutch to make a violent engagement. Field units have recently been reporting water-contaminated oil in the OH-58A transmission, especially now that the wet season is upon most of us. Three rectangular holes in the base of the swashplate support assembly serve as drain ports in the event water enters between the main mast and support assembly. During preflight, pilots can see two of the three holes, located at the 6, 9, and 12 o'clock positions. Though not mandatory, pilots should insure these holes are open and free of any sealants or foreign matter. If holes are found plugged, transmission oil should be checked for water contamination (which requires a transmission flush). **DON'T HANG IT UP!!!** □

CARGO

Fatalities: 0 ■ Accidents: 0
Injuries: 0 ■ Estimated Costs: \$0

DIVISION

■ CW4 Gerald D. Verbeek, Acting Chief

Four precautionary landings were reported.

CH-47

4 PRECAUTIONARY LANDINGS ■ Master caution light came on due to low oil pressure indication for No. 1 engine transmission. Engine was secured and single-engine landing performed without incident. Caused by dirty electrical contacts at oil pressure transducer. Contacts were cleaned and aircraft returned to service. ■ Aircraft was on downwind when No. 1 engine was placed in ground to simulate engine failure. No. 2 engine assumed the load and stabilized with normal power settings. On base, engine torque was reduced to 680 pounds. Egt stabilized at 590°, and engine oil pressure and temperature were normal. After approximately 10 seconds at these settings, loud pop was heard and aircraft shuddered. All cockpit instruments were normal with the exception of No. 2 engine torque, which was dropping. No. 1 engine was returned to flight and landing was made without further mishap. No. 2 engine was secured on rollout. Postflight inspection revealed that all turbine blades on the first stage power turbine wheel were missing from one-fourth to one-half their original length. All blades on the second stage power turbine wheel were completely sheared. There was no damage to airframe. Cause of failure unknown. ■ Aircraft was on downwind when transmission chip detector light illuminated. Landing was completed and, during shutdown, grinding sound was heard from forward transmission. Cause unknown. ■ Lateral cyclic became stiff during landing. Suspect binding magnetic brake, P/N 114CS117-2. □

US ARMY AVIATION

FIXED WING

SCHOOL LIBRARY

Fatalities: 0 ■ Accidents: 0
Injuries: 0 ■ Estimated Costs: \$1,000

DIVISION

■ LTC Charles E. Humphries, Chief

One incident, one forced landing, and five precautionary landings were reported.

T-42

1 INCIDENT ■ While practicing night landings, aircraft contacted runway before pilot expected it to. Aircraft bounced and pilot executed go-around. After four additional landings, flight was terminated at airfield. No. 2 propeller blades were found bent during postflight inspection.

T-41

1 FORCED LANDING ■ Engine began running rough in flight. Rpm dropped from 2300 to 2000 and pilot attempted to return to airfield. Rpm dropped to 1600 and pilot landed in open soybean field.

OV-1

1 PRECAUTIONARY LANDING ■ During practice ILS approach, as pilot applied power to 45 pounds torque and 1600 rpm to begin a missed approach, No. 1 engine seized. Engine history: 1,013 hours total time, 332 hours since overhaul.

U-1

1 PRECAUTIONARY LANDING ■ Generator failed in flight. Weather was deteriorating so pilot elected to land in open area rather than attempt to remain VFR in extremely marginal weather.

U-8

1 PRECAUTIONARY LANDING ■ During test flight, landing gear was cycled as portion of test flight procedures. Right main landing gear indicated unsafe so landing gear was recycled, but light in gear handle indicated gear in transit. Visual check by tower personnel during flyby confirmed unsafe gear position. Manual gear extension was attempted with right gear remaining in an unsafe position. Pilot then touched aircraft down lightly on runway which forced right gear into locked position, confirmed by safe gear indication and visually by tower personnel.

U-21

1 PRECAUTIONARY LANDING ■ While holding for landing from IFR service mission, No. 1 engine failed and propeller feathered. No. 2 engine then began to surge between 300 and 1,200 pounds torque. Right fuel no-transfer light came on intermittently during flight. After landing, both nacelle tanks were found to be empty. Both wing tanks contained approximately 23 gallons of fuel. Suspect failure of both fuel transfer sensing units and left fuel no-transfer warning light.

C-47

1 PRECAUTIONARY LANDING ■ Engine (which one was not identified) began running rough during descent, with intermittent after-fire. Suspect spark plug fouling, accompanied by carburetor ice. □

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PRELIMINARY ARMY AIRCRAFT MISHAP DATA

FLIGHT FAX

VOL. 2, NO. 14 ■ 16 JANUARY 1974

mishaps for the period of 28 DEC 1973-4 JAN 1974

US ARMY AVIATION
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OH-58 SAFETY-OF-FLIGHT MESSAGE

Safety-of-flight "inspection of link assemblies on OH-58A helicopters"
TB 55-1520-228

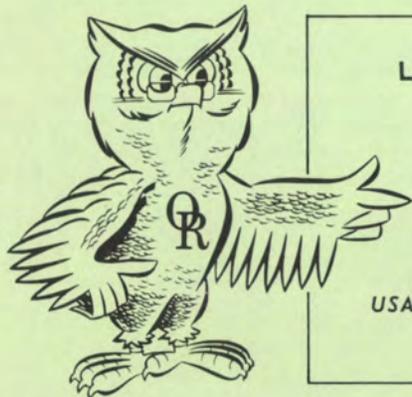
Purpose of the message is to establish a 50-hour recurring x-ray or fluorescent penetrant inspection on the OH-58A main transmission pylon link assemblies and to require all links having 50 hours or more since new or last inspected to be immediately inspected. Confirmation of a cracked link on an OH-58A necessitated the inspection. Action has been initiated to replace the aluminum links with a new improved steel link with availability expected in 8 months. Complete details are provided in USAAVSCOM safety-of-flight message dated 032045Z Jan 74.

AIRCREW PROTECTIVE CLOTHING, SURVIVAL AND LIFE SUPPORT EQUIPMENT AUTHORIZATION

Distribution has been made on a new Common Table of Allowances (CTA) No. 50-900, dated 15 November 1973. This CTA prescribes unit and individual allowances of survival and life support clothing and equipment to be procured with appropriated funds. CTA 50-900, together with AR 700-84, CTA 50-906, CTA 60-18, SB 8-100, and SB 700-50, constitutes the only Department of the Army authorization documents for this equipment.

CTA 50-900, dated 15 November 1973, supersedes CTA 50-901, 17 February 1971; CTA 50-902, 28 August 1972; CTA 50-903, 16 September 1971; CTA 50-904, 28 October 1971; CTA 50-905, 21 January 1972; CTA 50-914, 29 September 1972; so much of CTA 50-915, 15 October 1973, as pertains to individual equipment and insignia for civilian guards; DA message, ACSFOR OT AU ACT, 242154Z May 1971, "Interim Change to CTA 50-901"; DA message DAFD-DOA-AC, 092009Z May 1973, "Change to CTA 50-914"; DA message, DAFD-DOA-AC, 152107Z Jun 1973, "Change to CTA 50-914"; DA Circular 40-96, 27 November 1972; DA message, DAFD-DOA-AC, 272227Z Feb 1973, "Athletic Uniforms for WAC Personnel"; DA message DAFD-DOA-AC, 26-1558Z Jul 1973, "Athletic Uniforms for WAC Personnel"; and DA message, DAFD-DOA-AC, 011541Z Aug 1973, "Armored or Combat Vehicle Crewman's (AVC/CVC) Uniform."

NATIONAL GUARD BRIEFS—page 3



LOSS OF COMBAT EFFECTIVENESS FROM THIS WEEK'S MISHAPS

FATALITIES:	0
INJURIES:	0
AIRCRAFT LOSSES:	0
ESTIMATED COSTS:	\$29,000

USAAAVS: AUTOVON 558-6510/4714
Commercial AC 205, 255-6510/4714

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UTILITY/ATTACK

Fatalities: 0 ■ Accidents: 0
Injuries: 0 ■ Estimated Costs: \$0

DIVISION

■ MAJ Charles E. Toomer, Chief

Two precautionary landings were reported.

UH-1

2 PRECAUTIONARY LANDINGS ■ Pilot felt cyclic feedback in cruise flight. Irreversible valve (P/N 204-07-0551) failed. ■ Engine chip detector light illuminated. Master caution panel (P/N 204-075-705-45) was found defective and replaced. EIR submitted. □

LOH

Fatalities: 0 ■ Accidents: 0
Injuries: 0 ■ Estimated Costs: \$0

DIVISION

■ LTC David L. Boivin, Chief

Two precautionary landings were reported.

OH-58

1 PRECAUTIONARY LANDING ■ Transmission chip detector failure caused caution light to illuminate. EIR submitted.

OH-6

1 PRECAUTIONARY LANDING ■ Metal fuzz on magnetic plug caused tail rotor chip detector light to come on in flight. Oil sample submitted to ARADMAC for analysis.

THOUGHT FOR THE WEEK

ARMY PILOTS DO IT TOO! It's been said that pilots have unique ways of doing things! Well, it's time for Army aviators to say their piece and let the world know they too do it in style, and it is done "ABOVE THE BEST" with professional techniques. The art of doing it varies with each pilot's skills as cited in the following claims:

Fixed wing pilots do it with a stick after taking a run at it; helicopter pilots do it better but they need both hands for it; LOH pilots are constantly looking for it; Cobra pilots are always attacking it; cargo pilots deliver it; utility pilots utilize it; crane pilots get hooked on it; Silver Eagles do it best (in a nest); IP's teach it and students practice it. Radar controllers do it in the dark, then turn you on to it; copilots do it only when their pilot lets them; flight simulator pilots only pretend to do it; test pilots have first crack at it and find new ways of doing it; young pilots do it anxiously; senior pilots aren't getting older but are just doing it better; NOE pilots do it down low, slow, and cautiously; check pilots watch you doing it; tactical pilots do it under the trees and in the bushes; SIP's do it by the book; commanders talk about it, then do it while high; autorotation pilots do it silently after being forced into it; grounded pilots wish they could do it; FEB pilots wish they hadn't done it; instrument pilots do it by attitude; hooded pilots do it without looking; auto pilots do it for you; OHR's catch you doing it; other pilots just don't know how to do it, e.g., Russian pilots do it behind the curtain, Australian pilots do it upside down, and Kamikaze pilots do it only once. However, ASO's who are used for the prevention of accidents only, do it safer. . . and are *still* doing it. Army aviators, keep on doing it safely—as broken pilots never do it again!! FOREVER FLY ON! □

CARGO

Fatalities: 0 ■ Accidents: 0
Injuries: 0 ■ Estimated Costs: \$29,000

DIVISION

■ CW4 Gerald D. Verbeek, Acting Chief

One incident was reported.

CH-47

1 INCIDENT ■ Aircraft was hovering to runway for takeoff. Pilot heard loud explosion from right side of aircraft and No. 2 engine fire light illuminated. Pilot shut down affected engine. Investigation revealed no fire in the failed engine area. Witness stated he saw an object leave the aircraft after hearing the explosion. A search of the area resulted in the recovery of several large pieces of the 3rd stage power turbine rotor disk. The failed engine was a T55-L11A, SN LE19587, with time since new of 34 hours. Cause of failure unknown pending teardown analysis. □

FIXED WING

Fatalities: 0 ■ Accidents: 0
Injuries: 0 ■ Estimated Costs: \$0

DIVISION

■ LTC Charles E. Humphries, Chief

One precautionary landing was reported.

U-8

1 PRECAUTIONARY LANDING ■ During climbout after takeoff on IFR training flight, cylinder head temperature exceeded red line. Which engine was not identified. Cause and result of high cylinder head temperature was not reported. □

NATIONAL GUARD

Fatalities: 0 ■ Accidents: 1
Injuries: 2 ■ Estimated Costs: \$29,000

BRIEFS for Month of December

■ LTC Charles E. Humphries
Chief, Fixed Wing Division

One accident and 25 precautionary landings were reported.

OH-6

1 ACCIDENT ■ During night VFR training flight, pilot reported engine out, warning light on, and engine-out audible signal. Aircraft was autorotated to street in residential area. Tail boom was severed, gear collapsed, and main rotor blades were damaged. Both crewmen had spinal compression injuries.

3 PRECAUTIONARY LANDINGS ■ Oil appeared on windshield during takeoff. Postlanding check revealed torquemeter line had come loose at torquemeter gauge mounting point. ■ Transmission chip detector warning light came on during hover. Caused by metal fuzz on magnetic plug. ■ Pilot noticed cockpit light dimming during night VFR training flight. He recycled generator, turned off all nonessential electrical components, and proceeded to nearby airfield. Complete loss of electrical power was experienced en route. Caused by failure of reverse current generator cutout relay (FSN 2925-904-9824, P/N A700XA).

CH-47

2 PRECAUTIONARY LANDINGS ■ Flight engineer discovered and reported hydraulic leak at utility pressure filter during instrument approach. Postlanding check revealed O-ring (FSN 5330-804-5695) had been damaged during installation. O-ring was replaced and aircraft returned to an operational ready status. ■ Lateral cyclic pitch control became stiff during preparations for landing. Landing at home base was continued. Suspect binding magnetic brake (FSN 1680-907-8399, P/N 114CS117-2).

OH-58

2 PRECAUTIONARY LANDINGS ■ Unforecast snow was encountered during night VFR cross-country training flight. Engine flamed out almost immediately. IP entered autorotation, rolled throttle to engine idle position, and manually restarted engine. Aircraft was not equipped with automatic relight system. Aircraft was landed and inspected, and flight continued to home base. WELL DONE to the crew. ■ Transmission oil pressure warning light came on during cruise and remained on until aircraft was landed and shut down. Suspect carbon buildup on pressure switch.

OV-1

3 PRECAUTIONARY LANDINGS ■ Right-side entrance hatch blew open during takeoff. Aircraft remained in traffic pattern and landed. No malfunction of parts could be detected, so hatch was apparently not properly secured and checked prior to takeoff. ■ No. 2 engine was shut down during VFR standardization flight and failed to restart. Single-engine landing was performed. Postlanding check revealed possible inadequate N1-N2 shaft clearance. ■ Pilot was performing ILS low approach during VFR training flight. As he increased power to 45 pounds torque and 1600 rpm to begin missed approach, No. 1 engine seized. Cause is undetermined. Engine history: 1,013 hours total time, 332 hours since overhaul.

U-1

1 PRECAUTIONARY LANDING ■ Crew landed at other than prepared field because visibility was restricted by excess frost on windshield. Caused by generator failure.

UH-1

14 PRECAUTIONARY LANDINGS ■ Hydraulic caution light came on in flight. There was no loss of hydraulic control, but aircraft was landed at nearest available area. Caused by failure of pressure switch (FSN 5930-646-3495), which was replaced. ■ Transmission oil pressure dropped to zero during

practice instrument approach. Caused by failure of gasket (FSN 1615-340-6998, P/N 48-431-629-7). ■ Hydraulics failed in flight. Irreversible valve for collective servo malfunctioned, resulting in hydraulic fluid being pumped overboard. ■ Main transmission chip detector light came on during cruise. No further information was reported. ■ Pilot heard high-pitched whine and smelled hydraulic fluid. Approximately 2 minutes later, master caution and No. 1 hydraulic system warning lights came on. Caused by leak in hydraulic line (which line and cause was not reported). ■ Crew experienced slight power loss in normal cruise. Power was recovered and no further power problems were encountered. Landing was made at home base. During momentary power loss, aircraft was felt to shudder and yaw to left, and torque was seen passing through 15 pounds, returning to 20 pounds. Cause of power interruption is unknown pending further investigation. ■ Engine fuel pump warning light came on. Aircraft was landed at nearest available airfield. Suspect engine fuel pump warning system malfunction. ■ During VFR instrument training flight with all engine and transmission instruments normal, master caution and right fuel boost pump caution lights came on. Circuit breaker was recycled without results. Strong odor was noted in cockpit and aircraft was landed immediately in open field. Postlanding check revealed submerged fuel boost pump (FSN 2915-999-3705, P/N 205-060-3) had shorted internally, resulting in fire damage to boost pump. ■ Hydraulic pressure warning light came on without loss of hydraulic power. Power-on landing was made at home base where it was determined that hydraulic pressure switch (FSN 5930-646-3495, P/N 204-076-057) had failed. Switch was replaced and aircraft test flown and released for flight. ■ Engine chip detector warning light came on during approach for landing. Postlanding check revealed cat whisker of metal on magnetic plug. Plug was cleaned and reinstalled and aircraft released for flight. ■ Tail rotor chip detector light came on during cruise. Caused by fuzz on 90° gearbox magnetic plug. Plug was cleaned and aircraft was run up for 15 minutes without adverse results and released for flight. ■ Aircraft shuddered and thumping noises were heard during cruise. Aircraft vibrated for approximately 2 minutes, then flew smoothly. Caused by failure of No. 4 tail rotor drive shaft hanger bearing (FSN 5110-911-8384, P/N 204-040-623-1). ■ Chip detector warning light for 90° gearbox came on. Small piece of metal was removed from magnetic plug. ■ Engine fire detector light came on. Postlanding check revealed fire detection system components and wiring were OK and that frozen moisture from recent aircraft washing had caused warning light illumination.

NATIONAL GUARD 360-DAY MISHAP DATA

	Last 30 Days	Last 90 Days	Last 180 Days	Last 360 Days
Injuries	2	2	14	20
Fatalities	0	0	7	7
Dollar Costs	\$29,000	\$29,212	\$1,419,166	\$1,885,301

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FLIGHT FAX

VOL. 2, NO. 15 ■ 23 JANUARY 1974

mishaps for the period of 4-10 JANUARY 1974

WITNESS STATEMENT

To assist aircraft accident investigators in the field with the new method of taking witness statements for the 2397 series, the following is provided:

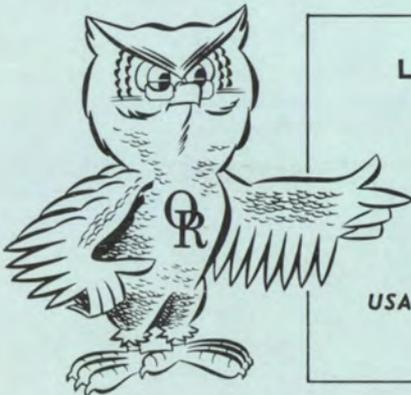
In addition to the existing guidelines for completion of DA Form 2397-4 the following will be observed in order to comply with DA message of 10 May 1971 on aircraft accident witness statements:

1. Delete, by striking out, the existing statement in Item 12 of DA Form 2397-4, as shown in the example.
2. Select, after discussing the alternatives with the witness, either a or b depending on whether the witness desires to make a non-confidential (a) or a confidential (b) statement.
3. Type in Item 12, the election (either a or b) and have the witness sign and date it prior to typing in his statement.
4. Proceed to type the witness' statement following the typed-in election statement.

NOTE: The witness' signature will appear in only one place on the 2397-4—immediately after his election statement.

TECHNICAL REPORT OF U.S. ARMY AIRCRAFT ACCIDENT PART V - WITNESS STATEMENT		REPORTS CONTROL SYMBOL CSFOR-3 (R2)		
1. NAME OF WITNESS (Last, First, MI)	2. OCCUPATION/TITLE	3. GRADE	4. SSAN	5. AGE
6. ADDRESS (Include ZIP Code) (If military, include organization)		7. TELEPHONE NUMBER		
		8. DATE OF ACCIDENT		
		9. DATE STATEMENT MADE		
10. AVIATION EXPERIENCE AND BACKGROUND		11. INTERVIEWER		
<p>a. Non-confidential statement--Having been advised by _____, investigating officer, that he has no authority to compel me to give a statement regarding my knowledge of the aircraft accident of _____, involving the US Army aircraft _____, and having been advised that under the provisions of article 31, UCMJ and the fifth amendment of the Constitution, any statement I make may be used in evidence subsequently, I elect to make this statement with the understanding that it may be released to, and used by, any interested person who has made a request therefor.</p> <p style="text-align: right;">(SIGNED) (DATED)</p> <p style="text-align: center;">OR</p> <p>b. Confidential statement--Having been advised by _____, aircraft accident investigating officer that he has no authority to compel me to give a statement regarding my knowledge of the aircraft accident of _____, involving the US Army aircraft _____ and having been advised that I may elect to make a statement which will be used only by Department of the Army safety personnel for the sole purpose of accident prevention, I elect to make a statement in confidence. Without this promise I would not make this statement. I understand that the confidential status of this statement means that it will not be used as evidence or to obtain evidence to determine misconduct or line of duty status, as evidence before flight evaluation boards, or to determine pecuniary liability in claims involving the government or any other party.</p> <p style="text-align: right;">(SIGNED) (DATED)</p> <p style="text-align: center;">-----</p> <p style="text-align: center;">WITNESS STATEMENT FOLLOWS</p>				
12. CASE NO.				
13. YR/MO/DAY	TIME	A/C SERIAL NO.		

DA FORM 2397-4 REPLACES DA FORM 2397-4, 1 JUN 66, WHICH IS OBSOLETE. For use of this form, see AR 95-5; the proponent agency is the Office of the Assistant Chief of Staff for Force Development.



LOSS OF COMBAT EFFECTIVENESS FROM THIS WEEK'S MISHAPS

FATALITIES: 0
 INJURIES: 0
 AIRCRAFT LOSSES: 0
 ESTIMATED COSTS: \$5,720

USAAAVS: AUTOVON 558-6510/4714
 Commercial AC 205, 255-6510/4714

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UTILITY/ATTACK

Fatalities: 0 ■ Accidents: 0
Injuries: 0 ■ Estimated Costs: \$720

DIVISION

■ MAJ Charles E. Toomer, Chief

One incident, three forced landings, and seven precautionary landings were reported.

UH-1

1 INCIDENT ■ Left cargo door was lost during takeoff, damaging left side of fuselage. Worn roller assembly (P/N 204-030-698-1) caused door to separate from aircraft.

2 FORCED LANDINGS ■ Engine failed at 2,000 feet agl on maintenance test flight. Cause of failure unknown at this time. WELL DONE to CW2 James H. Haynes for the successful emergency landing. ■ Shortly after takeoff, transmission oil pressure dropped and caution light illuminated. As pilot turned back to airfield to execute precautionary landing, cockpit filled with thick gray smoke. Crew then completed successful power-on autorotation despite reduced visibility due to smoke. (Smoke came from transmission oil being ingested by engine and forced into cockpit through heater ducts.) Transmission oil filter gasket (P/N 205-040-187-003) was not properly installed during intermediate inspection and failed after 2 hours. WELL DONE to WO1 Thomas J. Kelly and WO1 Lawrence J. Palyner.

7 PRECAUTIONARY LANDINGS ■ Engine fuel pump caution light came on in cruise flight. Caused by corrosion on cannon plug. Cannon plug was cleaned and aircraft released for flight. ■ Left fuel boost pump caution light illuminated on final approach. Boost pump (P/N 204-060-607-5) failed. EIR submitted. ■ Pilot felt binding in cyclic control prior to takeoff. Ice was found on one servo and removed. ■ Engine chip detector lights of two aircraft illuminated. Normal wear fuzz caused one illumination and the second aircraft is grounded pending results of special oil sample. ■ Two precautionary landings were made after aircraft developed high frequency vibrations. Both were caused by failure of tail rotor drive shaft hanger bearing (P/N 204-040-600-9). EIR's submitted.

AH-1

1 FORCED LANDING ■ Engine failed during climbout at approximately 70 feet agl. Cause unknown at this time. □

LOH

Fatalities: 0 ■ Accidents: 0
Injuries: 0 ■ Estimated Costs: \$0

DIVISION

■ LTC David L. Boivin, Chief

One forced landing and three precautionary landings were reported.

OH-58

3 PRECAUTIONARY LANDINGS ■ Hydraulic pressure switch failed. ■ Transmission oil temperature warning light came on. Sensing unit insulator was cracked from overtorque. ■ Hydraulic failure was caused by stripped pump drive splines.

OH-6

1 FORCED LANDING ■ Engine failed in cruise flight. Cause unknown. EIR submitted. Fuel control was sent to ARADMAC for teardown analysis. A WELL DONE for a successful power-off emergency landing goes to 2LT Carl G. Gates, New Jersey National Guard.

OH-6 SAFETY-OF-FLIGHT TECHNICAL ADVISORY MESSAGE: ECOM message 041800Z January 1974, subject: Network Impedance Matching CU-1894A in OH-6A Aircraft, recommends inspection of the CU-1894A for looseness of screws securing the antenna mounting flange to the body. Due to corrosion,

separation of antenna and mounting flange from the CU-1894A can occur on series III aircraft SN 68-17140 through 69-16075 and could allow the antenna to strike the tail rotor. This inspection should be performed ASAP. Further details are provided in USAAVSCOM SOF message dated 092125Z January 1974.

OH-58/OH-6 NOTE: Effective immediately the maximum allowable operating time of the T-63-A-700 turbo-shaft engine (identified with suffix "B" after SN) with the improved first stage gas producer turbine wheel installed is increased to 1,000 hours (TBO). Further information is provided in USAAVSCOM message dated 032045Z December 1973.

ATTENTION TH-55 OPERATORS

DON'T LET IT CREEP UP ON YOU LITTLE FELLERS: Recently, a TH-55 major accident occurred involving a fatality. It is strongly suspected that the solo SP failed to friction the collective pitch prior to changing radio frequency. This neglect resulted in the pitch rising sufficiently to rapidly bleed off rotor/engine rpm and cause engine stoppage which led to an uncontrollable vertical descent and a very hard landing. *Prior to soloing students, TH-55 IP's should stress the importance of collective friction (with hand removed) to avoid the creeps.*

BUMPER STOPPER POPPER: Oil has been observed on the TH-55 tail rotor gearbox output shaft by IP's who are concerned about deterioration of the stop, P/N 369A1809, or bumper, P/N 269A6053-3, which would allow excessive flapping. This is a misconception notwithstanding because the stop is neoprene and the bumper is nylon, of which neither one's composition is affected by the application of oil. *However, the presence of oil may be an indication of improper installation. Therefore, a maintenance inspection of the tail rotor assembly is recommended prior to further flight. Also, oil has been attributed to several of these bumper/stoppers popping off in flight, which can cause a terrific flap.*

THOUGHT FOR THE WEEK

UNAUTHORIZED FLYING ON THE DECK WILL GET YOU DECKED.

CARGO

Fatalities: 0 ■ Accidents: 0
Injuries: 0 ■ Estimated Costs: \$0

DIVISION

No mishaps were reported.

■ CW4 Gerald D. Verbeek,
Acting Chief

The following message, 091350Z January 1974, was received from USAAVSCOM.

"SUBJ: G/I 1974-1 Grease, Aircraft, MIL-G-81322A Royal Lubricants, Lot 13, Contract DSA 600-73-C-1389"

"1. Subject grease is suspected of failing to meet specification requirements and may not be suitable for use.

"2. Request stocks of subject grease, aircraft, MIL-G-81322A by royal lubricants, Lot 13, contract DSA 600-73-C-1389 be segregated and suspended from issue and not be used until further testing is completed.

"3. Request this message be transmitted to all facilities under your command with instructions to advise USAGMPC, ATTN: STSGP-S, New Cumberland, PA, of quantities of this lot." □

FIXED WING

Fatalities: 0 ■ Accidents: 0
Injuries: 0 ■ Estimated Costs: \$5,000

DIVISION

One incident and two precautionary landings were reported.

■ LTC Charles E. Humphries, Chief

U-21

1 INCIDENT ■ As pilot performed GCA turn to final during training flight, IP verbally simulated No. 2 engine failure. Corrective action was taken and on short final engines were set for landing (250 pounds torque and 1900 rpm for "0" thrust). Flight conditions were VMC, runway was in sight, and altitude was 1500 feet msl. Approach and landing were normal until after touchdown when pilot placed No. 1 engine

in reverse, causing aircraft to leave runway on left side, striking runway light and slightly damaging one propeller tip. No explanation was offered for the actions of the pilot.

OV-1

1 PRECAUTIONARY LANDING ■ No. 2 engine chip detector warning light came on in flight. Postlanding examination revealed magnetic plug and oil screen to be clean. Magnetic plug was then checked for electrical resistance and found not to be within limits. New plug was installed, special oil sample taken, and aircraft released for flight.

T-42

1 PRECAUTIONARY LANDING ■ Pilot was preparing to land from IFR training flight. Nose gear indicated unsafe when gear was extended. During flyby, tower advised that nose gear appeared down. Following uneventful landing, gear retraction tests were made and gear performed normally. Cause of unsafe nose gear indication remains unknown. □

CAUTION!!

Reference Flightfax, Vol. 2, No. 11, dated 19 December 1973, CHECKING PITOT HEAT. When having the pitot heater checked by touch, the operator of the aircraft should have the ground crew touch the cold pitot tube, then the pitot heater should be turned on. When the pitot tube starts to heat, it should be released. **Remember, touching the pitot tube after the switch has been turned on may result in severe burns.**

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FLIGHTFAX

VOL. 2, NO. 16 ■ 30 JANUARY 1974

mishaps for the period of 11-17 JANUARY 1974

I read this article in Air Force Safety Management Newsletter where it was taken from a SAC Safety Bulletin. I feel the same way they do. It's just too good and close to the real truth to pass up. It really tells it like it is and if you substitute "training" for "repair" and "personnel" for "parts" you'll have some haunting thoughts about some Army aviation accidents you've read or heard about.

The situation portrayed here fits the smallest repair shop, where parts are at stake, to the largest headquarters, where lives are at stake.

ORVAL RIGHT



FLYING SAFETY WHY?

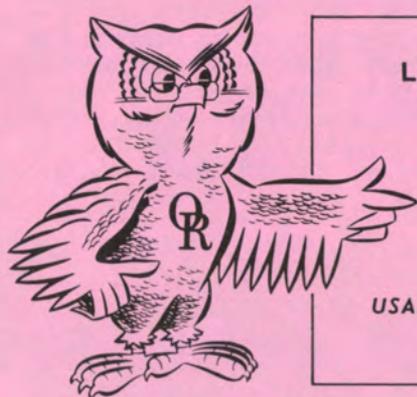
The Air Force aircraft accident rate has declined steadily during the past decade. Yet during the same period, there has been a marked increase in the percentage of accidents in which supervisory factor was a cause.

Does this indicate that the quality of supervision has declined over the years? Probably not. More likely it is the result of more vigorous and scientific investigation of accidents coupled with more objective, analytical, and intellectually honest evaluations

of the results of those investigations.

The ultimate cause of an accident (accident boards call it direct cause; lawyers call it proximate cause) is generally not too hard to find. It's easy enough to identify crew error, maintenance malpractice or material failure. But that's not enough. A major aircraft accident exacts a terrible toll and having paid that price it is imperative that we look behind the obvious causes and ask ourselves "why?" Why did the pilot elect to put the aircraft in an unsafe maneuver? Why did the maintenance specialist

Continued on back page



LOSS OF COMBAT EFFECTIVENESS FROM THIS WEEK'S MISHAPS

FATALITIES:	0
INJURIES:	0
AIRCRAFT LOSSES:	1
ESTIMATED COSTS:	\$300,250

USAAAVS: AUTOVON 558-6510/4714
Commercial AC 205, 255-6510/4714

U.S. ARMY AGENCY FOR AVIATION SAFETY FORT RUCKER, AL 36360

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UTILITY/ATTACK

Fatalities: 0 ■ Accidents: 1
Injuries: 0 ■ Estimated Costs: \$295,000

DIVISION

■ MAJ Charles E. Toomer, Chief

One accident, one incident, one forced landing, and 19 precautionary landings were reported.

UH-1

1 ACCIDENT ■ Pilot lost ground reference while attempting to land in snow. Aircraft struck ground left skid low, then rolled onto left side.

1 INCIDENT ■ Aircraft touched down nose high during PRACTICE AUTOROTATION. Tail rotor struck ground, separating blades from hub.

1 FORCED LANDING ■ Compressor stall occurred at completion of DER check. Suspect N2 failure.

17 PRECAUTIONARY LANDINGS—following are selected briefs ■ Aircraft began sudden 1:1 vertical vibration. Reduction of collective would not dampen vibration. Suspect failure of teflon feather bearing. ■ Transmission oil pressure dropped rapidly, followed by warning light. Blue smoke and oil odor were noted in cockpit during descent. Caused by transmission oil filter gasket failure. ■ During cruise flight, cyclic moved left and aft as hydraulic switch was turned off. Cyclic servos and irreversible valve were replaced.

AH-1

2 PRECAUTIONARY LANDINGS ■ Engine oil pressure light came on. Cause undetermined. ■ Engine oil bypass light came on. Cause not reported. □

LOH

Fatalities: 0 ■ Accidents: 0
Injuries: 0 ■ Estimated Costs: \$250

DIVISION

■ LTC David L. Boivin, Chief

One incident, one forced landing, and three precautionary landings were reported.

OH-58

1 INCIDENT ■ Pilot landed aircraft after whining noise was heard at 400 feet on takeoff. During preflight, and as pilot approached aircraft, copilot had rotated main rotor blades 90° without removing tiedown device attached to tail boom. Aft portion of tail boom was dented when tiedown wrapped around whirling tail rotor drive shaft. *Careless or foolish drivers have gotten "all wrapped around the axles" but that was before tail rotor drive shafts were invented!*

2 PRECAUTIONARY LANDINGS ■ Governor failure caused N2 to drop to 98 percent during hover. EIR submitted. ■ Transmission oil temperature switch failed. EIR submitted.

OH-6

1 FORCED LANDING ■ Engine failed at 1,200 feet during cruise flight. EIR submitted. WELL DONE for a successful power-off emergency landing to a plowed field goes to CPT Jimmy D. Taylor of the Mississippi National Guard.

TH-55

1 PRECAUTIONARY LANDING ■ Lower forward bearing of pulley assembly failed, causing grinding noise. EIR submitted.

OH-58A SAFETY-OF-FLIGHT MESSAGE

Two incidents have recently been reported in which pilot or copilot doors were inadvertently jettisoned by passengers or crewmembers who were using the jettison handle as a handhold. The OH-6A has a handhold in the same general area as the OH-58A jettison handle. Consequently, OH-6A oriented personnel may misuse the OH-58A jettison handle for a handhold. Pilots must insure left seat occupants are familiar with the location and purpose of the emergency jettison handle. Action has been taken to add a WARNING (addressing the above) to the dash 10. Further details are provided in USAAVSCOM SOF message (advisory) dated 151915Z January 1974.

THOUGHT FOR THE WEEK

HOT STUFF: It was reported this week that a pilot made several unsuccessful attempts to start an OH-58A engine. *Difficulty in starting the aircraft was believed to be caused by a low battery.* On pilot's fourth attempt the engine appeared to be headed for a hot start and was shut down. At this point, the pilot should have been shut down. However, on the fifth attempt, the pilot did not get the engine shut down in time to avoid a 2-second 1,000° hot start. Scrap one engine costing \$17,500. Pilots should also note that repeated starting attempts (especially within a short period of time) can cause "thermal runaway" in places other than the engine. The battery electrolyte temperature can rise 100° F. above ambient if the nickel-cadmium battery is not allowed to cool sufficiently between starts. Such temperature increases damage the gas barrier portion of the cell plate separator, allowing the oxygen (generated during subsequent charging on a constant-voltage d.c. generator) to migrate to the negative electrode and mix with the charged cadmium. This results in more heat and causes an increase in current, which also raises battery temperature while battery resistance and voltage drop. This condition becomes self-generating which progressively increases the charging rate and heat to a point that the heat erodes the separator in one or more cells and ultimately destroys the battery by fire or explosion. In essence, poor ventilation for the OH-58A battery compartment, coupled with the necessity for exorbitant recharging after an aborted engine start, can create a dangerously hot environment. This is why OH-58A pilots should comply with the note in paragraph 3-20 of the dash 10 which states: "If starter relay chatters during start cycle, it is an indication of low battery power. Abort start and use APU or recharge battery." *Whether it be engines, batteries, or what have you, pilots should exercise delicate care so not to get into stuff too hot to handle!* □

CARGO

Fatalities: 0 ■ Accidents: 0
Injuries: 0 ■ Estimated Costs: \$0

DIVISION

One precautionary landing was reported.

■ CW4 Gerald D. Verbeek,
Acting Chief

CH-47

1 PRECAUTIONARY LANDING ■ During termination of approach, CE saw hydraulic fluid leak from No. 1 SAS extensible link. Investigation revealed two broken screws on cover assembly. Suspect screws failed because of excessive torque. □

FIXED WING

Fatalities: 0 ■ Accidents: 0
Injuries: 0 ■ Estimated Costs: \$5,000

DIVISION

One incident and four precautionary landings were reported.

■ LTC Charles E. Humphries, Chief

U-21

1 INCIDENT ■ Slight noise was heard at 1,500 feet and 140 knots. Crew suspected bird strike, which was confirmed during postlanding examination. Leading edge of vertical stabilizer was dented and HF antenna wire was broken.

3 PRECAUTIONARY LANDINGS ■ Pilot was preparing to land when landing gear failed to fully extend, resulting in unsafe gear indication. Gear was manually extended and landing was made. Caused by failure of gear motor (FSN 6105-097-8424, P/N D 1931). ■ No. 2 engine surged 100 pounds torque during cruise flight. Power was reduced but torque continued to fluctuate. Propeller governor circuit breaker was pulled without effect, so engine was secured. Caused by malfunction of fuel control (FSN 2915-157-2313). ■ No. 1 nacelle tank started siphoning fuel from cap during cruise flight. Pilot declared emergency and landed at nearest intermediate airport (approximately 60 NM). When fuel cap (nonadjustable) was removed and examined, preformed packing was found to be deteriorated. Preformed packing was replaced and mission continued.

OV-1

1 PRECAUTIONARY LANDING ■ Left main landing gear would not fully retract after takeoff. Pilot recycled gear several times but left main gear would only retract part way. Aircraft was returned to home base and landed. Postlanding check revealed landing gear strut was overinflated. □

Continued from front page

fail to properly torque the attaching bolts? Why did the turbine wheel disintegrate at just that point in time?

And if "why?" is asked long enough and hard enough, the answer is apt to be that some supervisor didn't do his job as well as he should have. But this finding may not be the end of the line either and more "whys" may identify even more basic causes for the supervisor's failure. Perhaps he wasn't qualified to supervise. If so, why was he selected? Or maybe he was spread so thin he couldn't properly cover all his activities. In that case, why wasn't the unit better organized? Why wasn't this deficiency discovered before? Why?

A recent major aircraft accident provides a useful case study of this point. The accident board concluded that the direct cause was the mis-assembly of a critical part by maintenance personnel. The wing commander concurred in this finding, but he probed much deeper looking for the underlying causes—the basic, fundamental causes which precipitated the chain of events leading to the accident. He was looking for the "WHY."

He found that: Technical data violations were taking place in the shop concerned and, significantly, some of these violations related to repair of the part which had been mis-assembled. Why?

Maintenance documentation was frequently erroneous and sometimes deliberately falsified. Again, some of these discrepancies were directly related to the part in question. Why?

These deficiencies could both be attributed to inadequate or nonexistent supervision. There was sufficient evidence available to have alerted those responsible that problems existed but they chose not to get involved. On paper, these supervisors looked good. Their records were impeccable and their technical qualifications unquestionable. But they failed to meet their supervisory obligations. Why? There were at least three other direct causes:

First, there had been excessive turnover in key shop personnel. Each move had been made to meet a

legitimate requirement, but the cumulative effect had seriously weakened the unit. No one had discussed this, but the many changes in shop and shift chiefs had resulted in confusion among some workers as to just who was the boss. More importantly the boss, himself, was a little unsure at times.

Second, mistakes were made in the selection of some supervisors. In fact, it would be fair to say that some supervisors weren't selected—they just happened. The senior man simply assumed the role of chief without the higher levels of management making a deliberate conscious decision that this was the man best qualified to supervise.

Third, supervision was not always well distributed. Headquarters staff visits indicated a shortage of responsible supervisors during other than normal duty hours. All shifts of an operation require the benefit of experienced senior supervision. In this case, there was a demonstrated tendency for the more senior supervisors to gravitate to the day shift—even though a substantial percentage of the shop's work took place on the other shifts. It was not surprising therefore that most of the discrepancies cited above did take place at night under conditions of reduced supervision.

The lessons of this accident are clear and simple. Positive effort must be made to achieve total commitment of all personnel to technical data compliance and to complete and accurate maintenance documentation. Supervisors must supervise. They must be managers and leaders as well as technicians. To insure quality supervision, senior managers must carefully screen and select only those with such qualifications as supervisors. And finally, the distribution of supervision must be continually monitored to insure that supervisors are available when needed in the quantity and quality desired.

Simple lessons that one wing learned at the cost of a major accident. You can learn them for nothing. Why not?

Adapted from SAC Safety Bulletin

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PRELIMINARY ARMY AIRCRAFT MISHAP DATA

FLIGHT FAX

VOL. 2, NO. 17 ■ 6 FEBRUARY 1974

mishaps for the period of 18-24 JANUARY 1974

US ARMY AVIATION
SCHOOL

GOOD IDEA

It has been brought to our attention that some units are using empty intravenous fluid bottles for fuel sampling. Reports indicate the item is superior to the "fruit jar" type bottle because of its smaller neck which allows the bottle to make direct contact with and depress the fuel drain plug through the skin of the aircraft, deleting the necessity for a wooden stick to depress the drain plug. There is no spilling of fuel while taking the sample and virtually no spilling while moving around the aircraft and to the fuel sampling point. The bottle has a flat base so it can stand in existing fuel sampling points. A hanging ring is also attached, so the bottle may be hung upside down to drain completely to prevent contamination. The rubber stopper

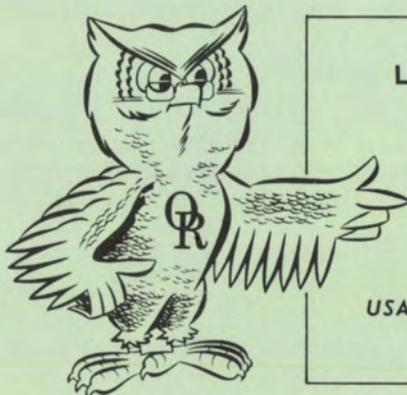
that comes with the bottle may be used when fuel samples are to be kept.

Empty intravenous bottles are available from any medical facility which administers intravenous fluids. An aviation unit desiring the empty bottles should contact the chief of supply and service at the medical facility, who would make arrangements for the bottles to be saved after the fluids are used. These bottles are normally destroyed when emptied.

Although the glass intravenous bottle is presently available in the supply system, some manufacturers of intravenous fluids are now supplying the fluids in plastic bags rather than glass bottles. If this trend continues, the supply of glass bottles may become limited.

Icing Inhibitor Requirements

SUBJECT: Supplemental Safety-of-Flight Operational Message for Icing Inhibitor Requirement While Using Commercial Jet Turbine Fuels. This supplement is in response to inquiries from the field concerning the requirement to use an icing inhibitor with most commercial type jet turbine fuels. Further information is provided in USAAAVS Safety-of-Flight message, dated 01-22-74, subject as above.



LOSS OF COMBAT EFFECTIVENESS FROM THIS WEEK'S MISHAPS

FATALITIES:	0
INJURIES:	1
AIRCRAFT LOSSES:	1
ESTIMATED COSTS:	\$2,085,109

USAAAVS: AUTOVON 558-6510/4714
Commercial AC 205, 255-6510/4714

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UTILITY/ATTACK

* Fatalities: 0 ■ Accidents: 0
Injuries: 0 ■ Estimated Costs: \$11,500

DIVISION

■ MAJ Charles E. Toomer, Chief

Four incidents, one forced landing, and 41 precautionary landings were reported.

UH-1

3 INCIDENTS ■ During landing, pilot lost visual reference with ground because of snow blowing in aircraft rotorwash. Landing gear cross tubes were damaged. ■ Aircraft struck tree during NOE flight, damaging left chin bubble. ■ Main rotor blades struck trees during landing in confined area, damaging both blades.

32 PRECAUTIONARY LANDINGS—following are selected briefs ■ Engine would not produce adequate power for level flight. Pilot initiated autorotation and restart. Engine responded and flight was continued. Suspect fuel control malfunction. ■ Landing site marker panel flew into main rotor during landing at field site. ■ Pilot smelled battery fumes. Battery was improperly serviced. ■ Engine chip detector lights of seven aircraft came on. One engine was changed. Detector plugs were cleaned on the others. ■ Three precautionary landings were made when loud bangs were heard from aircraft. Suspect engine FOD caused one, one cause was unknown, and one was caused by portable radio being dropped on cargo compartment floor.

AH-1

1 INCIDENT ■ Aircraft struck wire during takeoff into bright sun. One main rotor blade was damaged as wire broke.

1 FORCED LANDING ■ Engine stopped in flight, and aircraft was autorotated to plowed field. Caused by water and rust on cannon plug shorting electrical system and shutting off fuel.

9 PRECAUTIONARY LANDINGS—following are selected briefs ■ Loud noise was heard from rear of aircraft during takeoff, and aircraft landed. Suspect compressor stall. ■ No. 1 hydraulic light came on during final approach, and pedals became stiff. Loose return line caused loss of fluid. □

LOH

Fatalities: 0 ■ Accidents: 0
Injuries: 0 ■ Estimated Costs: \$2,000

DIVISION

■ LTC David L. Boivin, Chief

One incident and 11 precautionary landings were reported.

OH-58

1 INCIDENT ■ Aircraft was hovered into tree limb while being repositioned next to road for refueling. Operations clerk was acting as ground guide. Tip caps of both (?) rotor blades dented.

6 PRECAUTIONARY LANDINGS ■ Engine oil pressure gauge malfunctioned. ■ Engine oil bypass warning light illuminated during climbout after takeoff. Oil pressure dropped and oil temperature rose to 150-plus degrees before expedited landing could be made to sod area. No. 1 bearing oil pressure line flange failed at accessory gearbox end. ■ Transmission oil pressure switch failed. ■ Hydraulics light came on. Caused by moisture in wiring. ■ Transmission chip detector light came on. Caused by fuzz. ■ Engine chip detector light came on. Caused by fuzz.

OH-6

1 PRECAUTIONARY LANDING ■ Electrical power was lost. Cause unknown.

TH-55

4 PRECAUTIONARY LANDINGS ■ Engine chip detector lights of three aircraft came on. One was caused by fuzz, one had a short, and the cause of the other is unknown. ■ Transmission chip detector light came on. Caused by moisture in oil.

CAUTION OH-6A PERSONNEL

The pitch control links and the stop may be damaged by forcing the tail rotor blade about the teetering axis into the stop with the foot pedals in the extreme right or left position. This cannot happen under power; however, it can be done during ground handling or inspection. A caution, citing this problem, is being added to the dash 35 after paragraph 8-8g(9).

THOUGHT FOR THE WEEK

FLYING IS ON A SPACE AVAILABLE BASIS ONLY! An incident occurred this week where an aircraft was hovered into a tree. On the ecology premise that trees are to be "seen and not hurt," pilots should use extreme caution when hovering in confined areas. Also, IAW chapter 5, AR 95-1, and chapter 1, section II, TM 55-1500-204-25/1, pilots will insure that when available, a sufficient number of qualified ground crewmembers is positioned to insure adequate guidance before attempting to maneuver aircraft in close proximity to other aircraft, buildings, or other obstructions (trees) or in gusty or high winds. Remember—helicopters will fly on "a space available basis only" because these "choppers" are designed to chop air more efficiently than wood! □

CARGO

Fatalities: 0 ■ Accidents: 0
Injuries: 0 ■ Estimated Costs: \$37,587

DIVISION

■ CW4 Gerald D. Verbeek,
Acting Chief

Two incidents and six precautionary landings were reported.

CH-34

1 INCIDENT ■ Aircraft was on base leg to airport at night when several hundred birds flew up from field at end of airport, resulting in damage to one main rotor blade tip cap.

CH-47

1 INCIDENT ■ Aft rotor tips struck runway after touchdown from landing maneuver. Caused by excessive nose-high attitude in performance of aerodynamic braking maneuver.

5 PRECAUTIONARY LANDINGS ■ No. 2 engine chip detector light illuminated. Aircraft was returned to base and chip detector removed for inspection. Normal engine wear was found on plug. Plug was reinstalled and aircraft returned to flight. ■ Crew chief saw hydraulic fluid coming from utility hydraulic pump in flight. Aircraft was landed and inspection revealed loose jam nut on utility pump. Nut was retorqued and aircraft returned to flight. ■ Aircraft was in cruise flight at 7,000 feet, 110 knots airspeed, 54% torque, and -5° OAT indicated when engine torque needles split and PTIT on No. 1 engine climbed to 1,200°. No. 1 engine was secured and aircraft returned to base and made single-engine landing. Visual inspection revealed all inlet guide vanes and first and second stage compressor blades were sheared off. Remaining compressor stages were extensively peened with random blades still intact. Power turbine section had melted turbine blade tips. Cause undetermined. Engine was T55-L-11A. ■ All aircraft systems had been restored to normal after completion of simulated low-side beep failure when aircraft shook and yawed slightly. Instruments remained normal, but crew chief reported loss of No. 1 engine tail cone. IP shut down affected engine (T55-L-11A) with PTIT reading 680°-700° and oil pressure at 55 psi. No. 1 engine PTIT stayed around 320°, then slowly dropped off to below 260° upon touchdown. Visual inspection revealed damage to third stage turbine with all blades on fourth stage turbine missing. Suspect overspeed. ■ No. 1 engine transmission oil pressure low warning light illuminated in flight. Input seal failed, causing loss of pressure.

SAFETY-OF-FLIGHT ADVISORY MESSAGE

Message pertaining to all CH-47 aircraft with L-11A engines was received from CDR, USAAVSCOM, 221520Z Jan 74, subject: CH-47 1974-1 Safety-of-Flight Advisory Message (Operational/Technical) for CH-47 Aircraft with T55-L-11A Engines.

CH-54

1 PRECAUTIONARY LANDING ■ Main transmission chip detector light came on and voice warning system was activated during takeoff. Investigation revealed cannon plug was loose and shorting out. Plug was tightened and aircraft returned to service. □

FIXED WING

Fatalities: 0 ■ Accidents: 1
Injuries: 1 ■ Estimated Costs: \$2,034,022

DIVISION

■ LTC Charles E. Humphries, Chief

One accident, two incidents, and three precautionary landings were reported.

OV-1

1 ACCIDENT ■ Aircraft was returning to home base under IMC from 2-hour SLAR mission. As pilot turned final on GCA, master caution and most of annunciator panel lights reportedly illuminated and all warning flags appeared on primary attitude and navigation instruments. Pilot notified GCA of electrical problems and requested a no-gyro GCA. He switched to backup mode for the FD 105, but warning flags remained up

and gyro did not erect. While attempting to fly on turn and bank indicator, aircraft started to descend. Application of aft stick did not stop descent. VSI accelerated to 1,000 fpm rate of descent. Further aft stick did not stop descent, and crew ejected at 2,400 feet msl. Pilot bruised his right leg against telephone pole during parachute descent. Technical observer was uninjured. Investigation is underway.

1 INCIDENT ■ As gear was raised after takeoff on VFR training mission, right hatch door blew open, resulting in damage to right door hinges, surrounding skin, and plexiglass. Aircraft remained in traffic pattern and landed. Crew stated that security of hatch was checked visually by both of them prior to take-off. Maintenance determined hatch lock *did not malfunction*.

1 PRECAUTIONARY LANDING ■ No. 2 engine fuel high pressure light illuminated during climb. Pilot returned to home base. Suspect pump within fuel control unit failed.

U-21

1 INCIDENT ■ Aircraft flew into thin scattered clouds at 11,000 feet msl, and picked up unforecast trace icing on windshield and wings. After landing at destination, it was discovered the left upper horizontal stabilizer VHF dipole antenna had broken 1 inch above the mount while aircraft was in flight. Suspect trace icing on aircraft surfaces caused antenna to shear.

1 PRECAUTIONARY LANDING ■ No. 2 engine failed during approach for landing. Postlanding check revealed right fuel transfer pump had failed, resulting in fuel starvation of engine. Right fuel transfer failure light had flashed on and off intermittently during flight before illuminating when transfer pump failed. Suspect short in annunciator panel caused flashing light and fuel pump failure.

T-42

1 PRECAUTIONARY LANDING ■ Pilot completed missed approach during VFR training flight, climbed to 2,000 feet, and adjusted power settings to 23 inches Hg. No. 2 engine manifold pressure increased to 24 inches Hg. and would not respond to attempted readjustment. Pilot increased No. 1 engine to 24 inches Hg. to synchronize propeller and landed. After landing, pilot attempted unsuccessfully to feather No. 2 propeller. Examination revealed No. 2 engine propeller governor control cable had failed at governor end (P/N 50-389010-27). □

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VOL. 2, NO. 2 ■ 17 OCT 1973

PRELIMINARY ARMY AIRCRAFT MISHAP DATA

FLIGHT FAX

mishaps for the period of 28 SEP-4 OCT 1973

OH-58 AND OH-6 SAFETY OF FLIGHT

USAAVSCOM message dated 041950Z Oct 73 addresses engine compressor liners and grounds all OH-58's and OH-6's until message is complied with. Purpose of inspection is to isolate installed T63-A-5A and T63-A-700 engines which have the yellow plastic compressor liners and to establish a 150-hour recurring inspection requirement on those compressors with yellow liners after 450 hours of operation. See message for further details. If message is not received, notify higher headquarters or USAAVSCOM.

MAIT PROGRAM

Many commanders are not aware of the technical expertise available to them through the Maintenance Assistance and Inspection Team (MAIT) Program. The main purpose of the MAIT Program is to provide responsive assistance and instruction (A&I) through various types of visits to units in need. A&I concerns the "what, why, and how" of maintenance and maintenance management. This program will help individual unit commanders to identify and solve problems concerning unit readiness standards. According to AR 750-51, dated 31 March 1972, the MAIT Program will be operated as a decentralized program with teams established at post, camp, station, or comparable levels. When troop or equipment density does not warrant the establishment of a MAIT at a given post, camp, or station, the responsibility for providing A&I will be assigned to an established MAIT.

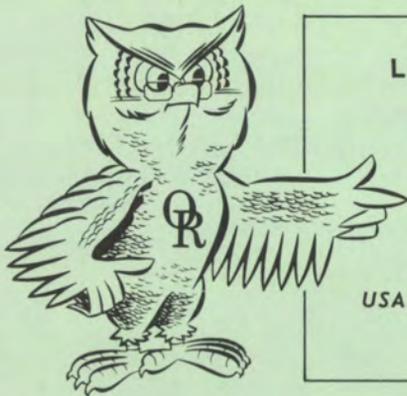
For further details about the MAIT Program,

read AR 750-51. This regulation also applies to Army National Guard and Reserve.

USAAVSCOM COMMAND OPERATIONS CENTER

If you have a problem and all the required or normal contacts with Army Aviation Systems Command (AVSCOM) personnel have not resolved the problem, call the AVSCOM Command Operations Center (COC). The COC is a point of contact, staffed 24 hours a day, 7 days a week. You will not be talking to an answering service, but to the most knowledgeable, functional personnel within the command. They are interested in your problems and will take them to the responsible AVSCOM element for action. You will need to furnish the names and telephone extensions of the AVSCOM personnel previously contacted and dates of contact, and/or office symbols and dates of correspondence. Autovon numbers for the COC are 698-2266/3196.

NATIONAL GUARD BRIEFS, page 6



LOSS OF COMBAT EFFECTIVENESS FROM THIS WEEK'S MISHAPS

FATALITIES:	5
INJURIES:	0
AIRCRAFT LOSSES:	2
ESTIMATED COSTS:	\$1,185,972

USAAAVS: AUTOVON 558-6510/4714

Commercial AC 205, 255-6510/4714

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UTILITY/ATTACK

Fatalities: 5 ■ Accidents: 2
Injuries: 0 ■ Estimated Costs: \$816,911

DIVISION

■ MAJ Charles E. Toomer, Chief

Two accidents, three incidents, and 22 precautionary landings were reported.

UH-1

1 ACCIDENT ■ Aircraft was en route to staging area for search and rescue mission of commercial airliner when it crashed, killing all three crewmembers. Cause unknown.

2 INCIDENTS ■ Both main rotor blades were damaged when aircraft struck tree during short final to confined area. ■ One main rotor blade was damaged while aircraft was hovering between trees during NOE training.

21 PRECAUTIONARY LANDINGS ■ Pilot noticed high engine oil temperature and high egt in cruise flight. On final, rpm bled to 6000. Engine deice switch was found on after landing. Aircraft was test flown and released for flight. ■ Engine air inlet caution light illuminated in flight, with all engine instruments reading normal. Caused by chafed wire. ■ Pilot felt tail rotor pedals binding in cruise flight. Cause unknown. ■ Aircraft was on search and rescue mission, hovering 10 feet over trees, when strong tailwind caused aircraft to rotate 270°. Pilot applied full left pedal to stop turn and 54 pounds of torque to keep aircraft from settling into trees. Overtorque inspection was conducted at site by maintenance personnel, and aircraft released for flight. ■ After PRACTICE HOVERING AUTOROTATION, engine failed as instructor pilot tried to bring rpm up to normal operating range. Maintenance investigation revealed half coupling, quick disconnect (P/N AE 93532J), was improperly torqued and resulted in fuel starvation. ■ Crew smelled electrical burning odor during takeoff and landed. Caused by short in FM radio. ■ Crew noticed smoke coming from battery vent and felt excessive heat in chin bubble area. Battery switch was turned off and landing was made. Starter relay (FSN 5945-257-0316) stuck, causing battery to overheat and relay to melt. EIR submitted. ■ Two engine chip detector light illuminations were reported. One was caused by normal wear fuzz and the other aircraft is grounded, pending results of special oil sample. ■ Main inverters of two aircraft failed. One EIR submitted. ■ HF radio was turned on in flight with transmitter unit removed from aircraft. High frequency inverter overheated and grounded itself to airframe, burning several wires. ■ While on approach to pinnacle, pilot felt pedals lock. Pilot initiated go-around and made running landing at suitable area. Investigation revealed magnetic brake (P/N 204-001-376-3) was corroded and caused antitorque pedals to lock. ■ Fire warning light came on in cruise flight. Caused by corrosion in connector receptacle (P/N 41806). ■ Right cyclic hardover occurred on short final, followed by loss of hydraulic pressure. Postflight inspection revealed ruptured hydraulic line (P/N R9800-4-0320) caused by chafing. ■ Hydraulic caution light illuminated in cruise flight with no pressure loss. Caused by faulty hydraulic pressure control switch (P/N 204-076-057-1). ■ Crew smelled fuel in flight. Input line to fuel control was found loose. ■ Engine fuel pump caution light came on. Caused by faulty fuel pressure switch (P/N 712-0063). EIR submitted. ■ Transmission chip detector light illuminated in cruise flight. Caused by short in chip detector plug wire. ■ Transmission oil hot caution light came on during hover to takeoff point. Transmission thermostatic switch (P/N 12411-2-230) was replaced and aircraft was released for flight. EIR submitted. ■ Tail rotor chip detector light came on during hover. Normal wear fuzz was found on 90° gearbox magnetic plug.

AH-1

1 ACCIDENT ■ Aircraft crashed, killing both pilots. Investigation is in progress.

1 INCIDENT ■ Explosion occurred under aircraft during low-level range operation, damaging one blade and one wing store. Cause of explosion is under investigation.

1 PRECAUTIONARY LANDING ■ Engine chip detector light illuminated in cruise flight. Detector plug was removed and cleaned, and MOC performed. Aircraft was released for flight. □

LOH

Fatalities: 0 ■ Accidents: 0
Injuries: 0 ■ Estimated Costs: \$2,217

DIVISION

■ LTC David L. Boivin, Chief

Three incidents, two forced landings, and eight precautionary landings were reported.

OH-58

2 INCIDENTS ■ During daily inspection, crew chief found three ¼-inch holes in fuel cell panel on left side of aircraft. *It's difficult for a pilot to admit he didn't use the checklist to insure passenger seat belts were inside the aircraft and fastened.* ■ Right chin bubble was broken when aircraft encountered flock of birds during low-level recon.

2 FORCED LANDINGS ■ Pilot entered autorotation after aircraft yawed left and torque dropped below 10 pounds. After establishing autorotation, pilot rolled throttle on and pulled pitch with maximum of 40 pounds of torque available. Pilot shut down engine and autorotated to plowed field. Aircraft was returned to flight status when MOC and test flight revealed no deficiencies. *This crash facts message from overseas failed to give complete details (such as other engine instrument readings). However, statistics suggest a double check valve failure.* ■ Pilot noted abnormal TOT and N1 readings during climbout. Loud whine and grinding noise were heard as pilot started to reduce power. After entering autorotation, engine failed during the final phase. No. 1 bearing failed, disintegrated, and was ingested into compressor. WELL DONE for the above successful power-off emergency landings goes to the following pilots respectively: CW2 Theodore L. Novetzke, 62nd Avn Co, Germany; CPT John H. Schleimer, California National Guard.

7 PRECAUTIONARY LANDINGS ■ Pilot heard unusual noise coming from rotor head during landing. Postflight inspection revealed abnormal play in transmission pylon link assembly due to pylon support link being worn. ■ Hydraulic pressure caution lights of two aircraft came on in flight. EIR was submitted on pressure switch failure (which caused fluid leakage) of one aircraft. After other aircraft was landed, light went out and MOC failed to duplicate condition. ■ Engine chip detector light came on. Caused by normal wear. ■ Three transmission chip detector light illuminations were reported. One was caused by faulty magnetic plug and one by metal particles from normal wear. Cause of the third is pending oil analysis.

TH-55

1 INCIDENT ■ Main rotor blade struck tail boom tube during termination of straight-in PRACTICE TOUCHDOWN AUTOROTATION.

1 PRECAUTIONARY LANDING ■ Pilot smelled burning rubber when engine mount hanger assembly failed and caused increased tension on main rotor V-belts. EIR submitted.

CREDIT WHERE CREDIT'S DUE: In last week's *Flightfax*, credit for a WELL DONE was given to the wrong IP when the flight person really responsible for the outstanding performance in the emergency landing of the TH-55 was none other than Doss IP Theodore J. Shulsen.

THOUGHT FOR THE WEEK

TRICKS ARE FOR KIDS: Pilots, of all people, should recognize horseplay for what it is—a potentially dangerous act that can cripple or kill. Immature pilots who violate regulations and good judgment for the sake of a foolish thrill scorn at the suggestion that their unauthorized act could result in injury or death. The next time you are tempted to skim the treetops or hydroplane the winding rivers (unauthorized low level) or fly into marginal weather conditions unprepared, STOP, look at yourself, consider the fellow next to you, and then decide if you want to be an affectionate killer because of your love for thrills. So you have played silly games and won before, but accident statistics prove the day will come that you, too, through your foolishness, will "pay the price" to "buy the farm" that the "horse plays" on. Is today the day? Tomorrow? Tricks are for kids, not aviators! □

CARGO

Fatalities: 0 ■ Accidents: 0
Injuries: 0 ■ Estimated Costs: \$15,000

DIVISION

■ CW4 Gerald D. Verbeek, Acting Chief

One incident and five precautionary landings were reported.

CH-47

1 INCIDENT ■ IP placed No. 2 engine condition lever to ground position for simulated engine failure. No. 1 engine took load and stabilized at 62 percent torque. After approximately 30 seconds of operation, No. 1 engine failed with N1 approximately 85 percent and PTIT at 625° C. Failure indications were an explosion followed by a shudder in left side of aircraft and accompanied by loss of rotor rpm. Thrust was lowered, rpm regained, and No. 2 engine restored to flight. Failed engine was cleaned up IAW TM 55-1520-227-10 and aircraft landed safely. Affected engine was an L-11A. Cause unknown. Followup information will be forthcoming in subsequent issue.

4 PRECAUTIONARY LANDINGS ■ No. 2 engine failed during termination of approach. Bleed band popping was noted approximately 1½ hours prior to failure, accompanied by -8 psi fluctuation of engine oil pressure. No abnormal indication prior to failure. Cause is under investigation. Affected engine was an L-7C. ■ Transmission hot light came on in flight. Initial indication was apparent overheat condition existing on No. 1 engine nose box. Actual cause was internal short in temperature selector switch. ■ Aircraft made normal landing after 1.9 hours of pattern work. No. 1 engine was at stop position when No. 2 engine came off line and was shut down as N1 decreased below 50 percent and PTIT decreased through 200° C. There was no indication of trouble prior to failure, and no fire or apparent damage. Cause unknown. Fuel samples indicate fuel contamination was not a factor. ■ Bang was heard and shock felt in aircraft controls during liftoff. Two reoccurrences, symptoms as previously described, were experienced a few seconds later and takeoff was aborted. Suspect electrical short in SAS wiring.

CH-54

1 PRECAUTIONARY LANDING ■ Crew chief saw smoke coming from right side of aircraft and oil on right gear. No. 2 engine oil pressure then started to fluctuate, engine was shut down, and landing was made to nearest airport. Caused by cracked oil tube on No. 2 engine. Line was replaced and aircraft returned to service. □

FIXED WING

Fatalities: 0 ■ Accidents: 2
Injuries: 0 ■ Estimated Costs: \$351,844

DIVISION

■ LTC Charles E. Humphries, Chief

Two accidents, one incident, one forced landing, and six precautionary landings were reported.

U-21

1 ACCIDENT ■ During VFR training flight, IP was demonstrating gliding descents in U-21 transition training program. He shut down both engines and feathered propellers at approximately 12,500 feet altitude. At approximately 9,500 feet, he attempted a restart without success. He then tried a ram air restart, also unsuccessfully. At approximately 4,000 feet, gear was lowered manually and preparations made for emergency landing at available airport. Power-off pattern was established but, upon turning base, IP and rated student pilot realized they were going to land short of runway. Aircraft struck wires running along highway parallel to airport runway. After striking one set of wires, crossing the road, and passing under another set of wires, aircraft touched down in plowed field, bounced, and touched down again, plowing through fence and across wide drainage ditch before coming to rest on its fuselage on taxiway at end of airport. There were no injuries, but aircraft sustained major damage to all components. *The IP was demonstrating an unauthorized maneuver!*

U-8

1 ACCIDENT ■ During climbout after takeoff for maintenance test flight, pilot noticed spray of liquid from No. 1 engine oil cooler vent, notified tower, and returned to airfield. Tower operator saw flames emitting from No. 1 engine just prior to landing. Suspect failure of fuel line (hose assembly, FSN 4720-790-8096).

2 PRECAUTIONARY LANDINGS ■ When landing gear was extended during maintenance test flight, left main gear light failed to give down-and-locked indication. Gear was extended manually but left main gear light still did not come on. Light came on during low pass by tower. Postlanding check revealed left main gear microswitch had loose wire. Wire was reconnected and aircraft released for flight. ■ During simulated single-engine approach on VFR training mission, while No. 2 engine was at zero thrust, No. 2 engine chip detector warning light came on. Power was added to both engines and landing was made. Postlanding check of magnetic plug revealed that a rivet in the gear reduction housing had failed, causing ring gear circlip lock to go through oil system and be picked up on magnetic plug.

T-28

1 INCIDENT ■ While landing from VFR training flight, pilot permitted left wing to drop and contact runway, causing incident damage to wing tip.

T-41

1 FORCED LANDING ■ Engine ran rough after five minutes of VFR training flight. Boost pump was turned on. Engine continued to run rough throughout approach and failed as power was reduced and boost pump shut off for landing. Power-off landing was a success. Suspect fuel injector pump malfunction.

C-47

2 PRECAUTIONARY LANDINGS ■ No. 1 chip detector warning light came on during cruise flight. Caused by fuzz on magnetic plug. ■ No. 1 chip detector warning light came on during climbout and aircraft was returned to point of departure. Caused by accumulation of fuzz on magnetic plug.

OV-1

2 PRECAUTIONARY LANDINGS ■ Hydraulic warning light came on and crew smelled smoke during flight. Caused by failure of right top hydraulic line to speed brake (FSN 4720-868-5799, P/N EAB 440-4-C140). ■ Pilot had started takeoff roll for VFR photo mission and had just placed throttles in full open position when aircraft yawed abruptly to left. Pilot pulled both power levers to ground idle position, identified and feathered dead No. 1 engine, and brought aircraft to stop on runway. Cause of engine failure is unknown, pending teardown analysis. Total time on engine was 436 hours. No overhauls.

FIXED WING 360-DAY MISHAP DATA

	Last 30 Days	Last 90 Days	Last 180 Days	Last 360 Days
Injuries	0	0	1	4
Fatalities	0	2	2	20
Dollar Costs	\$493,938	\$2,543,117	\$2,910,546	\$4,045,886

NATIONAL GUARD

Fatalities:0 ■ Accidents: 2
Injuries:0 ■ Estimated Costs: \$51,530

BRIEFS for Month of September

■ LTC Charles E. Humphries
Chief, Fixed Wing Division

Two accidents, three incidents, and 33 precautionary landings were reported.

OH-6

1 ACCIDENT ■ Aircraft landed hard during PRACTICE AUTOROTATION. Main rotor blades flexed down and severed tail boom, resulting in major damage to main rotor blades, air inlet housing, tail boom, tail rotor assembly, and left main landing gear. There were no injuries.

1 INCIDENT ■ Aircraft struck bird during VFR night flight at 2,500 feet, breaking pilot's windshield.

9 PRECAUTIONARY LANDINGS ■ Engine chip detector warning light came on. Caused by small metal particles on magnetic plug. Plug was cleaned and reinstalled, special oil sample submitted, and aircraft released. ■ Main transmission chip detector warning light came on during landing. Postlanding check revealed wire had separated from electrical connector at magnetic plug. ■ Engine chip detector warning light came on. Caused by fuzz and metal shavings on upper magnetic plug in engine accessory section. Plug was cleaned, oil changed, and aircraft released for flight. ■ Main transmission oil pressure warning light came on. Postlanding check revealed oil and filter were contaminated with bluish-colored gummy material. Transmission was drained and flushed, oil replaced, and aircraft returned to home base. ■ Main transmission oil pressure warning lights of two aircraft came on. Nothing further was reported. It is assumed the magnetic plugs revealed nothing more than fuzz or carbon buildup and that all precautionary measures such as changing oil, completing an MOC, etc., were performed. No materiel deficiencies were reported. ■ Pilot noticed fumes and smoke emitting from battery compartment in cruise flight. Although not reported, apparently the voltage regulator failed, permitting battery to burn up. Voltage regulator and battery were replaced. ■ Main rotor struck bird during cruise flight. Postlanding check confirmed no damage and aircraft was released for flight. ■ Engine chip detector warning light came on during cruise flight. Nothing further was reported.

OH-58

1 ACCIDENT ■ During night VFR training flight, pilot was maintaining VFR over highway when he inadvertently flew into low ceiling and went into IMC. He completed 180° turn but became disoriented. Aircraft assumed unusual attitude and pilot lowered collective pitch to return to VMC, broke out of clouds, and almost immediately impacted ground with aircraft near level. After impact, aircraft bounced and came to rest on left side. There were no injuries. Weather is considered a factor since it was other than forecast.

7 PRECAUTIONARY LANDINGS ■ Tail rotor chip detector warning light came on in flight. Caused by fuzz on magnetic plug. Aircraft is grounded, pending results of special oil sample. ■ Approximately 15 minutes after takeoff, pilot felt aircraft shudder, heard hissing noise, and saw rise in egt. Landing was made at nearby airport. Elbow assembly (FSN 4730-165-4904) had been improperly installed and had vibrated out until it became separated from scroll assembly (FSN 2840-244-1774). ■ Hydraulic pressure warning light came on during takeoff. There was no loss of hydraulic pressure. Suspect malfunction of hydraulic pressure switch. ■ Oil pressure and torque were lost in flight. Suspect failure of internal oil seal. ■ Transmission low oil pressure warning light came on. Caused by failure of transmission oil pressure switch. ■ Transmission chip detector warning light came on. Postlanding check revealed very small piece of metal on magnetic plug. Plug was cleaned, oil changed, MOC performed, and aircraft released for flight. ■ Hydraulic warning light came on during hover. Caused by failure of return line from hydraulic filter to reservoir.

UH-1

1 INCIDENT ■ During VFR training flight, IP was demonstrating forced landing to pilot, who was under a hood. When power recovery was attempted, engine would not accelerate above flight idle. IP completed power-off forced landing and right chin bubble was broken during touchdown. Suspect low side governor failure in fuel control.

16 PRECAUTIONARY LANDINGS ■ Approximately 10 minutes after takeoff, crew smelled hydraulic fluid and suspected possible leak because aircraft had a history of hydraulic failures. During 2-minute shutdown period following landing, hydraulic pressure dropped and master caution and hydraulic pressure warning lights came on. Check revealed source of hydraulic fluid loss was blown O-ring on filter cover (FSN 5330-720-2859, P/N MS 28775-135). ■ During an IFR training flight while climbing through 8,500 feet msl, loud bang was heard from aft cargo or engine/transmission area. There were no passengers or cargo aboard and all stowed equipment was still in place. Flight plan was cancelled and aircraft returned to home base. Postlanding check could determine no deficiencies or unusual conditions that would explain the sound. Aircraft was MOC'd, test flown, reinspected without determining source of noise, and released for flight. ■ Engine chip detector warning light came on. Approach control at nearby AFB was advised of problem and landing was made. Maintenance personnel inspected aircraft, submitted special engine oil sample, and released aircraft for flight. ■ Smoke and liquid were seen coming out of battery vent during final approach. Battery was immediately disconnected upon landing. Caused by malfunction of voltage regulator. ■ Right fuel boost pump warning light came on during final approach. Postlanding check confirmed failure of fuel boost pump. ■ Engine was shut down after completion of flight and smoke was seen coming from battery vent. Voltage regulator had failed in flight, causing battery to overheat. ■ While pilot was practicing holding during instrument training flight, engine chip detector warning light came on. Post-landing check of magnetic plug revealed minor amount of fuzz. Runup subsequent to cleaning and reinstalling magnetic plug produced negative results. Aircraft was released for flight. ■ At approximately 80 knots and 500 feet agl, grinding noise was heard in cockpit and hydraulic caution light came on. All hydraulics were lost on final approach at approximately 100 feet. Aircraft was landed in open field. Caused by failure of hydraulic line (tube assembly, metal, P/N 205-076-201-1). ■ Aircraft began increasingly violent 1:1 vertical vibration during turn. IP elected to abort mission and return to home base. Moderate 1:1 vibration was encountered en route to home base. Postlanding check revealed teflon main rotor feather bearing was broken and protruding from race. Metal chips were found around main rotor hub extension and pitch change horn. ■ On VFR training flight during approach to pinnacle landing at 3,500 feet, noise similar to an inverter shutting down was heard. Within 1 minute, engine oil temperature began rising from normal temperature of 67° C. IP took controls, broke off approach, and headed for landing area, maintaining altitude at 2,000 feet msl. Oil temperature continued to rise to 95° and stabilized. Flight was continued to home station with oil temperature remaining at 95° to 97°. During hover to tiedown, oil temperature rose to 104° for a maximum of 2 minutes. All other engine indications remained normal. Cause was not reported. ■ Pilot heard high, shrill rpm noise during cruise flight. He elected to land at available airport and, during long final, hydraulic pressure light illuminated and hydraulic system failed. Emergency procedures failed to activate hydraulic system. Caused by fatigue failure in hydraulic line. ■ Pilot smelled odor of overheated electrical equipment during night IFR training flight. Postlanding check at available airport revealed wrong size bulb in dome light had caused dome light rheostat to overheat. Dome light circuit breaker was pulled and aircraft was flown to home station where bulb was replaced, rheostat checked, and aircraft released for flight. ■ No. 1 hydraulic caution light came on and pedals became stiff. Aircraft was landed at nearby airport. Suspect hydraulic leak in accumulator valve. ■ While VFR on top during instrument training flight, engine chip detector warning light came on. Postlanding check revealed accumulation of fuzz on magnetic plug. Aircraft was grounded, pending special spectro-analysis of oil. ■ Transmission oil temperature warning light came on. Caused by failure of thermostat switch (FSN 5930-299-1066, P/N 12411-230). ■ Hydraulic power was lost during cruise flight. Caused by internal failure of hydraulic irreversible valve (FSN 1650-911-7349, P/N 42550-2), allowing all hydraulic fluid to leak out.

U-1

1 INCIDENT ■ Pontoon-mounted aircraft was turning during water taxi in river channel with strong outgoing current, when current swept aircraft into parked barge. Extent of damage is unknown. However, there is a hole in the right float and right wing was damaged.

U-3

1 PRECAUTIONARY LANDING ■ Landing gear would only retract about halfway during go-around from low approach. Loud grinding noise was heard under cabin and gear would not extend when actuated. Emergency procedures were initiated, gear manually extended, and landing made at destination airport. Postlanding check confirmed failure of gear output (P/N 0843400-10) and gear actuator (P/N 0843400-30) from excessive wear.

NATIONAL GUARD 360-DAY MISHAP DATA

	Last 30 Days	Last 90 Days	Last 180 Days	Last 360 Days
Injuries	0	10	16	19
Fatalities	0	7	7	8
Dollar Costs	\$51,530	\$1,262,672	\$1,720,798	\$1,832,218

HELP!

So USAAAVS can do a proper job of tracking powerplant malfunctions, please include the following items of information when sending crash facts messages when engines are involved:

- | | |
|-------------------------|----------------------------------|
| 1. Engine serial number | 4. Hours since new |
| 2. Number of overhauls | 5. Hours since last installation |
| 3. Hours since overhaul | 6. Last overhaul facility |

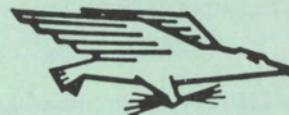
This information will allow USAAAVS to detect trends that develop in one series of engines, in engines from one overhaul facility, and engines with one series of parts installed. If this information is not furnished, valuable time is lost.

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PRELIMINARY ARMY AIRCRAFT MISHAP DATA

FLIGHT FAX

VOL. 2, NO. 3 ■ 24 OCT 1973

mishaps for the period of 5-11 OCTOBER 1973



REVISED SCHEDULE OF CLASSES FOR USAAAVS AAPMC FOR NCO'S

A letter announcing the revised class schedule for the USAAAVS FY 1974 Aviation Accident Prevention Management Course for NCO's and a change in the availability of government quarters was sent to all commands during September. Following is the revised schedule:

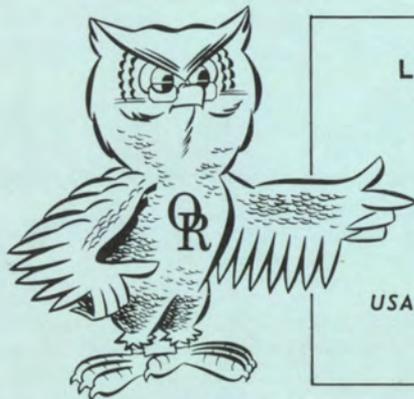
CLASS NO.	STARTING DATE	CLOSING DATE
74-5	27 Nov 1973	7 Dec 1973
74-6	22 Jan 1974	1 Feb 1974
74-7	19 Feb 1974	1 Mar 1974
74-8	19 Mar 1974	29 Mar 1974
74-9	16 Apr 1974	26 Apr 1974
74-10	14 May 1974	24 May 1974

It is anticipated that government quarters will be available for all grades of enlisted students. If government quarters are available, certificates of nonavailability will *not* be issued.

GUIDE FOR THE OPERATION OF ARMY AIRFIELDS

FM 1-55, Guide for the Operation of Army Airfields, dated 28 September 1973, supersedes DA Pam 95-15. This field manual provides general guidance for commanders and operations officers in the development and administration of Army airfield operations and includes guidance for air traffic control, flight dispatch, and airfield services. It references regulations, technical manuals, field manuals, technical bulletins, and other publications which contain information in more detail and which may be used as directives on airfield operations. FM 1-55 is distributed in accordance with DA Form 12-11A requirements for Army Air Traffic Operations and DA Form 12-9A requirements for Aviation-C (battalion level).

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LOSS OF COMBAT EFFECTIVENESS FROM THIS WEEK'S MISHAPS

FATALITIES: 0
INJURIES: 0
AIRCRAFT LOSSES: 0
ESTIMATED COSTS: \$43,470

USAAAVS: AUTOVON 558-6510/4714
Commercial AC 205, 255-6510/4714

U.S. ARMY AGENCY
FOR
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Distribution to Army commands for accident prevention purposes only. Specifically prohibited for use for punitive purposes or for matters of liability, litigation, or competition. Information is subject to change and should not be used for statistical analyses.

UTILITY/ATTACK

Fatalities: 0 ■ Accidents: 0
Injuries: 0 ■ Estimated Costs: \$6,120

DIVISION

■ MAJ Charles E. Toomer, Chief

Two incidents, one forced landing, and 17 precautionary landings were reported.

UH-1

2 INCIDENTS ■ Both main rotor blades were damaged during NOE operation. ■ Pilot heard loud noise, followed by airframe noise and vibrations. Descent from IMC to VMC was made and pilot landed. Postflight inspection confirmed bird strike on left upper cabin vent.

1 FORCED LANDING ■ Pilot reduced power in cruise flight and added right pedal, with no effect, as aircraft continued to yaw. Pilot initiated approach to airfield and made running landing on sod. Caused by failure of tail rotor control chain (P/N 240-601-739-3). EIR submitted. WELL DONE to CW2 Jerome H. Kross.

15 PRECAUTIONARY LANDINGS ■ On turn from downwind to base, pilot smelled odor of burning rubber. After landing, maintenance inspection revealed failure of magnetic brake assembly (P/N 204-001-376-3). EIR submitted. ■ After reducing power, pilot heard two loud bangs from engine and aircraft yawed left. Problem was identified as compressor stall. Aircraft is undergoing maintenance analysis. ■ Transmission oil pressure fluctuated erratically and pilot landed aircraft. Caused by chafing wires between transmission oil pressure sending unit and wire bundle. ■ Transmission oil was lost during climbout. Caused by ruptured internal transmission oil filter gasket. ■ Aircraft developed severe 1:1 vertical vibration during maintenance test flight. Cause unknown. ■ Crew smelled fuel fumes during takeoff. Fumes came from broken fuel filter drain valve (P/N MS 29530-6). EIR submitted. ■ Hydraulic caution light came on intermittently and pilot felt slight feedback in controls. Hydraulic pump (P/N AA60321-R2A) is suspected cause. ■ Two aircraft had excessive engine oil temperature from failure of oil cooler fan bearing (P/N A2C152-3). EIR's submitted. ■ Engine fuel pump warning lights of two aircraft illuminated. Loose cannon plug caused one illumination. An engine fuel pump warning lens had been inadvertently substituted for the 20-minute fuel warning lens in the caution panel of the second aircraft. Lens was changed, aircraft was refueled, and warning light system functioned properly. Aircraft was released for flight. ■ Two aircraft had batteries which overheated in flight. ■ Two engine chip detector light illuminations were reported. Both were caused by normal metal wear.

AH-1

2 PRECAUTIONARY LANDINGS ■ Engine oil pressure caution lights of two aircraft illuminated. One was caused by faulty pressure transmitter switch (P/N 318-00040) and failure of N1 accessory drive seal is suspected cause for the second illumination. One EIR submitted. □

LOH

Fatalities: 0 ■ Accidents: 1
Injuries: 0 ■ Estimated Costs: \$21,000

DIVISION

■ LTC David L. Boivin, Chief

One accident, one forced landing, and four precautionary landings were reported.

OH-58

1 ACCIDENT ■ Aircraft was one-fourth mile from airport at 2,000 feet altitude when N2 went to 108 percent and fuselage yawed right. Pilot rolled throttle to idle stop and entered autorotation. A 450° right turn and two "S" turns were made to reach touchdown area. At the same time, pilot attempted manual control with throttle. However, N1 fluctuated from 60 to 90 percent. Aircraft bounced into air, after tail stinger hit surface first, during termination of autorotation to taxiway. Major damage resulted. Suspect high-side governor failure.

2 PRECAUTIONARY LANDINGS ■ Pilot heard loud squeal coming from engine compartment. Engine readings were normal. MOC and test flight failed to duplicate condition. ■ Metal fuzz due to normal wear caused tail rotor chip detector light to illuminate.

OH-6

1 PRECAUTIONARY LANDING ■ Pilot flew aircraft 15 miles to airport after main transmission chip detector light came on. Suspect faulty connection at chip detector plug. *L-U-C-K-Y it wasn't the real thing!!!*

TH-55

1 FORCED LANDING ■ Engine failed immediately after IP felt strong vibration in airframe. EIR submitted on engine failure. A WELL DONE for a successful power-off emergency landing goes to Doss IP Raymond E. Evans of USAAVNS.

1 PRECAUTIONARY LANDING ■ SP heard grinding noise and smelled strong electrical fumes during flight. EIR submitted on bearing failure in alternator.

THOUGHT FOR THE WEEK

DEAD SILENCE. Just a few months ago, a pilot filed a VFR flight plan for a routine service mission at night in an OH-58. Weather conditions en route were forecast marginal with the temperature and dewpoint at zero spread. After calling for taxi-takeoff instructions the tower requested, "Are you departing VFR?" The pilot's response was, "I hope so." Thirty minutes later, the pilot told the tower, "We'll try to go down a little bit under. We're running into big patches of fog here. It's the worst I've seen in a long time." Then silence. . .DEAD SILENCE!

Those pilots who do their wishin' and hopin' for better weather after they're airborne are up against some grim odds of ever getting their desires. Just in the OH-58 alone, 20 weather accidents have occurred since 1 January 1970. Seventeen helicopters were totally destroyed, 34 persons were killed, and 39 more were badly injured. This cause factor, by itself, accounts for almost *two-thirds of all the fatalities* in the OH-58! A lot of pilots are making a lot of noise about how well they can fly the '58 on instruments (a noninstrument certified aircraft, by the way). Too many others are no longer making a sound. □

CARGO

Fatalities: 0 ■ Accidents: 0
Injuries: 0 ■ Estimated Costs: \$0

DIVISION

■ CW4 Gerald D. Verbeek,
Acting Chief

One precautionary landing was reported.

CH-47

1 PRECAUTIONARY LANDING ■ No. 2 engine chip detector light came on while aircraft was on final to helipad. Aircraft landed without mishap. Metal particles were found in No. 2 engine nose box. Engine nose box was changed, oil system flushed, special inspection performed, and aircraft released for flight. □

FIXED WING

Fatalities: 0 ■ Accidents: 1
Injuries: 0 ■ Estimated Costs: \$16,350

DIVISION

■ LTC Charles E. Humphries, Chief

One accident, three incidents, and six precautionary landings were reported.

C-54

1 ACCIDENT ■ Nose gear indicator gave unsafe condition during landing phase of scheduled passenger flight. Emergency procedures were executed and visual check by ground observers verified gear appeared to be down and locked. Landing was executed under 3,000 pounds system pressure. During landing roll, nose gear slowly folded. Accident is under investigation.

U-21

1 INCIDENT ■ During PAR at approximately 100 meters from threshold, 35-40 birds took off from right and climbed across runway northbound. Birds struck left leading edge of wing, resulting in minor damage, when aircraft was at approximately 90-100 knots and 15 feet.

U-1

1 INCIDENT ■ Aircraft was on climbout at approximately 500 feet when large buzzard hit leading edge of right wing, causing 8"x14" hole.

U-10

1 INCIDENT ■ Aircraft ground-looped during takeoff. Caused by insufficient correction for right crosswind.

OV-1

2 PRECAUTIONARY LANDINGS ■ Nose gear indicated unsafe condition when landing gear was lowered. Recycles of gear still gave unsafe nose indication. Emergency gear extension system was used and nose gear indicated down and locked. Unsafe indication was caused by nose gear down-and-locked micro-switch out of adjustment. ■ No. 2 engine lost oil pressure in cruise flight, and engine was secured. Cause unreported.

U-21

2 PRECAUTIONARY LANDINGS ■ After approximately 50 minutes of test flight, left fire warning light and horn activated. Visual check did not indicate fire, but pilot shut down No. 1 engine and landed. Suspect defective flame detector assembly (FSN 8340-761-8512). ■ Landing gear would not retract after takeoff. Aircraft was landed without further difficulties. Postlanding maintenance checks and test flight could not duplicate gear problem. Aircraft was released for flight.

C-47

1 PRECAUTIONARY LANDING ■ During cruise flight at 11,000 feet msl, No. 2 engine began to fluctuate 150 rpm and backfired. After landing, fouled spark plugs were found in No. 2 engine (FSN 2925-142-8731, P/N AF 2925-225-1730).

U-8

1 PRECAUTIONARY LANDING ■ No. 1 engine lost approximately 200 rpm during climbout. Flight was aborted and aircraft landed. Caused by heavy lead deposits on spark plugs (FSN 2925-986-7085, P/N L-1338-33AA). Engine operating indications at time of rpm loss: 43 inches Hg., 3200 rpm. □

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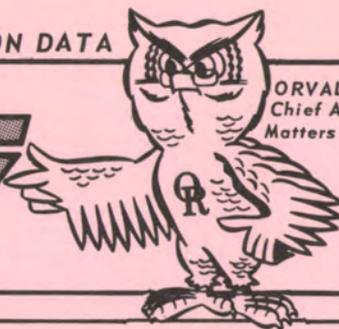
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ARMY AIRCRAFT MISHAP PREVENTION DATA

FLIGHT FAX

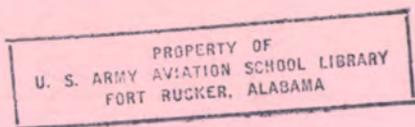


ORVAL RIGHT
Chief Advisor on
Matters of Aviation

A USAAAVS PUBLICATION

VOL. 2, NO. 32 ■ 22 MAY 1974

mishaps for the period of 3-9 MAY 1974



Orval Tells it Like it is

FOR ALMOST TWO YEARS, Orval Right has been sharing his extensive aviation knowledge and experience for the benefit of the Worldwide Army Aviation Accident Prevention Program. This program is headed by an accident prevention group known as the U.S. Army Agency for Aviation Safety (USAAAVS)—pronounced “U-Saves.”

His official title is Chief Advisor on Matters of Aviation, and he is known for his expertise in all areas of aviation, his diplomacy, tact, wisdom . . . all those good things.

Orval was asked by a fellow aviator the other day, “Just what does USAAAVS do for me?”

ORVAL HAD THIS TO SAY:

Recently, the DA staff was reorganized and USAAAVS became an agency of The Office of The Inspector General. Our new boss, LTG H. N. Maples, The Inspector General and Auditor General, is vitally interested in aviation accident prevention. On a recent visit to USAAAVS he said, “We are going to tell it like it is” on matters of flight safety.

Let me begin by “telling it like it is” about USAAAVS. As the Aviation Safety Agency, we are generally thought of as safety people, but we like to think of ourselves as *accident*



prevention people. This is because we recognize a great deal of difference between positive prevention measures and safety restrictions.

IT HAS BEEN SUGGESTED that we change our name to the U.S. Army Agency for Aviation Accident Prevention, but the acronym for that is a problem—USAAAAP, pronounced “U-Sap.” We’ll stay with “U-Saves” until we think of something better.

Regardless of our name, many people do not know what we really do or what services we have to offer. We have been accused of just brooding over stacks of statistics and telling everyone all the things wrong with Army aviation.

SURE, WE ANALYZE past accident experience, but we’re more than just a group of analysts running around in green tennis shoes. The analyses we do are necessary to pinpoint “what’s wrong” and to come up with corrective actions to prevent future mishaps from similar causes.

We review every mishap, but this doesn’t mean we spend all our time reacting to accidents. This is just one of the means we use to further the cause of accident prevention in all phases of aviation, particularly in regard to the man, his machine and the operating environment.

Continued on page 2

WE HAVE MAJOR REPRESENTATION at working meetings for new aircraft systems—UTTAS, HLH, AAH, Advanced Scout—to design out known accident-producing hazards from new aircraft.

A few of our current major projects include improved warning devices, unit and individual NOE training, improved forward area refueling and rearming, the oil analysis program, and in-flight breakup and rotor blade separation problems. We have 147 other projects of interest to aviation personnel across the board.

BUT THIS IS NOT ALL WE DO. About half our working time is spent assisting the soldier and commander in the field. Our assistance visits are planned to reach all company size and, in some cases, smaller units, and their major commands every 18 months. The objective of this program is to help everyone recognize and correct aviation hazards before they cause unnecessary losses in lives and equipment.

Among the areas looked into by our teams are: operations, maintenance, unit readiness, training, air traffic control (with the help of USAASO), standardization, facilities and safety (flight safety, ground safety, shop safety, office safety, even safety in getting to and from work).

We feel we can be of real service to you in these areas, not because we are smarter than everyone else, but because we are constantly in touch with activities in the field, something is bound to rub off.

OUR ASSISTANCE VISITS are designed to help you accomplish your mission—not to restrict your operations—and at the same time conserve aviation resources. We are able to do this by passing on to you the knowledge we have gained through our worldwide operations.

No funding is required of units requesting USAAAVS assistance and we will and do work on

weekends to meet the needs of Reserve and National Guard units.

While we hang our hats at Fort Rucker, we report only to The Inspector General. We are a field operating agency and as such, we can cut through a lot of red tape and save time to get DA staff attention focused on problems we are unable to solve for you in the field.

WE ARE YOUR ACCIDENT PREVENTION field representative on the DA Standardization Board. We also work closely with the National Transportation Safety Board; the Aviation Center; FAA; Air Force, Navy, and Coast Guard safety centers; and other civil and military agencies as well as industry to give you the most comprehensive information possible concerning your accident prevention program.

It is our policy to make sure your problems are looked into, worked on and solved—hopefully before they become accidents. We have the open-door policy 24 hours a day. In fact, we threw the door away years ago.

WE DON'T HAVE ALL THE ANSWERS, but we do have some of them. Yes, we make mistakes but we try, so try us. Direct communication is authorized by AR 10-29.

USAAAVS DIRECTORATE AUTOVON NUMBERS
Commander/Deputy Commander

558-3410/3819

Technical Research and Applications

558-6404/6410

Plans, Operations, and Education

558-4812/6510

Aircraft Accident Analysis and Investigation

558-3913/4202

Management Information System

558-4200/2920

After-duty tape recording of incoming calls to be returned following day (hours: 1615 to 0730)

558-6510

Commercial 255-XXXX

**LOSS OF RESOURCES
FROM THIS WEEK'S MISHAPS**

FATALITIES: 0
INJURIES: 2
AIRCRAFT LOSSES: 0
ESTIMATED COSTS: \$65,500



**UNITED STATES ARMY AGENCY FOR AVIATION SAFETY
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UTILITY/ATTACK

Fatalities: 0 ■ Accidents: 1
Injuries: 2 ■ Estimated Costs: \$65,500

DIVISION

■ MAJ Charles E. Toomer, Chief
558-4198

One accident, one incident, one forced landing, and thirty-six precautionary landings were reported.

UH-1

1 ACCIDENT ■ Rpm decayed at approximately 30 feet agl during landing approach at 12,000 feet msl on medical evacuation mission. Pilot attempted to land, but aircraft rolled down hill on uneven terrain and came to rest inverted.

1 FORCED LANDING ■ Engine failed on takeoff. Suspect engine inlet guide vane closure.

30 PRECAUTIONARY LANDINGS—following are selected briefs ■ Crew detected fuel fumes in cockpit. Caused by broken main fuel manifold. ■ Pilot smelled hydraulic fumes, with no warning lights or control stiffness. Caused by failure of O-rings on top bolt of irreversible valve which had been incorrectly installed. ■ Twenty-minute fuel light came on while fuel gauge indicated 400 pounds of fuel remaining. Caused by malfunction of fuel warning system. ■ Transmission oil temperature light came on, with oil temperature at 82° during hover. Caused by malfunction of resistance plug, P/N MS280343. EIR submitted. ■ Hydraulic light came on in cruise flight with no apparent loss of hydraulic power. Caused by defective fitting on hydraulic line, P/N 205-076-0331. ■ Transmission oil pressure light came on in cruise flight. Pressure dropped to zero after aircraft was landed. Caused by failure of primary oil filter gasket which failed due to unserviceable quick disconnect coupling. ■ Crew felt binding in pedals. Both pitch change links were installed incorrectly. ■ Transmission oil pressure fluctuated, then dropped to zero. Caused by malfunction of oil pressure sending unit. ■ Severe 1:1 vertical vibration started in level flight. Collective friction collar backed off. ■ Engine chip detector lights of four aircraft came on. All reported as normal wear. ■ Five 42° gearbox chip detector lights came on. Four were caused by electrical shorts and one was reported as normal wear.

AH-1

1 INCIDENT ■ During MOC, one main rotor blade was damaged by breaker bar left on rotor head.

6 PRECAUTIONARY LANDINGS ■ Pilot heard loud whining noise after takeoff and felt severe high frequency vibration. Metal fragments on oil screen indicate internal engine failure. ■ No. 2 hydraulic system came on at hover. Inspection revealed failed O-ring forward of filter assembly. ■ Pilot heard noise like cavitating hydraulic pump and No. 1 hydraulic system light illuminated. Cause unknown. ■ Fuel boost caution light came on. Caused by failure of aft boost pump. ■ No. 2 hydraulic light came on. Cause unknown. ■ Ninety-degree gearbox chip detector light came on. Cause reported as normal wear. □

LOH

Fatalities: 0 ■ Accidents: 0
Injuries: 0 ■ Estimated Costs: \$0

DIVISION

■ LTC David L. Boivin, Chief
558-4202

One forced landing and fifteen precautionary landings were reported.

TH-55

1 FORCED LANDING ■ After approximately 30 minutes of flight, instructor pilot reduced throttle to give student pilot simulated forced landing, and engine quit. Aircraft was landed in open field. Cause of engine stoppage undetermined.

6 PRECAUTIONARY LANDINGS ■ Two engine oil pressure malfunctions were reported. Both were caused by failure of oil pressure sending units. ■ Three precautionary landings were made because of the following

materiel failures: broken sight window on main rotor damper assembly, failure of longitudinal cyclic trim motor, and erratic altimeter. ■ Engine began running rough during hover. Aircraft was landed and inspection revealed one cylinder was leaking oil, fouling out spark plugs. Cylinder assembly was replaced.

OH-58

7 PRECAUTIONARY LANDINGS ■ Crew heard loud bang from engine compartment. Power was reduced and all gauges were checked for malfunction, with negative indications. Aircraft was then landed at nearest airfield with no visible problems. Suspect compressor stall occurred during power change. Problem could not be duplicated and aircraft was released for flight. ■ Pilot heard continuous whistling noise coming from rotor system and landed in open field. Inspection revealed no discrepancies. Noise could not be duplicated during test flight. Maintenance operational check was completed and aircraft released for flight. ■ After approximately 1.5 hours of flight, hydraulic pressure segment lights illuminated. Slight feedback in controls was experienced, so pilot applied dash 10 emergency procedures and landed aircraft. Light illumination was caused by internal short in hydraulic pressure switch. ■ On 5 April 1974, ARADMAC notified the unit that an engine oil sample that had been taken at 322.5 hours on this aircraft indicated a sharp increase in iron and silver content. Aircraft had accumulated an additional 1.5 hours before this notification and was immediately grounded for another oil sample. This sample was submitted at 324.0 hours. On 1 May 1974, the unit was notified that the oil sample taken at 324.0 hours showed normal metal wear. On 2 May 1974, aircraft was released and flown 0.3 hours when engine chip detector light came on. Landing was made and inspection by maintenance indicated "normal" accumulation of carbon. Engine oil system was flushed and reserviced, and during engine start, engine SEIZED at 10-13 percent N1. Cause of engine failure is undetermined pending teardown analysis. ■ After aircraft was landed from simulated antitorque failure, tail rotor chip detector light came on. Inspection revealed metal flake on magnetic plug. Oil analysis indicated metal was from normal wear. ■ Transmission hot light came on after 10 minutes of flight. Caused by failure of transmission temperature switch. ■ After 2 hours and 40 minutes of low-level training flight, 1:1 vertical vibration was noticed. Postlanding inspection revealed one main rotor had a blade tip bonding separation approximately 3 inches long and 1 inch wide. Aircraft was released for one-time flight back to heliport for blade change. EIR was submitted on blade.

OH-6

2 PRECAUTIONARY LANDINGS ■ Engine chip detector light came on. Caused by fuzz on magnetic plug. Plug was cleaned and engine oil changed. ■ N2 fluctuated from 103 to 108 percent during final approach for landing. Suspect malfunctioning power turbine governor.

THOUGHT FOR THE WEEK

As sure as hot weather comes around, battery overheat problems come up. It appears that by now seasonal changes could be anticipated, but crash facts messages show this may not be true. The organizational maintenance manual (TM 55- . . . -20) tells how to adjust the voltage regulator for different temperatures, and how often to recheck the adjustment. Like the Preventative Maintenance Daily says, check that battery and its connections for security and cleanliness. One of the first clues could be loss of electrolyte. It would not hurt to review the emergency procedures for battery problems. The procedures are usually pretty simple and can save a lot of heartburn. You don't really have to wait for battery acid to start eating away at your socks before you decide to do something. If you are strapped for subjects to teach in maintenance classes, touch on some of the precautions contained in TM 11-6140-203-2, the manual which covers maintenance of aircraft nickel-cadmium batteries. You might also start thinking about what winter will do to the battery instead of waiting for a hard freeze. □

CARGO / SYSTEMS

Fatalities: 0 ■ Accidents: 0
Injuries: 0 ■ Estimated Costs: \$0

DIVISION

■ CW4 Gerald D. Verbeek,
Acting Chief 558-4202

Three precautionary landings were reported.

CH-47

3 PRECAUTIONARY LANDINGS ■ No. 2 engine chip detector light came on. No. 2 engine was secured and running landing was made. Caused by normal fuzz on chip detector. ■ No. 2 engine oil low light came on. Precautionary landing approach was initiated and No. 2 engine chip light came on during short final. Aircraft was landed without further mishap. Caused by moisture buildup in cannon plug connection at oil low sensitive switch in engine oil level indicator. ■ During low-level cruise, No. 1 engine chip detector light illuminated and aircraft altitude was immediately increased to 1,500 feet agl for return to home base. No. 1 engine failed en route and single-engine landing was made at home station. Large metal chips were found on magnetic plug and internal failure of engine is suspected. Failed engine was a T55-L7C.

The following message was received from CDR, USAAVSCOM:

Msg 221830Z Apr 74, subject: Unserviceable Returns of CH-47 AIMI Items. □

FIXED WING

Fatalities: 0 ■ Accidents: 0
Injuries: 0 ■ Estimated Costs: \$0

DIVISION

■ LTC Charles E. Humphries, Chief
558-3901

Seven precautionary landings were reported.

C-7

1 PRECAUTIONARY LANDING ■ When power was reduced and mixture placed in auto rich during landing approach, complete loss of power on No. 2 engine was noted. It was confirmed by manifold pressure, rpm, and required left rudder pressure. Engine was feathered and landing continued. Power loss was smooth and gradual with no backfire or rough operation, which is possibly indicative of fuel problem. No mechanical defects were found during postlanding examination.

C-47

2 PRECAUTIONARY LANDINGS ■ When aircraft was approximately 50 feet agl during takeoff, tower informed pilot that baggage compartment door was open. Improperly closed cargo door was not detected during pre-flight inspection. ■ No. 1 engine ran rough during climb after takeoff. Caused by failure of No. 14 cylinder.

OV-1

1 PRECAUTIONARY LANDING ■ At FL 230 during airborne systems test, pilot detected malfunction of oxygen mask exhalation valve. Descent was begun, during which pilot became incapacitated without losing consciousness. Technical operator, who was also a rated pilot in the OV-1, continued descent to 7,000 feet, using auto-pilot. Pilot recovered and landed aircraft. Pilot was examined by flight surgeon and cleared for flying. Oxygen setting was not reported.

U-8

3 PRECAUTIONARY LANDINGS ■ After approximately .9 hours of flight, pilot noticed fuel siphoning overboard from main fuel tank filler cap. Landing was accomplished on auxiliary tanks. Postlanding examination revealed filler cap had vibrated loose during flight and vent line was clogged with dirt. ■ When gear was lowered for landing, unsafe indication was received in cockpit. Tower confirmed gear was down. Crew bounced gear twice to assure themselves that it was down and locked, and then landed. Left main drag link, clevis bolt, and machine bolt were all bent and worn. Damaged hardware was replaced. ■ Gear failed to retract after takeoff. Aircraft remained in traffic and landed. Cause was not reported. □

HOURS FLOWN AND ACCIDENT AND INCIDENT RATES BY COMMAND

COMMAND	ALL AIRCRAFT			ROTARY WING			FIXED WING		
	THRU 3RD QUARTER FY 74			THRU 3RD QUARTER FY 74			THRU 3RD QUARTER FY 74		
	FLYING HOURS IN 1,000's	RATE ACCIDENT INCIDENT		FLYING HOURS IN 1,000's	RATE ACCIDENT INCIDENT		FLYING HOURS IN 1,000's	RATE ACCIDENT INCIDENT	
**WORLDWIDE	1,177	7.56	16.57	1,020	6.87	15.50	157	12.08	23.52
TRADOC	312	6.73	15.37	275	6.54	13.82	37	8.06	26.86
FORSKOM	284	7.03	26.73	258	6.19	29.03	26	15.38	3.85
USARAL	19	15.83	10.56	17	11.47	11.47	2	66.45	
USAREUR/7th	112	8.04	9.83	103	5.84	8.77	9	32.39	21.59
USARSO	7	14.32	71.62	6	17.49	34.97	1		237.72
USARPAC	30	9.91	19.83	24	12.44	20.73	6		16.29
8th ARMY	47	16.90	6.34	45	15.65	6.71	2	38.36	
USAMC	68	2.93	11.72	44		4.54	24	8.25	24.75
ARADCOM	7	13.84		4			3	32.85	
HQ DA	7			3			4		
MDW	14		28.75	6		17.71	8		36.30
*USAAVNS	209	6.70	18.18	196	6.64	17.37	13	7.55	30.19
*USAPHS	36	8.41	2.80	36	8.41	2.80			
ACTIVE ARMY	928	7.44	18.43	791	6.70	17.32	137	11.68	24.82
RESERVE	48	4.13	10.33	42	4.76	11.89	6		
NAT'L GUARD	201	8.97	9.47	187	8.04	8.57	14	21.38	21.38

*Included in TRADOC

**Includes Active Army, USARNG, USAR

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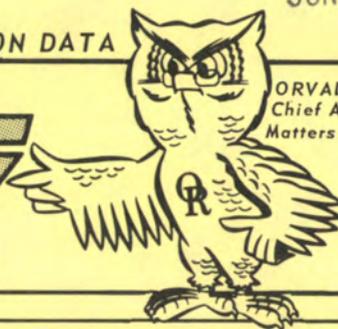


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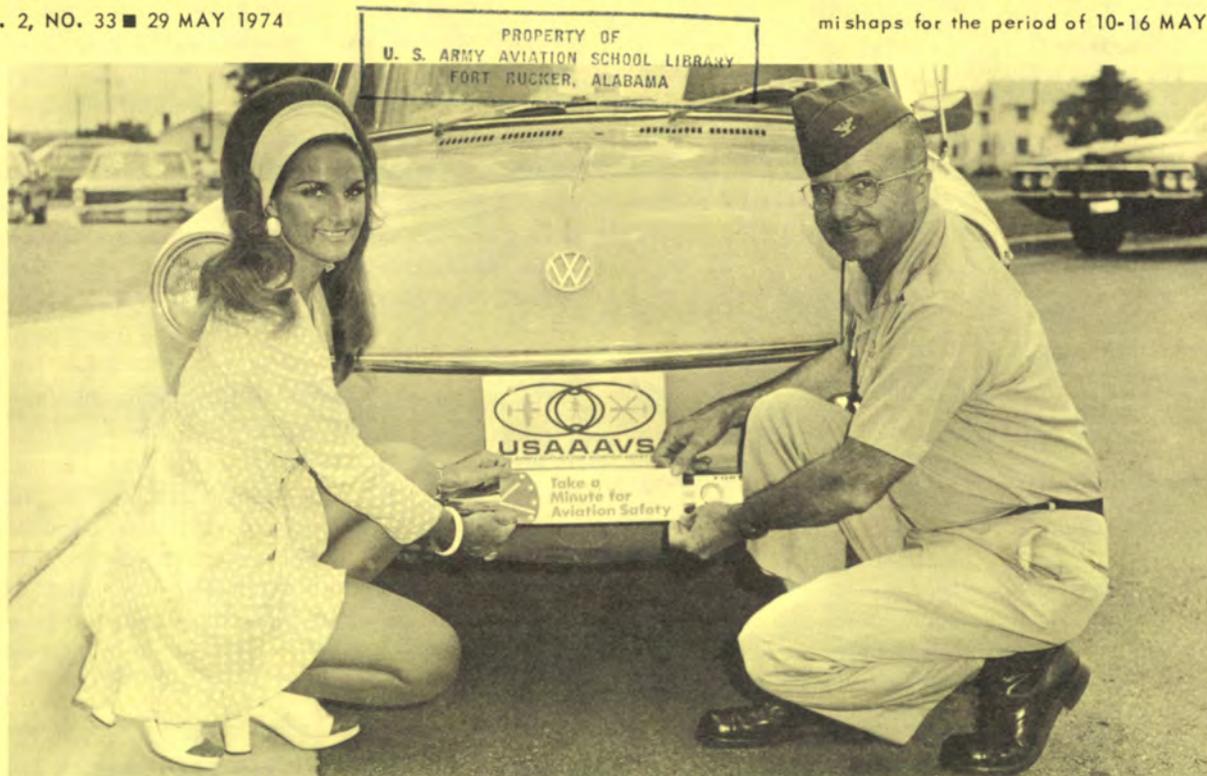


ORVAL RIGHT
Chief Advisor on
Matters of Aviation

A USAAAVS PUBLICATION

VOL. 2, NO. 33 ■ 29 MAY 1974

mishaps for the period of 10-16 MAY 1974



Time Out For Safety

Colonel F. M. McCullar, commander, USAAAVS, and "PEARL" team up to display bumper stickers as a reminder that June has been officially designated as "Take a Minute for Aviation Safety" month—an appropriate time for all aviation-related personnel to pause and reflect on what each can do in his area of operations to improve safety in Army aviation.

To assist units in promoting this safety campaign, USAAAVS has prepared and distributed

a special packet of educational material that, in addition to the bumper sticker shown, contains posters, decals, mobile hanging signs and a news release for local press and radio coverage.

Colonel McCullar and "PEARL" urge you to use this material and to join them in keeping Army aviation safety foremost in mind—not only during June but every day of every month. As the slogan says, TAKE A MINUTE FOR AVIATION SAFETY!

LOSS OF RESOURCES FROM THIS WEEK'S MISHAPS

FATALITIES:	1
INJURIES:	8
AIRCRAFT LOSSES:	0
ESTIMATED COSTS:	\$674,225

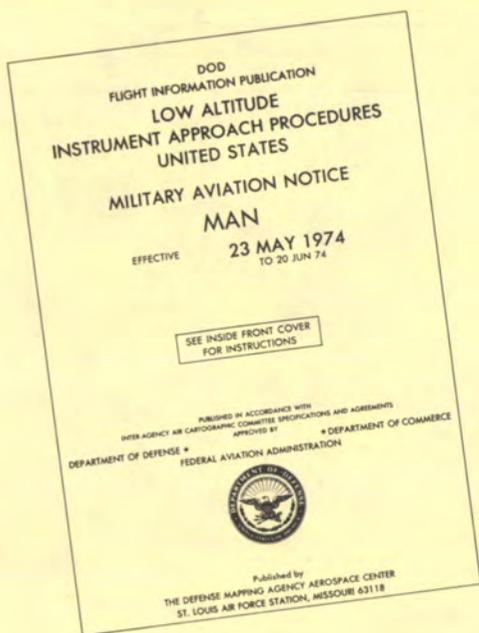


UNITED STATES ARMY AGENCY FOR AVIATION SAFETY
FORT RUCKER, ALABAMA 36360

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Aviators, there's been a new addition to your FLIPs. The U.S. Army Aeronautical Services Office (USAASO) has given us the following information concerning:

MAN



The U.S. Low Altitude Terminal FLIP is published in nine basic volumes which are issued every 8 weeks. A scheduled Military Aviation Notice (MAN) will be published in a bound format at the 4-week mid-point and contain revisions, additions and deletions to the last complete issue of the basic nine volumes. These products must be used in conjunction with each other during mission planning or for in-flight reference. It is imperative that the aircrewmember first consult the MAN before making any decisions regarding which Terminal Instrument Approaches are current at the aerodrome of intended landing. If the aerodrome of intended landing is not listed in the index of the MAN, then the aerodrome information in the basic nine volumes has not changed. All IAPs published in the nine volumes and those issued in the MAN are effective as of 0001 hours local time of the date shown

on the front cover. NOTAMs and unscheduled MANs will be issued when determined necessary by the Military Departments. When unscheduled MANs are received in chart form, the chart being replaced or modified should be obliterated and the replacement page stapled to it. Simple narrative-form MANs may be transferred by annotating the basic chart.

OH-58A/OH-6 SAFETY-OF-FLIGHT

T63 engine compressors with "yellow" liners installed are susceptible to severe corrosion. This corrosion causes the plastic liner to lift, crack, and break loose. To expedite removal of these liners, the retirement schedule for the T63 engine compressors equipped with "yellow" plastic liners is reduced to 450 hours. Reference USAAVSCOM SOF Advisory "Technical Maintenance Message," dated 151930Z May 1974.

CH-47 SAFETY-OF-FLIGHT

Reference USAAVSCOM msg 182042Z May 74, subject: Safety-of-Flight One-Time Inspection for CH-47 Control System Bracket Retention (TB55-1500-210-20-24) CH-47 (19-8). A CH-47 recently had severe control malfunction because of failure of bolts retaining control system bracket. The purpose of the inspection is to

insure that brackets are properly installed with new bolts.

SURVIVAL PANEL

Many survival/rescue situations have occurred where downed aviators needed to mark their location. The Panel Marker, Survival, Aviation Personnel, FSN 8345-140-4232, is an excellent marker. The visibility it provides during daylight hours greatly exceeds the amount provided by reflective tape on the helmet.

This panel, 36½" long by 36" wide and colored fluorescent orange, is designed to be carried in the right thigh knife pocket of the two-piece Nomex flight uniform. The panel marker is expendable and listed in Supply Bulletin (SB) 700-50.

Remember! Survival equipment is like the altitude above and the clear area/airfield behind; it's impossible to use if left behind.

UTILITY/ATTACK

Fatalities: 1 ■ Accidents: 3
Injuries: 8 ■ Estimated Costs: \$655,225

DIVISION

■ MAJ Charles E. Toomer, Chief
558-4198

Three accidents, five incidents, four forced landings, and thirty-eight precautionary landings were reported.

UH-1

3 ACCIDENTS ■ During landing on glacier, aircraft ski dug into ground and aircraft rolled over. Suspect pilot lost ground reference and landed with forward motion. ■ Aircraft rocked fore and aft as initial pitch was applied during PRACTICE AUTOROTATION. Aircraft struck ground tail first and came to rest inverted. Cause under investigation. ■ Aircraft landed tail low during PRACTICE AUTOROTATION, damaging tail rotor, tail boom, and pylon.

4 INCIDENTS ■ Throttle was reduced to flight idle during landing. SP heard loud explosion and aircraft lurched to right. Tail rotor drive shaft, between 42° gearbox and 90° gearbox, was twisted into two parts. Entire tail rotor drive system was submitted for analysis. ■ Hole was noticed in tail rotor drive shaft cover during postflight inspection. One section of drive shaft was dented beyond limits. Foreign object is suspected to have been a screw driver. Two prior flights revealed no difficulty. ■ At 10,000 feet msl, and after skydivers departed, aircraft yawed to right and wind ripped off soundproofing from left side of aircraft, hitting and causing incident damage to red tail rotor blade. Pilot noted momentary vibration in tail rotor pedals and landed. ■ During landing approach, tail stinger hit ground, bending it to left and up. After landing, attempts to straighten stinger broke mounting bracket.

4 FORCED LANDINGS ■ At 300 feet agl, in steady state autorotation, IP noticed N1 dropping to zero. Fuel was shut off and IP completed autorotative landing. ■ Pilot heard loud popping noise in engine area and aircraft yawed to left. Aircraft was autorotated to ground. Suspect severe compressor stall. ■ Aircraft yawed during level flight, followed by low rpm audio warning light. Aircraft was autorotated from 1,000 feet agl to plowed field. Suspect governor failure. ■ During termination of test flight autorotation, clutch assembly in input quill failed to engage when power was applied. Pilot continued autorotation to plowed field. EIR submitted.

33 PRECAUTIONARY LANDINGS—following are selected briefs ■ Pilot smelled caustic odor. Main generator loadmeter was above normal. Caused by internal failure of battery. EIR submitted. ■ While turning on VFR GCA missed approach, master caution and engine chip detector lights illuminated intermittently. Pilot elected to return to airfield and landed. Maintenance personnel found faulty chip detector plug. ■ Crew chief noticed transmission oil on cabin floor during landing. Maintenance inspection revealed overfilled transmission with oil coming from overflow vents. Oil was drained and aircraft released for flight. ■ Pilot smelled burning rubber odor during climb. Postlanding inspection revealed hole in short shaft boot, caused by improper installation of short shaft grease boot. ■ Engine oil pressure gauge dropped from 89 lbs. psi to 19 lbs. psi during cruise flight. Caused by faulty oil pressure gauge. EIR submitted.

AH-1

1 INCIDENT ■ Aircraft was following LOH during NOE flight in right turn above 50 knots. Pilot in front seat was on controls. Pilot in rear seat spotted wires 50 yards before impact, and pulled up collective and back on cyclic too late to miss wires. One strand of wires was severed. Nose door, right side nose section, right side stress panels, right forward crosstube fairing, and crosstube leading edge were damaged.

5 PRECAUTIONARY LANDINGS—following are selected briefs ■ During cruise flight, pilot noted moderate 1:1 vertical vibration, which became severe. Suspect main rotor hub grip assembly bearing failure. ■ During simulated forced landing, needles failed to split and rotor rpm decreased to 250 with no response from

throttle. Governor switch was placed in emergency position and aircraft vibrated severely. Governor switch did not respond until recycled, at which time control was regained manually and pilot landed at civilian airport. Overspeed governor failed. EIR submitted. □

LOH

Fatalities: 0 ■ Accidents: 1
Injuries: 0 ■ Estimated Costs: \$14,000

DIVISION

■ LTC David L. Boivin, Chief
558-4202

One accident, two incidents, and sixteen precautionary landings were reported.

OH-58

1 INCIDENT ■ During takeoff from parking lot with left ground slope of 4° to 5°, right skid started coming off ground. Pilot "rapidly" added collective and aircraft started rolling left with left skid still on ground. At this time "spike knock" was heard. Pilot lowered collective and aircraft came to rest on both skids. Rear cross tube was damaged and isolation mount broken. Suspect aircraft was in the initial stages of "dynamic rollover" and approaching the "point of no return" when the pilot took proper corrective action to prevent catastrophic results.

12 PRECAUTIONARY LANDINGS ■ Bird struck main rotor blade during level flight. ■ Two engine malfunctions occurred as a result of faulty double check valves. Both check valves were replaced. ■ Two engine chip lights on—fuzz on plugs. ■ Two tail rotor chip lights on—fuzz on plugs. ■ Two transmission low oil pressure warning lights on—low pressure switch failed on one and the other switch became shorted when electrical connector nipple on switch was filled with water during flight into moderate rainshowers. ■ Upon termination of hovering autorotation, unusual noise was heard during final pitch pull. Noise was heard again during throttle application. Aircraft was landed and pilot saw smoke coming from engine cowling. Suspect internal engine failure. ■ Master caution light came on. Fault annunciator panel was replaced. ■ Transmission chip light on—metal particles measuring up to one-sixteenth inch were on both magnetic plugs and in filter. Transmission was replaced.

OH-6

2 PRECAUTIONARY LANDINGS ■ Cabin vent valve which was not fully closed caused whistling noise. ■ Engine chip light on—cause unknown.

TH-55

1 ACCIDENT ■ During PRACTICE TOUCHDOWN AUTOROTATION, student pilot made abrupt and excessive collective pitch application, causing aircraft to rapidly descend and strike ground in tail-low attitude. Major damage resulted. Further investigation continues.

1 INCIDENT ■ Aircraft started spinning to right when solo SP lost control. Spin was corrected with left pedal prior to ground contact. Postflight inspection revealed slight damage on trailing edge of tail rotor blades. Suspect damage was the result of flying debris during landing.

2 PRECAUTIONARY LANDINGS ■ One precautionary landing was caused by unbalanced tail rotor assembly and the other by malfunctioning airspeed indicator.

THOUGHT FOR THE WEEK

It's not the wrench that slips and strikes
Or the circuit you thought was dead;
It's not the machine that grabs your head
Or the stairs with the slippery tread.

It's not the hole that you fall in,
So please don't be misled;
The thing that causes the accident is you—
Not using your head.

CARGO / SYSTEMS

Fatalities: 0 ■ Accidents: 0
Injuries: 0 ■ Estimated Costs: \$0

DIVISION

■ CW4 Gerald D. Verbeek, Chief
558-4202

One precautionary landing was reported.

CH-47

1 PRECAUTIONARY LANDING ■ Unusual noise was heard in ramp area while aircraft was in flight. When No. 2 engine was shut down after landing, smoke was seen in area of utility hydraulic system oil cooler. Investigation of oil cooler showed leaking hydraulic fluid and fan blade disintegration. □

FIXED WING

Fatalities: 0 ■ Accidents: 0
Injuries: 0 ■ Estimated Costs: \$5,000

DIVISION

■ LTC Charles E. Humphries, Chief
558-3901

One incident and six precautionary landings were reported.

U-21

1 INCIDENT ■ During practice high level work at 8,500 feet msl, power-on approach to stall with gear and flaps full down was begun. Student was slow in adding power and lowering nose to recover. Aircraft rolled left to an almost inverted position before IP reduced power and "split S'd" to level flight. Aircraft lost approximately 1,000 feet of altitude and turned approximately 270° from original heading. IP did not see how high airspeed went but when he checked it, it was around 140-145 knots. When gear and flaps were raised, flaps would not come up due to buckling of outboard flaps approximately midway between inboard and outboard ends. Aircraft was returned to home base without further damage.

1 PRECAUTIONARY LANDING ■ Fuel was seen leaking from right nacelle filler cap during IFR flight. No. 2 engine was shut down and aircraft was landed. O-ring in filler cap was deteriorated.

C-47

1 PRECAUTIONARY LANDING ■ Approximately 3.5 hours into IFR service mission, No. 1 engine oil temperature and carburetor air temperature went over red line. Engine was secured and landing was made at nearby airfield. Postlanding examination of engine revealed no excess temperature. Suspect failure of instrument electrical circuit, causing erroneous indications of high temperature.

OV-1

1 PRECAUTIONARY LANDING ■ Fuel boost pump failure warning light came on. Aircraft was returned to home base where examination revealed forward submerged fuel boost pump had failed and required replacement.

U-8

3 PRECAUTIONARY LANDINGS ■ Pilot shut down No. 1 engine during test flight. Engine would not restart. After 15-20 seconds, to prevent starter damage, pilot landed. Engine started without difficulty on the ground. Aircraft was released for flight following MOC. ■ Right auxiliary fuel cap came loose during takeoff. Pilot returned to airfield, landed, and discovered fuel cap was positioned with latch in direction of travel of aircraft. Wind apparently forced latch open and allowed cap to come loose. ■ Pilot shut down No. 2 engine during test flight. Engine restarted but would not come out of feather, reportedly due to insufficient engine rpm. Single-engine landing was made and it was determined carburetor mixture was set too rich for low idle. □

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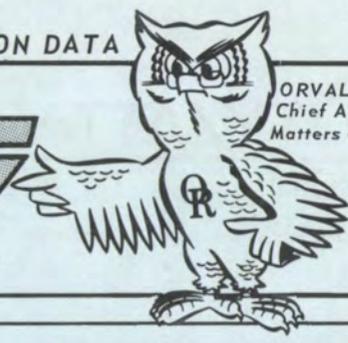
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A USAAVS PUBLICATION

VOL. 2, NO. 34 ■ 5 JUNE 1974

mishaps for the period of 17-23 MAY 1974

20/20 ALWAYS

Every Army aviator submits himself annually to a Class II flight physical. This periodic exam is accomplished to aid in picking up mental and physical changes, which because of their slow progression are not detected unless compared over a long time span to the standards in AR 40-501. If an aviator meets the requirements, he is medically cleared to fly for a 12-month period as long as there is no change during that period in his physical or mental

the controls and not just at the time of his flight physical.

The circumstances surrounding a recent Army aircraft accident illustrate the lack of some pilots' appreciation for this requirement. On the pilot's last physical, his unaided visual acuity was below 20/20; however, glasses previously prescribed allowed him to meet the 20/20 standards. But when it came to flying, he never wore his glasses. Then along came this guy wire and suddenly the Army was out one helicopter. The importance of decreased visual acuity as a causal factor in this accident is not the issue. AR 40-8 states in part: "Aircrew requiring corrective lenses in order to achieve 20/20 vision shall be restricted from flying duties unless they are wearing corrective spectacle lenses which provide 20/20, or better, near and far vision bilaterally."

Don't wear your glasses just to pass a visual acuity test in the flight surgeon's office, for you may flunk the test out in the field where it really counts. Likewise, don't ignore the other Class II medical standards.



status which would prevent him from meeting Class II standards. In other words, an aviator must meet Class II medical standards every time he takes

RECENTLY RELEASED TRAINING FILMS

The following DA training films dealing with aviation accident prevention have been released and are available for use through normal audio visual communications centers.

TF 46-4712, Aviation Maintenance Safety, Color, 16mm. (This film has been selected for showing at the Milan, Italy, International Film Festival.)

TF 46-4706, The Aviation Safety Officer, Color, 16mm.

LOSS OF RESOURCES FROM THIS WEEK'S MISHAPS

FATALITIES:	0
INJURIES:	0
AIRCRAFT LOSSES:	0
ESTIMATED COSTS:	\$48,675



UNITED STATES ARMY AGENCY FOR AVIATION SAFETY
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UTILITY/ATTACK

Fatalities: 0 ■ Accidents: 0
Injuries: 0 ■ Estimated Costs: \$5,175

DIVISION

■ MAJ Charles E. Toomer, Chief
558-4198

Three incidents, two forced landings, and twenty-three precautionary landings were reported.

UH-1

3 INCIDENTS ■ During reconnaissance of landing zone, aircraft struck tree, damaging one main rotor blade. ■ Aircraft lost power while hovering. Power was regained as skids touched runway, causing aircraft to yaw. Rear landing gear cross tubes were damaged. Suspect failure of left fuel boost pump. ■ Aircraft struck buzzard, damaging radio compartment door and upper nose area.

1 FORCED LANDING ■ Low rpm audio came on. Engine rpm and torque pressure decayed. Cause undetermined.

19 PRECAUTIONARY LANDINGS—following are selected briefs ■ Hydraulics control was lost in cruise flight. Caused by failure of preformed packing on collective servo irreversible valve. ■ Battery overheated in flight. Caused by high voltage regulator setting. ■ Oil pressure fluctuated between 30 and 90 psi during climb, and oil temperature rose. Suspect improper torque on two rear N1 accessory gearbox bolts. ■ Aircraft pitched nose down during cruise flight. Caused by failure of support assembly (P/N 205-001-910-1) which allowed malfunction of synchronized elevator.

AH-1

1 FORCED LANDING ■ Pilot heard loud rapid bangs during takeoff. Caused by compressor stall.

4 PRECAUTIONARY LANDINGS ■ Engine chip light came on after takeoff. Inspection revealed normal accumulation of carbon on detector plug. ■ Engine lost power during climb. Power was regained when collective was lowered. Cause under investigation. ■ Tail rotor chip light came on. Reported as normal fuzz on plug. ■ Engine oil pressure fluctuated 5 to 7 psi. Oil pump replaced. □

LOH

Fatalities: 0 ■ Accidents: 3
Injuries: 0 ■ Estimated Costs: \$41,000

DIVISION

■ LTC David L. Boivin, Chief
558-4202

Three accidents and fourteen precautionary landings were reported.

OH-58

1 ACCIDENT ■ After picking aircraft up to hover, pilot heard loud noise from rear of aircraft, followed by rapid yaw to right. Tail rotor gearbox and tail rotor assembly separated from aircraft, causing major damage to tail boom and vertical fin. Suspect failure of tail rotor gearbox assembly.

10 PRECAUTIONARY LANDINGS ■ Weather deteriorated from 800-foot ceiling and 3 miles visibility to 500 feet and one-half mile during service mission with three passengers on board. When pilot entered valley and heavy rainshowers, weather further deteriorated to 300-foot ceiling and less than one-half mile visibility with cloud layer moving in behind aircraft. Pilot elected to land on small dirt road until weather cleared. WELL DONE for "TAKING A MINUTE FOR AVIATION SAFETY" goes to CW2 Richard S. Corzine, 3rd Avn Det, Korea. ■ Pilot heard loud squealing noise (coming from radio) and thought it was hanger bearing failing. ■ During cruise flight, pilot noticed N1 fluctuating from 87% to 89% with torque variations of 4 lbs. MOC unable to duplicate malfunction and aircraft released for flight. ■ Improperly secured oil filler cap came loose, causing loss of oil and illumination of engine oil bypass light with decrease in oil pressure. ■ Hydraulic pressure switch failed. ■ Two transmission chip lights on—one transmission being replaced due to large amount of metal on detector—one with metal particles on plug. ■ Two engine chip lights on—one normal wear fuzz—one unknown. ■ Tail rotor chip light on—normal wear fuzz.

OH-6

2 PRECAUTIONARY LANDINGS ■ Oil cooler bypass light came on and oil pressure dropped to 50 psi. Postflight inspection revealed oil being discharged from gearbox vent line. Cause unknown. ■ Transmission chip light on—normal wear fuzz.

TH-55

2 ACCIDENTS ■ Solo SP overshot intended touchdown point and terminated approach long with fast hovering groundspeed. SP made excessive control inputs in attempt to stop and land aircraft to avoid trees on departure end of runway. Engine antioverspeed device activated and caused left yaw as right skid touched

ground and student overreacted on cyclic. Main rotor blade and tail boom struck ground as hard landing and major damage resulted. ■ SP, with IP at controls, was attempting to hover at takeoff panel when SP lost control. IP overrode student inputs in an effort to reposition aircraft. However, aircraft descended and drifted left until left skid gear struck stagefield lane. Aircraft tilted left and main rotor blades struck ground. Aircraft rolled over onto left side.

2 PRECAUTIONARY LANDINGS ■ Airspeed indicator inoperative. ■ Oil pressure sending unit faulty.

THOUGHT FOR THE WEEK

KILL IT BEFORE IT SPREADS . . . you across the countryside—

With the mission comes the challenge
With the challenge comes performance
With performance comes perfection
With perfection comes confidence

With confidence comes COMPLACENCY
With COMPLACENCY comes tragedy
With tragedy comes flowers
With flowers comes the countryside.

COMPLACENCY is for "coffin-pits," not cockpits!

CARGO / SYSTEMS

Fatalities: 0 ■ Accidents: 0
Injuries: 0 ■ Estimated Costs: \$0

DIVISION

■ CW4 Gerald D. Verbeek, Chief
558-4202

Two precautionary landings were reported.

CH-47

2 PRECAUTIONARY LANDINGS ■ Transmission chip light illuminated at hover with sling load. Large metal particles were found on aft transmission magnetic plug. ■ Transmission chip light illuminated at hover with sling load. Fuzz within normal limits was found on combining transmission magnetic plug.

An EIR reported that an unsafe indication was found on a forward rotor blade ISIS indicator on a CH-47A. An eddy-current inspection was performed on the blade and the aircraft was released for flight back to home station. The reply to the EIR is quoted in part and should be brought to the attention of all personnel involved with flying or maintenance of CH-47 aircraft.

"Blades with a black ISIS indication should not be flown until their safety is verified by an overhaul facility. Field inspections, by eddy-current or any other means, are not considered a valid means of insuring rotor blade integrity."

Additional comments:

An unsafe ISIS indication can mean a defect (crack) exists in the spar which could result in blade failure and loss of the aircraft.

The ISIS indicator inspection is a MANDATORY SAFETY-OF-FLIGHT INSPECTION requirement which means that if the inspection interval cannot be complied with or a defect is found as a result of the inspection, the aircraft condition symbol will be *immediately* changed to a Red X.

The eddy-current inspection method is no longer required nor is it authorized for detecting defects in blade spars. Neither eddy-current nor any other field inspections can be used for releasing an aircraft for flight if a blade defect has been indicated by some other means such as ISIS. For your information the eddy-current tester P/N 114GS226-7 has been deleted from the next revision of the -34P manual.

Although there have been in excess of 100 "false ISIS indications" we have not experienced a blade failure since ISIS was introduced into the CH-47A fleet. Every effort is being made to improve the design and reliability of ISIS and as a result the ISIS indication rate has decreased significantly. □

FIXED WING

Fatalities: 0 ■ Accidents: 1
Injuries: 0 ■ Estimated Costs: \$2,500

DIVISION

■ LTC Charles E. Humphries, Chief
558-4202

One accident and four precautionary landings were reported.

U-8

1 ACCIDENT ■ Aircraft was on training flight, practicing simulated single-engine traffic patterns and landings to accomplish U-8 instructor pilot qualification. Student IP was demonstrating simulated single-engine pattern procedures. Before-landing check was accomplished on downwind leg. On base leg, it became apparent that present glide path would cause aircraft to land short of runway and power was increased on operating engine. Landing gear was retracted at IP's suggestion. Aircraft was reestablished on glide path that would permit landing in first one-third of runway. Student then lowered gear handle and reduced power setting on operating engine. Landing check was not made and as aircraft settled on runway,

right propeller struck runway surface. Student-applied power and aircraft banked to left, striking left wing tip on runway. At this point, IP took control of aircraft, closed throttles, and landed. Estimate of damage was not provided.

1 PRECAUTIONARY LANDING ■ During VFR training flight, IP initiated simulation of engine out on No. 2 engine. Pilot placed engine in feather position and added power to No. 1 engine. No. 2 engine quit before IP could take prop out of feather, reportedly due to low idle rpm. Three attempts were made to restart No. 2 engine without success. IP then returned No. 2 propeller to feathered position and performed single-engine landing to avoid damaging starter or engine by more restart attempts.

C-47

2 PRECAUTIONARY LANDINGS ■ No. 2 engine chip detector light came on. Pilot diverted to available airport. Postlanding inspection of magnetic chip detector plug revealed accumulation of carbon. ■ No. 1 engine began running rough and vibrating. Pilot requested and received radar vectors to nearest airfield with minimum runway length of 5,000 feet. Engine oil temperature rose to 100° and oil pressure dropped to 55 psi. No. 1 engine was feathered and landing was made at municipal airport. Suspect internal engine failure.

U-21

1 PRECAUTIONARY LANDING ■ During IMC mission, pilot noticed No. 1 engine oil pressure fluctuating and oil on cowling. Landing was made at nearest airfield where maintenance personnel determined oil filler cap was not properly seated. □



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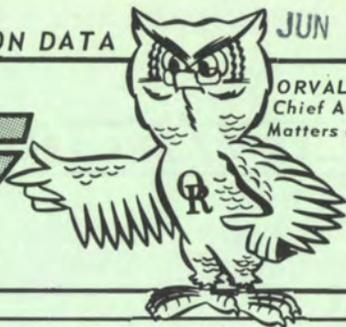
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FLIGHT FAX



ORVAL RIGHT
Chief Advisor on
Matters of Aviation

A USAAVS PUBLICATION

VOL. 2, NO. 35 ■ 12 JUNE 1974

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FORT RUCKER, ALABAMA

mishaps for the period of 24-30 MAY 1974

WARNING

Teetering Rotor Systems

Over the years, a large number of accidents have occurred in Army aircraft equipped with teetering rotor systems because of mast bumping which resulted in mast separation in flight. This, of course, results in catastrophic breakup of the aircraft.

Forty-seven of these mast separation in-flight breakup accidents have resulted in 181 fatalities and a cost of over \$50 million (including training costs to replace the 87 aviator fatalities).

An engineering study has been conducted by AMES Laboratory, a USAAVSCOM activity, to determine the factors which lead to mast separation in flight. This study, with recommended corrective actions, is expected to be released to the field in the near future. Although we have not had a mast separation in-flight acci-

dent since January 1973, we felt you should know something about this report now.

Low positive g loads—such as caused by an abrupt level-off following a sharp pull-up after a gun run—imposed on aircraft equipped with a teetering rotor system can result in excessive blade flapping, severe mast bumping, and mast separation. Rotor system load levels of .2 g or less are considered extremely critical. Similarly, any in-flight condition that can directly cause extreme blade flapping can result in mast failure.

While severe mast bumping should not occur during normal flight operations, it can, under certain conditions, be induced by failure of some aircraft system not directly related to the rotor or by certain maneuvers outside the flight envelope. For example, if

an aircraft's most forward permissible c.g. limit is exceeded by 6 inches—as may be done when an aircraft is combat loaded—and the engine fails, severe mast bumping and mast separation may occur during autorotation. Likewise, a similarly critical condition may result should the tail rotor fail while the aircraft is at normal cruising speed. In this instance, a sideslip angle of 10° or more may result, causing extreme blade flapping and, possibly, mast bumping. Flying into severe turbulence or performing tactical maneuvers, such as sideslips (particularly to the right), can also cause severe blade flapping and result in mast separation.

Although research and investigation is being continued, individual aviators can reduce the hazard of mast bumping by operating these aircraft in a manner that will prevent low g loads and high flapping blade angles. Fortunately, we have not had an in-flight breakup in over 16 months. It can only be surmised that aircraft are being operated by the book. In short, to preclude mast failures, **STAY WITHIN THE FLIGHT ENVELOPE.**

NOTICE

For the past several years, National Guard mishaps have been integrated with active Army mishaps in FLIGHTFAX, and have also been consolidated once a month in a separate National Guard portion of FLIGHTFAX. This issue contains the last separate monthly National Guard section (see page 5). However, National Guard and Army Reserve mishaps will continue to be integrated weekly in FLIGHTFAX. Beginning with this issue, to help Guard and Reserve units identify their mishaps, National Guard mishaps will be identified by ARNG following the description of the mishap, Army Reserve by USAR, and active Army by USA.

UTILITY/ATTACK

Fatalities: 0 ■ Accidents: 0
Injuries: 0 ■ Estimated Costs: \$3,154

DIVISION

■ MAJ Charles E. Toomer, Chief
558-4198

Two incidents, one forced landing, and twenty-three precautionary landings were reported.

UH-1

2 INCIDENTS ■ Aircraft struck trees during takeoff from confined area, damaging main rotor blade. Suspect cause was wind gust at top of trees. (USA) ■ Forward radio compartment door came open during landing, damaging door. Caused by loose attaching screws on latch. (USA)

1 FORCED LANDING ■ During IMC cruise flight, crew noticed smoke in cockpit. Caused by battery short due to battery cells of mixed manufacture. (USA)

22 PRECAUTIONARY LANDINGS—following are selected briefs ■ Transmission oil pressure dropped in cruise flight. Caused by failure of filter gasket, P/N 205-040-187-003. (ARNG) ■ Engine chip detector lights of four aircraft illuminated. One was caused by failure of magnetic plug and three were reported as fuzz or lint on plug. (USA) ■ Hydraulic light came on during takeoff. Caused by internal failure of hydraulic pump. (USA) ■ Engine rpm dropped to 5900 in cruise flight. Suspect leak at No. 1 bearing seal. (USA) ■ Engine oil temperature rose to 150° C. Caused by installation of wrong preformed packing on power turbine oil strainer housing. (USAR)

AH-1

1 PRECAUTIONARY LANDING ■ Engine chip detector light illuminated. Caused by defective magnetic plug. (USA) □

LOH

Fatalities: 0 ■ Accidents: 1
Injuries: 0 ■ Estimated Costs: \$16,508

DIVISION

■ LTC David L. Boivin, Chief
558-4202

One accident, three incidents, four forced landings, and ten precautionary landings were reported.

OH-58

1 FORCED LANDING ■ Engine failed during liftoff to hover. Suspect power turbine governor assembly. (USA)

6 PRECAUTIONARY LANDINGS ■ Hydraulic pressure switch failed on final approach. (USA) ■ One engine chip light and three tail rotor chip lights illuminated—all were normal wear except one tail rotor chip light had loose wire. (USA) ■ Transmission chip detector light illuminated in traffic pattern. Excessive metal particles in oil. Transmission required changing. (USA)

LOSS OF RESOURCES FROM THIS WEEK'S MISHAPS

FATALITIES: 0
INJURIES: 0
AIRCRAFT LOSSES: 0
ESTIMATED COSTS: \$35,662

UNITED STATES ARMY AGENCY FOR AVIATION SAFETY FORT RUCKER, ALABAMA 36360 AUTOYON NUMBERS

Commander/Deputy Commander	558-3410/3819
Technical Research and Applications	558-6404/6410
Plans, Operations and Education	558-4812/6510
Aircraft Accident Analysis and Investigation	558-3913/4202
Management Information System	558-4200/2920
Publications & Graphics Division	558-6385/4218
After-duty tape recording of incoming calls to be returned following day (hours: 1615 to 0730)	558-6510
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OH-6

1 FORCED LANDING ■ Loud bang was heard at 900 feet after takeoff and engine quit. Autorotation was successfully completed at airfield. Suspect compressor blade disintegrated. WELL DONE to MAJ Asa Bryant, Jr., 114th Support Group, Vicksburg, Mississippi. (ARNG)

3 PRECAUTIONARY LANDINGS ■ Oil temperature increased to red line after 20 minutes of flight. Test thermocouple failed. (USA) ■ Two engine chip lights illuminated. Systems flushed and both aircraft released for flight pending results of special oil samples. (ARNG)

TH-55

1 ACCIDENT ■ Engine quit when IP reduced throttle for simulated forced landing. Major damage resulted during autorotative landing to freshly plowed field. (USA)

3 INCIDENTS ■ Engine quit when IP reduced throttle for simulated forced landing. Tail boom and tail rotor drive shaft were damaged during touchdown. (USA) ■ IP allowed student pilot to decelerate aircraft at too low an altitude during practice autorotation. (USA) ■ Aircraft drifted left and landed left nose low during practice hovering autorotation. (USA)

2 FORCED LANDINGS ■ Engine quit when IP reduced throttle for practice autorotation. WELL DONE for a successful power-off emergency landing goes to Karl P. Boesen, civ., USAAVNS. (USA) ■ Engine quit when IP lowered collective to land aircraft when unable to maintain engine rpm while hovering. WELL DONE to Theodore J. Shulsen, civ., USAAVNS, for a successful emergency power-off landing. (USA)

1 PRECAUTIONARY LANDING ■ Engine ran rough during hover. (USA)

HELP COMING ON TH-55 PROBLEMS

Recent TH-55 engine problems are being investigated and corrective action is hopefully on the way. Preliminary indications point to the automatic mixture control as the problem area. Further information will be provided as it becomes available. But one good lesson can be *relearned*, in case you IPs in *all* types of aircraft have forgotten. Simulated forced landings given over terrain unsuitable for successful landings in case emergencies develop are not conducive to long life or preservation of aviation assets.

OH-6 SAFETY-OF-FLIGHT

Since TB 55-1520-30-7 was issued on 21 March 1974, some fuel cells have been found to leak after the repair was made. OH-6A-74-8 Safety-of-Flight Message (Technical/Maintenance) Advisory for OH-6A Aircraft, dated 29 May 1974, gives further guidance in this problem area.

THOUGHT FOR THE WEEK

HEADLINE: DA DESIRES 100 PERCENT INSTRUMENT QUALIFICATION FOR ALL AVIATORS!

"Impossible," you say? Not enough instrumented aircraft, not enough examiners, antiquated facilities, flight simulators inoperative? Well, we found an aviation community on one of our USAAVNS assistance visits that has overcome all of these shortcomings and could very well serve as the DA MODEL. At Fort Knox/Godman Field, the combined efforts of all assigned aviation units have produced a 95 percent instrument qualification rate for the entire aviator community—those serving on ground duty as well as those in cockpit assignments. The worst annual CRF minimum case we found, with 6 weeks still remaining in the fiscal year, was an aviator who needed 11.1 hours. The Knox/Godman complex is blessed with a Flight Simulator Division (no SFTS's) whose instructors really do teach instruments. In three trainers, three instructors average 336 link instruction hours every single month. As they say at Knox, "It's like pulling teeth to get them there, but once they arrive, the treatment ain't too bad!" The other factors, of course, are the availability of a strong core of *working* instrument examiners and strong leadership. Kudo's

to LTC Will Goodwin, LTC Art Finch, MAJ Lin Tanner, MAJ Al Whitson, CPT Herbert Gingras, CPT Roy Phillips, Mr. Collier, CW3 Kennebec, and each of their respective nonrated commanders for achieving this fine training and concurrent safety record. □

CARGO/SYSTEMS

Fatalities: 0 ■ Accidents: 0
Injuries: 0 ■ Estimated Costs: \$14,000

DIVISION

■ CW4 Gerald D. Verbeek, Chief
558-4202

One incident and four precautionary landings were reported.

CH-47

1 INCIDENT ■ Copilot's door came off when copilot opened his window in cruise flight. Both handles were centered and safetied when checklist was read. Investigation revealed pins were still in place and handles were secured with breakaway safety wire. Doors had been removed for maintenance prior to flight. Cause undetermined. (USA)

4 PRECAUTIONARY LANDINGS ■ While externally lifting a 7,000-pound load, No. 2 engine egt fluctuated between 100° and 675°. Cause unknown. (USA) ■ Loud pounding noise was heard in area of aft transmission during flight. Investigation revealed hydraulic cooler system fan had failed. (USA) ■ Rhythmic bang was heard in forward part of aircraft during flight. Airspeed was reduced and noise dampened out. Airspeed was increased and noise increased. Cause undetermined. (USA) ■ Transmission oil hot light illuminated 15 miles at sea, while IFR and under GCA control. Aircraft was vectored to airport and VFR landing completed. Malfunction was isolated to forward transmission. During radar vector oil temperature reached 150° C. and oil pressure fluctuated 15 psi. (USA) □

FIXED WING

Fatalities: 0 ■ Accidents: 0
Injuries: 0 ■ Estimated Costs: \$2,000

DIVISION

■ LTC Charles E. Humphries, Chief
558-4202

One incident and ten precautionary landings were reported.

OV-1

1 INCIDENT ■ After takeoff on IFR SLAR mission, as pilot raised gear, observer's entrance hatch suddenly opened. Pilot remained in traffic pattern and landed. Examination revealed entrance hatch locking mechanism was functioning, was not damaged, and was not out of adjustment. Sheet metal damage was sustained. (USA)

4 PRECAUTIONARY LANDINGS ■ Aircraft was landed on flat nose gear tire. Inner tube had been pinched during assembly. (USA) ■ When gear handle was placed down during landing preparations, all gear indicated down except left main, which indicated "in transit." Gear was recycled with the same results. Gear was then blown down with emergency pneumatic system, but main gear continued to indicate "in transit." Tower personnel confirmed all gear down and aircraft was landed. Examination during retraction test revealed faulty gear position indicator. (USA) ■ After takeoff on IFR SLAR mission, pilot noted, by instrument and sound, overspeed of No. 1 propeller. Pilot returned and landed at home base. While braking during landing, small fire started in brake area but went out when aircraft stopped. Suspect possible blown propeller seal caused overspeed condition. (USA) ■ Heavy electrical odor was detected by crew on night IFR mission. Origin of odor was not determined. (ARNG)

T-41

4 PRECAUTIONARY LANDINGS ■ Engine chip detector warning light came on during takeoff. After landing, magnetic plug was examined, cleaned, and reinstalled. Oil was changed, MOC performed, and aircraft

released for flight. (USA) ■ When power was adjusted for climb after takeoff, engine backfired continuously and loss of power was noticed. Caused by malfunction of fuel injection system nozzle. (USA) ■ Cylinder head temperature began to fluctuate and exceeded maximum temperature limit. Landing was made at available airfield where it was determined there was a broken wire behind cylinder head temperature gauge. (USA) ■ Pilot added power on downwind leg, but engine did not respond. Throttle was then decreased and added again slowly. Engine responded with misfires, oil pressure was noted dropping, and oil temperature began rising. Suspect failure of No. 1 piston. (USA)

T-42

1 PRECAUTIONARY LANDING ■ While leveling aircraft at cruise altitude, severe vibration started at right rear of aircraft and in yoke. When pressure was applied to yoke, vibration subsided somewhat. Flat approach and landing were made at home base. Caused by failure of rod end of elevator tab actuator tube assembly. (USA)

VC-6

1 PRECAUTIONARY LANDING ■ Smoke was noticed in cabin during climbout. Aircraft was returned to point of departure where examination identified short in volume control switch for cabin stereo system. (USA)

NATIONAL GUARD

Fatalities: 0 ■ Accidents: 1
Injuries: 0 ■ Estimated Costs: \$21,900

BRIEFS for Month of May

■ LTC Charles E. Humphries, Chief
Fixed Wing Division 558-4202

One accident, one incident, three forced landings, and thirty-seven precautionary landings were reported.

OH-58

1 ACCIDENT ■ After picking up to hover pilot heard loud noise from rear of aircraft, followed by rapid yaw to right. Tail rotor gearbox and tail rotor assembly separated from aircraft, causing extensive damage to tail boom and vertical fin. Aircraft was landed with no additional damage. Suspect failure of tail rotor gearbox assembly.

4 PRECAUTIONARY LANDINGS ■ Crew heard loud bang from engine compartment during night flight. Power was reduced and check of gauges revealed no indications of malfunction. Aircraft was landed at nearest airfield, but cause of noise could not be determined. ■ Transmission oil pressure low light came on. Caused by malfunction of transmission low pressure switch. ■ Transmission chip detector warning light came on. Nothing further was reported except that weather and maintenance were not considered factors. ■ Unusual noise was heard and thought to be a recently installed tail rotor drive shaft bearing. Postlanding check determined noise was in radio and flight was continued.

UH-1

1 INCIDENT ■ Aircraft lost power while hovering to parking area. As aft skids touched surface, engine regained power and yawed to right, damaging rear cross tube. Left fuel boost pump and bleed air caution lights had come on approximately 5 minutes before, resulting in precautionary landing, and aircraft was being repositioned to parking area when incident occurred.

1 FORCED LANDING ■ Aircraft yawed in level flight and low rpm audio and warning light came on. Engine and rotor rpm fell off to 5800/280. Autorotation was made to plowed field. Suspect low side governor failure.

23 PRECAUTIONARY LANDINGS ■ IP noticed vapors coming from vent of nose-mounted battery. Battery switch was immediately shut off and landing made. Caused by malfunction of battery. ■ Engine chip

detector warning light came on. Examination revealed more than normal fuzz on magnetic plug. ■ Chip detector warning light came on during IFR training flight and was identified as tail rotor indicator. Pilot requested and received clearance to descend to VFR conditions and cancelled IFR upon reaching VFR. Pilot selected open pasture and landed. Caused by defective magnetic plug in 42° gearbox. Plug was replaced. ■ Master caution and transmission oil pressure warning lights came on. Transmission oil pressure indicated 30 pounds. Pilot made powered landing to wheat field and shut down as transmission oil pressure dropped to zero. Primary oil filter gasket failed as a result of unserviceable quick disconnect coupling. ■ Severe 1:1 vertical vibration started without warning. Occupants were thrown against restraint devices. Pilot reduced power to zero and landed in open field where it was determined collective pitch friction collar had backed off. ■ Crew detected electrical fumes in cockpit. There was no indication of a malfunction on gauges or circuit breakers. Aircraft wiring was checked thoroughly after landing and MOC was performed without recurrence of odor. ■ During IFR training flight, crew detected strong odor of electrical fire. Crew contacted ATC, descended to VFR conditions, cancelled IFR flight plan, and landed in open field. Maintenance personnel were flown to site and inspected aircraft without finding any evidence of electrical fire. Aircraft was returned to home base for further inspection. ■ Battery started venting moisture on windshield during flight. Landing was made to nearby airfield where examination revealed voltage regulator was maladjusted, causing battery to overcharge and overheat. ■ Hydraulic pressure was lost in antitorque system. Cause undetermined. ■ Tail rotor chip detector warning light came on. Caused by buildup of fuzz on magnetic plug. ■ Master caution and transmission chip detector warning lights came on and aircraft was landed. Magnetic plug was removed and no metal contamination found. Water and oil were found inside nipple which was cleaned and reinstalled. Aircraft was test flown and released for flight. Aircraft had been washed prior to flight. ■ Hydraulics were lost during standardization ride. Caused by failure of preformed packing on collective pitch servo irreversible. ■ Hydraulic caution light came on during landing. Examination revealed hydraulic pressure switch was malfunctioning intermittently. Switch was replaced and aircraft released for flight. ■ While climbing to altitude immediately after takeoff, oil pressure gauge needle began fluctuating between 30 and 90 psi and oil temperature started to increase and continued beyond 150° C. Landing was made in large open field and engine was immediately shut down. Examination revealed two rear bolts attaching N† accessory gearbox to engine had not been torqued by depot maintenance, which permitted misalignment of accessory drive shaft and resulted in engine oil pump failure and subsequent damage to engine, engine oil cooler, and related oil lines due to excessively high engine oil temperature. ■ Engine chip detector warning light came on. Piece of lint shorted out magnetic plug. No metal particles were found. Oil sample was submitted for analysis. ■ Transmission oil pressure was lost, with accompanying caution light illumination. Caused by failure of transmission oil gasket. ■ Fuel fumes were detected in cockpit. Origin or cause of fuel fumes was not reported. ■ Engine chip detector warning light came on during test flight. Postlanding check revealed small metal particle on magnetic plug. An oil sample was taken and aircraft released for flight. ■ Engine chip detector warning light came on during hover. Examination of magnetic plug revealed accumulation of fuzz. Aircraft was released for flight. ■ Fuel filter warning light came on during takeoff. Caused by short in warning system. ■ Transmission oil pressure caution light came on during test flight. Caused by failure of transmission oil gasket (FSN 5330-107-5393, P/N 204-040-197-3). ■ Aircraft suddenly yawed to left. Post-landing examination could detect no discrepancies. Test flight could not duplicate condition. ■ Crew noticed fuel gauge sticking at 550 pounds during flight. After approximately 2 hours of flight, 20-minute fuel warning light came on with fuel gauge indicating 550 pounds of fuel. Ten minutes later, fuel pressure gauge began to fluctuate. Aircraft had 71 gallons of fuel remaining at landing. Suspect malfunction of fuel quantity transmitter (FSN 6620-133-7911 or 6620-133-7912).

OH-6

1 FORCED LANDING ■ Loud pop was heard from engine compartment during takeoff and engine quit at approximately 900 feet indicated. A 180° autorotation was made back to airfield. Suspect compressor blade disintegrated.

9 PRECAUTIONARY LANDINGS ■ Master caution and engine chip detector warning lights of two aircraft came on. Magnetic plugs were removed, cleaned, and reinstalled. MOCs were performed and aircraft released for flight pending results of oil analysis. ■ On final approach for landing, pilot beeped N2 up to 103 percent and at approximately 20 feet agl applied slight collective pitch to slow descent for landing. Aircraft yawed about 30° left and then back to right. N2 fluctuated from 103 to 108 percent about three times before landing could be made. Postlanding check revealed that with collective pitch full down, N2 would stabilize at 104 percent at full increase governor trim. Then when pitch was increased, N2 would increase to 108 percent. With collective pitch full down and N2 beeped down to 101 percent, when pitch was increased N2 would increase to 103 percent. Suspect malfunction of power turbine governor. ■ Engine chip detector warning light came on. Postlanding check detected fuzz on magnetic plug. Plug was cleaned, oil changed, and aircraft flown to home base. ■ Transmission warning light came on at approximately 100 feet agl on takeoff. Aircraft was landed on taxiway. Which transmission warning light was not identified and nothing further was reported. ■ Chip detector warning light came on on downwind leg of traffic pattern. Examination could not detect a cause, nor would warning light come back on. Oil sample was submitted. ■ Crew heard unusual noise in transmission or engine area during test flight. Postlanding examination did not determine source or cause. ■ While pilot was climbing to 1,500 feet to perform DER check on VFR training flight, chip detector warning light came on and was isolated to main transmission. Postlanding check revealed buildup of fuzz on magnetic plug. Special oil sample was submitted and will be continued at 5-hour intervals for 15 hours. ■ Oil cooler bypass light came on and oil pressure dropped to 50 psi. Aircraft was landed immediately and examination revealed oil was being discharged from gearbox ventline. Cause undetermined.

U-6

1 FORCED LANDING ■ Engine failed during takeoff. Landing was made in open field. There were no maintenance or inspection errors. Materiel deficiencies remain unknown pending analysis.

OV-1

1 PRECAUTIONARY LANDING ■ Crew detected heavy electrical odor in cockpit during night flight. It is assumed aircraft returned to home base. Origin of odor remains unknown.

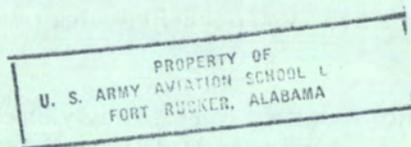
NATIONAL GUARD 360-DAY MISHAP DATA

	Last 30 Days	Last 90 Days	Last 180 Days	Last 360 Days
Injuries	0	3	7	23
Fatalities	0	1	1	8
Dollar Cost	\$21,900	\$65,585	\$770,475	\$2,371,906

Passenger Disposable Oxygen Masks For Airplanes

Paragraph 3-30, AR 95-1, prescribes the use of supplemental oxygen aboard Army aircraft. Oxygen Mask Assembly, FSN 1660-902-5308, costs \$6.84 and contains plastic face mask, connecting hose, coupler, and oxygen flow indicator. This assembly connects into the aircraft oxygen system. USAAVS recommends the Plastic Face Mask, FSN 1660-952-5497, a component of the Oxygen Mask Assembly, FSN 1660-902-5308, costing 77 cents, be removed after use in flight and replaced

by a new plastic face mask, FSN 1660-952-5497. The entire passenger oxygen mask assembly should be inspected before reissue to passengers. Because the passenger oxygen system is a continuous flow type, aviators must make sure passengers disconnect the mask assembly from the oxygen outlet when not in use. This will preclude unnecessary depletion of the onboard oxygen supply.



DEPARTMENT OF THE ARMY
UNITED STATES ARMY
AGENCY FOR AVIATION SAFETY
FORT RUCKER, ALABAMA 36360

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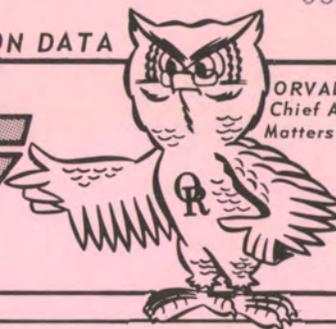


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VOL. 2, NO. 36 ■ 19 JUNE 1974

mishaps for the period of 31 MAY-6 JUNE 1974

Fire Fighting School

Effective 1 July 1974, all Army fire fighters will be trained at the U.S. Air Force Fire Fighting School, Chanute Air Force Base, Illinois. The course duration is eight weeks. Upon graduation from the course, individuals will be awarded Fire Fighter MOS 51M.

Chapter 11, AR 614-200, establishes procedures for selecting active Army permanent party enlisted personnel and Army Reserve personnel for training at Army, Navy, and Air Force service schools. It also defines administrative procedures concerning their assignment, and establishes procedures for relief and disposition of unqualified students. Army National Guard units should request quotas through Guard channels.

FY 75 FIRE FIGHTING SCHOOL SCHEDULE MOS 51M

Class Number	Starting Date	Graduation	Input
JULY 1974			
740703	03 Jul 74	27 Aug 74	2
740710	10 Jul 74	03 Sep 74	2
740717	17 Jul 74	10 Sep 74	2
740724	24 Jul 74	17 Sep 74	2
740731	31 Jul 74	24 Sep 74	3
AUGUST 1974			
740807	07 Aug 74	01 Oct 74	2
740814	14 Aug 74	08 Oct 74	2
740821	21 Aug 74	15 Oct 74	3
740828	28 Aug 74	22 Oct 74	2
SEPTEMBER 1974			
740904	04 Sep 74	29 Oct 74	2
740911	11 Sep 74	05 Nov 74	2
740918	18 Sep 74	12 Nov 74	2
740925	25 Sep 74	19 Nov 74	2
OCTOBER 1974			
741002	02 Oct 74	26 Nov 74	3
741009	09 Oct 74	03 Dec 74	2
741016	16 Oct 74	10 Dec 74	2
741023	23 Oct 74	17 Dec 74	3
741030	30 Oct 74	23 Dec 74	2

Class Number	Starting Date	Graduation	Input
NOVEMBER 1974			
741106	06 Nov 74	07 Jan 75	2
741113	13 Nov 74	14 Jan 75	3
741120	20 Nov 74	21 Jan 75	2
741127	27 Nov 74	28 Jan 75	2
DECEMBER 1974			
741204	04 Dec 74	04 Feb 75	3
741211	11 Dec 74	11 Feb 75	2
741218	18 Dec 74	18 Feb 75	1
JANUARY 1975			
750103	03 Jan 75	27 Feb 75	3
750108	08 Jan 75	04 Mar 75	2
750115	15 Jan 75	11 Mar 75	2
750122	22 Jan 75	18 Mar 75	3
750129	29 Jan 75	25 Mar 75	2
FEBRUARY 1975			
750205	05 Feb 75	01 Apr 75	2
750212	12 Feb 75	08 Apr 75	3
750219	19 Feb 75	15 Apr 75	2
750226	26 Feb 75	22 Apr 75	2
MARCH 1975			
750305	05 Mar 75	29 Apr 75	2
750312	12 Mar 75	06 May 75	2
750319	19 Mar 75	13 May 75	2
750326	26 Mar 75	20 May 75	3
APRIL 1975			
750402	02 Apr 75	27 May 75	2
750409	09 Apr 75	03 Jun 75	2
750416	16 Apr 75	10 Jun 75	3
750423	23 Apr 75	17 Jun 75	2
750430	30 Apr 75	24 Jun 75	2
MAY 1975			
750507	07 May 75	01 Jul 75	2
750514	14 May 75	08 Jul 75	2
750521	21 May 75	15 Jul 75	2
750528	28 May 75	22 Jul 75	2
JUNE 1975			
750604	04 Jun 75	29 Jul 75	2
750611	11 Jun 75	05 Aug 75	2
750618	18 Jun 75	12 Aug 75	2
750625	25 Jun 75	19 Aug 75	2
FY 75 TOTALS			112

UTILITY/ATTACK

Fatalities: 0 ■ Accidents: 0
Injuries: 0 ■ Estimated Costs: \$9,380

DIVISION

■ MAJ Charles E. Toomer, Chief
558-4198

One incident, three forced landings, and twenty-six precautionary landings were reported.

UH-1

1 **INCIDENT** ■ Right engine cowl opened during takeoff, damaging cowl and fairing. Suspect cowl was inadequately fastened. (USA)

3 **FORCED LANDINGS** ■ Engine failed in cruise flight. No warning or caution light activated before failure. Caused by gas producer failure. (ARNG) ■ Pilot heard bang from engine, followed by engine failure. Cause not reported. (USA) ■ During practice autorotation, engine failed when throttle was closed. Caused by failure of flight idle solenoid. (USA)

22 **PRECAUTIONARY LANDINGS—following are selected briefs** ■ Hydraulic system failed in cruise flight. Caused by failure of irreversible valve, P/N 204-076-0551. (USA) ■ Fuel gauge stuck at 550 pounds. Twenty-minute fuel light came on en route to nearest airfield. TEN MINUTES after light came on, fuel pressure fluctuated. Seventy-one gallons of fuel remained after landing. Suspect malfunction of fuel pressure transmitter. (ARNG) ■ Engine experienced several compressor stalls during hover check on test flight. Cause unknown. (USA) ■ Aircraft was landed in open field during night flight. Pilot was advised that airfield had VMC but he could not land because of ground fog. (USA) ■ Hydraulic light came on in cruise flight, followed by feedback through controls. Caused by failure of left lateral servo. (USA) ■ Battery overheated in cruise flight, spraying battery fluid on windshield. Caused by improper setting of voltage regulator. (USA) ■ Engine chip detector lights of four aircraft came on. All reported as normal wear. Oil samples taken. (USA)

AH-1

4 **PRECAUTIONARY LANDINGS** ■ Aircraft struck telephone lines during NOE flight. No damage found. (USA) ■ Loud noise was heard from transmission area in cruise flight. Suspect failure of bolts on cockpit blower fan assembly. (USA) ■ No. 1 hydraulic light came on in flight. Caused by failure of stow lock switch. (USA) ■ No. 1 hydraulic light came on intermittently in cruise flight. Accumulator purge line was removed, inspected, and reinstalled. (USA) □

LOH

Fatalities: 0 ■ Accidents: 0
Injuries: 0 ■ Estimated Costs: \$823

DIVISION

■ CPT Walter L. Hinman, Chief
558-4202

One incident, two forced landings, and seven precautionary landings were reported.

OH-58

1 **FORCED LANDING** ■ Engine chip light came on at normal cruise. Engine oil pressure fluctuated and loud squeal was heard. During precautionary landing approach, engine failed and autorotation was made with no damage. WELL DONE to CW2 Melvin G. Kerr, 9th Avn Bn, 9th Inf Div, Fort Lewis, Washington, for a successful emergency power-off landing. (USA)

LOSS OF RESOURCES FROM THIS WEEK'S MISHAPS

FATALITIES: 0
INJURIES: 0
AIRCRAFT LOSSES: 0
ESTIMATED COSTS: \$11,203

UNITED STATES ARMY AGENCY FOR AVIATION SAFETY FORT RUCKER, ALABAMA 36360 AUTOVON NUMBERS

Commander/Deputy Commander	558-3410/3819
Technical Research and Applications	558-6404/6410
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Aircraft Accident Analysis and Investigation	558-3913/4202
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After-duty tape recording of incoming calls to be returned following day (hours: 1615 to 0730)	558-6510
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6 PRECAUTIONARY LANDINGS ■ Three engine chip lights came on—one of which resulted in verified imminent engine failure—one normal wear, and one wire loose. (USA) ■ Three tail rotor chip lights illuminated—one unknown cause and one normal fuzz. (USA) The other chip plug had metal sliver and aircraft was grounded pending oil analysis results. (ARNG)

OH-6

1 FORCED LANDING ■ Aircraft shuddered and yawed right. TOT and N1 increased rapidly. Autorotation was made to open field. Suspect governor failure. (ARNG)

1 PRECAUTIONARY LANDING ■ Loud noise heard from vicinity of engine compartment on takeoff. Cause unknown. (ARNG)

TH-55

1 INCIDENT ■ SP untied main rotor blades during preflight. One blade was retied for refueling. Subsequent startup and rotor engagement were made with tiedown still in place. One blade required replacement. (USA)

USAAVSCOM MESSAGE

042115Z June 1974, subject: OH-58-74-6 Operational/Technical Advisory Message (Main Drive Shaft Cover Assemblies) OH-58A Helicopter.

THOUGHT FOR THE WEEK

A crew that can preflight in 10 seconds flat is apt to be buried in much less than that. So throw away those good luck charms and use the checklist. □

CARGO/SYSTEMS

Fatalities: 0 ■ Accidents: 0
Injuries: 0 ■ Estimated Costs: \$0

DIVISION

■ CW4 Richard D. Havenstrite,
Acting Chief 558-4202

Five precautionary landings were reported.

CH-47

5 PRECAUTIONARY LANDINGS ■ Crew noticed whistling noise and landed to investigate. Retaining screw on rotor tip cover came loose, allowing cover to enter slipstream. (USA) ■ Aircraft was in cruise flight at 2,000 feet msl when crew chief detected fuel leak in aft pylon area. Caused by cross-connected combustor drain line and P3 air bleed line at No. 2 engine disconnect panel. This caused a gradual buildup of JP4 in the air bleed line to the No. 2 flight boost reservoir and fluid began to leak at various fittings and connections in the P3 air bleed line in the pylon area. Approximately 50 flight hours were involved from time of cross connection until discovery. (USA) ■ Loud bang was heard and aircraft shuddered. No warning lights were evident, but No. 1 engine torque needle dropped to zero. Landing was made and investigation by crew revealed that No. 1 engine, N2 section, disintegrated in flight. Cause under investigation. Engine was T55-L7C. (USA) ■ No. 1 engine chip detector light came on shortly after takeoff from intermediate stop. Aircraft returned for landing and chip detector plug was inspected. Normal wear was found on plug. (USA) ■ Transmission chip detector light came on. Normal wear was found on plug. (USA) □

FIXED WING

Fatalities: 0 ■ Accidents: 0
Injuries: 0 ■ Estimated Costs: \$1,000

DIVISION

■ LTC Charles E. Humphries, Chief
558-4202

One incident and five precautionary landings were reported.

U-4

1 INCIDENT ■ During VFR service mission, hydraulics were lost in flight and gear would not retract after intermediate landing. Pilot diverted to a field where his support maintenance was located. After clearing active runway onto taxiway, pilot lost directional control of aircraft and could not stop it. He shut down both engines but aircraft left taxiway for sod area and came to rest in hole. Right main gear actuator pin and attaching bracket were broken, bottom fuselage and right top wing skin wrinkled, and antennas destroyed. This incident could reportedly have been avoided had the checklist been used when the hydraulics failure first occurred. Emergency hydraulic system was not activated. (USA)

C-47

2 PRECAUTIONARY LANDINGS ■ No. 1 engine chip detector warning light came on during climbout. Aircraft returned and landed at departure field. Examination revealed No. 1 engine had internal damage, necessitating change. (USA) ■ No. 2 engine chip detector warning light came on and aircraft was landed at intermediate field. Examination revealed small metal particles on magnetic plug and oil screen. Plug and screen were cleaned and reinstalled, oil system flushed, MOC performed, and aircraft returned to flying status. (USA)

U-8

2 PRECAUTIONARY LANDINGS ■ Pilot noticed fluctuation in No. 2 engine cylinder head temperature, followed by loss of rpm (2525) during IFR service mission. Suspecting impending failure of propeller governor, pilot landed at available airfield. Caused by propeller governor failure. (USA) ■ Pilot was preparing to land from test flight when left main gear light would not illuminate to indicate down-and-locked condition. Gear was confirmed down-and-locked and postlanding check revealed wire between solenoid and landing gear light was loose. Wire was tightened and aircraft released for flight. (USA)

U-21

1 PRECAUTIONARY LANDING ■ No. 2 engine was shut down to perform propeller feather check during test flight. Pilot attempted battery restart but prior to engine light-off No. 1 starter-generator failed. Remaining battery power was insufficient to continue restart. No. 1 generator and ground fault were reset with negative results. Ram air restart was attempted unsuccessfully. Single-engine landing was made at home base where failure of No. 1 starter-generator was confirmed. (USA)



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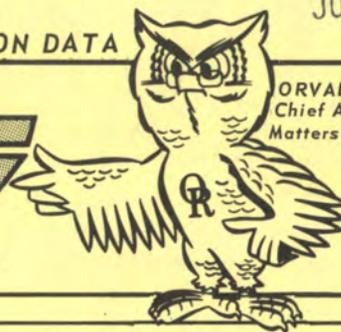


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Chief Advisor on
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A USAAAVS PUBLICATION

VOL. 2, NO. 37 ■ 26 JUNE 1974

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mishaps for the period of 7-13 JUNE 1974

**take a
minute
for
aviation
safety**



Army aviation accident prevention programs become effective when the theme of safety permeates the conscious awareness of all persons involved in the aviation environment. The beginning point must focus on the people who design and build the aircraft. Then the responsibility shifts to the user. The emphasis is necessarily on the aviator, the mechanic, the service and support people, the trainers and educators, and the commanders at every level of command. Sustained diligence on the part of all these people will continue to save lives and conserve assets.

CORRESPONDENCE COURSES

Many fine correspondence courses are available through the U.S. Army Aviation Center, Fort Rucker, Alabama.

This week, attention is directed to the "Aviation Accident Prevention Management Course," available to any commissioned officer, warrant officer, or noncommissioned officer of the active Army or a Reserve component. Enrollment is for those whose present or anticipated duty assignment is aviation oriented or whose actual or anticipated assignment requires knowledge of aviation safety. Address correspondence to: Department of Army-Wide Training Support
U.S. Army Aviation Center
P. O. Box J
Fort Rucker, Alabama 36360
(Enrollment application should be submitted on DA Form 145.)

WELL DONE

Recently, we received a crash facts message from the U.S. Army Security Agency Test and Evaluation Center, Fort Huachuca, Arizona, stating: At 23,000 feet during an OV-1 airborne systems test, pilot detected malfunction of oxygen mask exhalation valve. Descent was begun, during which pilot became incapacitated without losing consciousness. The technical operator, who was also a rated pilot in the OV-1, continued descent to 7,000 feet, using the autopilot. Pilot recovered and landed aircraft.

While this human factor event does not fall within the presently established category of a mishap, we suspect that many events of this type occur every day and, if known, would have a significant impact on aviation safety. Therefore, we wish to extend a WELL DONE to the pilot and technical operator, and to the unit which recognized a need to report this event. We urge other units to follow suit in similar cases to aid USAAAVS in evaluating human factor mishaps.

UTILITY/ATTACK

Fatalities: 0 ■ Accidents: 0
Injuries: 0 ■ Estimated Costs: \$16,127

DIVISION

■ MAJ Charles E. Toomer, Chief
558-4198

Five incidents, one forced landing, and thirty-five precautionary landings were reported.

UH-1

4 INCIDENTS ■ Engine lost power during takeoff. Aircraft landed hard when pilot attempted hovering autorotation. (USA) ■ Aircraft landed hard after hydraulic servo malfunction, damaging right skid and rear cross tube. (USA) ■ Cable broke during sling load operation, causing it to wrap tail boom, tearing left side of tail boom. (USA) ■ While conducting touchdown autorotation in authorized sod touchdown area, aircraft landed outside designated area and struck tree. Main rotor blades were damaged. (USA)

1 FORCED LANDING ■ Engine failed during cruise flight. Cause unknown. An unsolicited WELL DONE to CPT Richard R. Beauchemin, who landed aircraft in open field with no damage. (USA)

30 PRECAUTIONARY LANDINGS—following are selected briefs ■ Aircraft landed due to low fuel while circumnavigating thunderstorms. (USAR) ■ Transmission oil caution lights of two aircraft illuminated. Both were caused by loss of oil due to incorrect installation of transmission oil filter gaskets. (USA) ■ Pilot heard loud whine during cruise flight, followed by illumination of hydraulic caution light. Caused by failure of preformed packing which was incorrectly installed. (USA) ■ Batteries of two aircraft overheated. One was caused by internal shorting; and the cause of the other is unknown. (USA) ■ Engine chip lights of nine aircraft came on. Engine was replaced on one aircraft, metal slivers were found on two, one detector plug had threads stripped, one detector plug failed internally, and four were reported as normal wear. (7 USA, 2 ARNG) ■ No. 2 hydraulic caution light came on and noise was heard in aft section of aircraft. Inspection revealed right armament power system attachment fitting had vibrated loose. Suspect improper tightening of fitting prior to flight. (USAR)

AH-1

1 INCIDENT ■ Aircraft was hovering and rotorwash picked up flare parachute and cannister, which struck pilot's canopy, causing 6-inch hole. (USA)

5 PRECAUTIONARY LANDINGS ■ No. 2 hydraulic system failed in flight. Caused by failure of hydraulic pressure switch. (USA) ■ Aircraft began to vibrate after left turn. Caused by flexure of one main rotor blade. Blades had 305-hour operating differential. (USA) ■ Fuel warning light came on after 20 minutes. Caused by low fuel. (USA) ■ Engine egt reading rose during flight. Caused by failure of hot air valve assembly. (USA) ■ Chip detector light came on during practice gunruns. Normal wear found in 90-degree gearbox. Oil sample submitted. (USA) □

LOSS OF RESOURCES FROM THIS WEEK'S MISHAPS

FATALITIES: 0
INJURIES: 1
AIRCRAFT LOSSES: 0
ESTIMATED COSTS: \$46,002

UNITED STATES ARMY AGENCY FOR AVIATION SAFETY FORT RUCKER, ALABAMA 36360 AUTOVON NUMBERS

Commander/Deputy Commander	558-3410/3819
Technical Research and Applications	558-6404/6410
Plans, Operations and Education	558-4812/6510
Aircraft Accident Analysis and Investigation	558-3913/4202
Management Information System	558-4200/2920
Publications & Graphics Division	558-6385/4218
After-duty tape recording of incoming calls to be returned following day (hours: 1615 to 0730)	558-6510
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LOH

DIVISION

Fatalities: 0 ■ Accidents: 1
Injuries: 1 ■ Estimated Costs: \$29,000

■ CPT Walter L. Hinman, Chief
558-4202

One accident, four forced landings, and fourteen precautionary landings were reported.

OH-6

1 ACCIDENT ■ During performance of "yo-yo" act in aerial demonstration, pilot declared loss of engine power at approximately 75 to 100 feet agl. Pilot maneuvered aircraft away from above the yo-yo, resulting in hard landing and major structural airframe damage. (USA)

1 FORCED LANDING ■ While demonstrating hovering autorotation, IP rolled throttle to engine idle stop and engine quit. Aircraft was landed without damage. Investigation revealed N† throttle out of rig. (ARNG)

3 PRECAUTIONARY LANDINGS ■ After 30 minutes of level flight, aircraft controls began to shudder. Cause of shudder not reported. (ARNG) ■ Engine power loss occurred during hover and aircraft was landed without further damage. Cause of power loss undetermined. (USA) ■ Tail rotor gearbox chip detector light came on. Caused by loose wire. (ARNG)

OH-58

3 FORCED LANDINGS ■ Engine oil bypass warning light came on during takeoff, followed by loss of oil pressure and rising oil temperature. Pilot attempted to return to airfield when complete engine failure occurred at 30 feet and 40 knots. Emergency autorotation was made without further damage. Investigation revealed that engine oil line located between bleed valve and diffuser orifice flange fitting broke. WELL DONE for a successful emergency autorotation to CW2 Joseph A. Woodard, A Troop, 7/17 Cav, 1st Cav Div., Fort Hood, Texas. (USA) ■ Pilot heard loud noise during hover and executed hovering autorotation. Loud noise was result of threads stripping on bleed air schroll plug (FSN 5365-289-3070). (USA) ■ Engine oil pressure and temperature gauges fluctuated and pilot landed aircraft. Maintenance test pilot could not duplicate the same conditions and flew aircraft back to home base without further incident. Cause of problem is unknown pending results of engine oil samples sent in for analysis. (USA)

8 PRECAUTIONARY LANDINGS ■ Transmission oil temperature lights of three aircraft came on. Two illuminations were caused by metal particles (fuzz) shorting transmission detector probe (USA) and one occurred when leak in hydraulic system allowed fluid to short out oil temperature switch (USAR). ■ Transmission oil pressure warning light came on during test flight. Cause undetermined. Investigation in process. (USA) ■ Tail rotor gearbox chip light illuminated. Cause unknown pending results of oil analysis. (USA) ■ Pilot smelled smoke just prior to illumination of master caution panel light. Inspection revealed shorted wire in caution panel. (USA) ■ Pilot heard loud bang during left descending turn and aircraft started vibrating immediately. Postlanding investigation revealed vibration was caused by bonding separation of isolation mount. An unsolicited WELL DONE to CW2 Warren A. Smith, E Troop, 1st Cav, 172nd Inf Bde, APO Seattle 98731. (USA)

TH-55

3 PRECAUTIONARY LANDINGS ■ Leaking fuel manifold tube assembly, failure of transmission oil pressure switch, and malfunctioning engine oil pressure sending unit caused three precautionary landings. (USA)

THOUGHT FOR THE WEEK

A short but pointed article written by CPT F. L. Morgenstern concerning fatigue can be found in the May 1974 issue of AEROSPACE SAFETY. Fatigue is described as acute or chronic and subdivided

as physical, psychological, or pathological. The gist of the story is that proper food, rest, and regular exercise, combined with well fitted equipment, emotional stability, and a level of knowledge and understanding, serve to control and reduce fatigue. □

CARGO/SYSTEMS

Fatalities: 0 ■ Accidents: 0
Injuries: 0 ■ Estimated Costs: \$0

DIVISION

■ CW4 Richard D. Havenstrite,
Acting Chief 558-4202

Five precautionary landings were reported.

CH-47

5 PRECAUTIONARY LANDINGS ■ Transmission master caution light illuminated on forward transmission. Normal wear was found on chip detector plug, which was cleaned, inspected, and reinstalled. (USA) ■ No. 1 engine transmission chip detector light came on during takeoff. Aircraft was returned to takeoff point. Normal wear was found on detector plug. Plug was cleaned, inspected and reinstalled. (USA) ■ Transmission chip detector light illuminated momentarily during approach to pick up sling load, and aircraft was landed. Aft transmission oil filter and chip detector plug were removed, cleaned, inspected, and reinstalled. Oil sample was taken and aircraft was returned to flight. (USA) ■ No. 1 engine low oil warning light illuminated while aircraft was at 8,000 feet and 25 miles at sea. Twenty passengers were on board. Visual check by crew engineer revealed considerable smoke from oil on tail cone. Engine was secured and aircraft was radar-vectorred to civilian airport for single-engine running landing with maximum power on No. 2 engine. No. 1 engine oil filter cap locking flange failed, allowing oil to be pumped out past O-ring. (USA) ■ Loud high-frequency sound was heard in forward transmission area. Operational check by maintenance revealed that all systems functioned properly and aircraft was returned to flight. Oil sample was taken for analysis. (USA)

The following AVSCOM letter was received: Communication Number 97, 6 Jun 74, to all CH-54 activities; subject: N2 Speed Sense Cable Lubrication Recommendations. □

FIXED WING

Fatalities: 0 ■ Accidents: 0
Injuries: 0 ■ Estimated Costs: \$875

DIVISION

■ MAJ William G. Daly, Jr., Chief
558-4202

One incident and seven precautionary landings were reported.

T-42

1 INCIDENT ■ Directional control was lost during landing on wet runway. Aircraft struck runway light on left side of runway, resulting in damage to nose gear. (USA)

2 PRECAUTIONARY LANDINGS ■ During climb to assigned IFR altitude of 9,000 feet, right engine fuel pressure began fluctuating from 2 to 14 psi. Landing was made at available airport. Suspect fuel vaporization. (USA) ■ During takeoff with all instruments in the green, airspeed indicated only 60 knots after approximately 3,000 feet of takeoff roll. Aircraft was rotated. IP and pilot stated that they seemed to be going faster than 60 knots; however, aircraft felt sluggish on liftoff. Aircraft was returned to home base. Pitot static line was crimped. Line was replaced, tested, and checked O.K. (USA)

OV-1

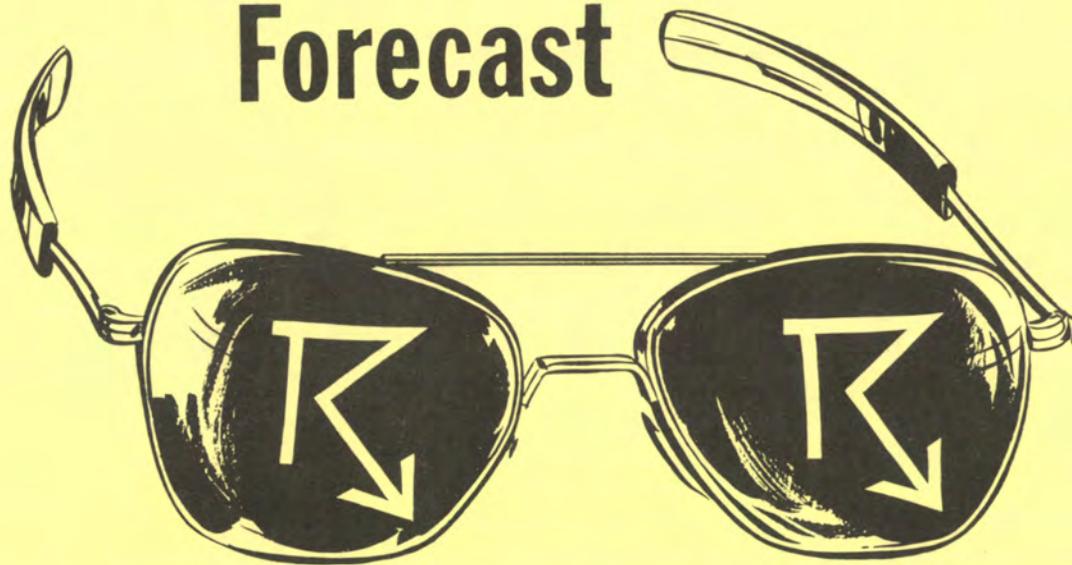
4 PRECAUTIONARY LANDINGS ■ After routine engine shutdown during IFR training flight, air restart was performed on No. 2 engine. Oil pressure on No. 2 engine remained at 20 psi even when engines were matched at 68 psi torque and 1450 rpm. After 30 seconds of operation with engines matched, loud noise

was heard and No. 2 engine torque dropped to zero. No. 2 propeller rpm indicated maximum, and pilot secured No. 2 engine. There was no evidence of fire and fire bottles were not used. Single-engine landing was made at nearby airfield without further mishap. Failure unknown pending teardown and analysis. (USA) ■ No. 2 propeller would not go above 1450 rpm during landing. Caused by propeller gauge sticking at 1450 rpm. Aircraft was MOC'd and released for flying. (USA) ■ Aircraft was in and out of clouds at flight level 120 and picking up light ice. While checking his anti-ice system, pilot noticed that No. 2 engine intake cowl appeared slick with oil. Pilot landed aircraft and inspection revealed that propeller seal had not ruptured. Engine runup was performed and all systems functioned normally. Suspect propeller had been overserviced with oil. (USA) ■ No. 2 engine lost power during climbout. Torque dropped from 90 psi to 35 psi and engine would not respond to power lever changes. Aircraft was landed without further damage. Caused by No. 2 engine failure. (ARNG)

U-8

1 PRECAUTIONARY LANDING ■ During practice descent in clean configuration, left rear passenger emergency exit opened. Aircraft was at 180 KIAS with 2500 fpm descent when exit opened. IP recovered from descent and landed. Emergency exit was secured and aircraft returned to home station. Inspection of right rear emergency exit revealed that latch was not in full up position. It was not possible to determine if the same condition existed on left window exit prior to flight, but that latch could not be properly secured without effort. (USA) □

Summer Forecast



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Thinks life is
just a game.

Everything he
designs goes
together in more
than one way.

"Puzzler" MURPHY

REWARD

BETTER MAINTENANCE

AND SAFER FLYING

MURPHY'S LAW
"If an aircraft part can be installed improperly - someone will install it that way."

DEPARTMENT OF THE ARMY
UNITED STATES ARMY
AGENCY FOR AVIATION SAFETY
FORT RUCKER, ALABAMA 36360

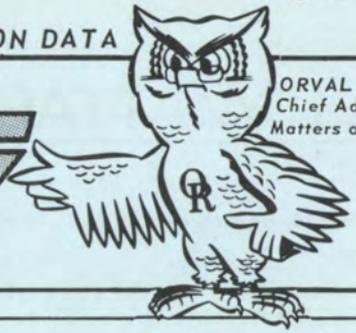
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FORT RUCKER, ALABAMA

VOL. 2, NO. 38 ■ 3 JULY 1974

mishaps for the period of 14-20 JUNE 1974

DO YOU KNOW

about the inaccuracy of the pressure altimeter when used as an altitude indication on a 100- $\frac{1}{4}$ PAR approach?

There is an inherent error in nearly all pressure altimeters that is unique to each altimeter. This error is due primarily to the irregular expansion of the altimeter aneroid wafers and will vary with altitude. It is possible to have a positive error at sea level with a negative error at altitude or vice versa. This altimeter scale error is neither arithmetical nor linear, but is an ever-varying curve. It is important to understand that each altimeter has its own curve (see figure 1 for an example) and because of this curve, it would be nearly impossible for a pilot to apply the variations in altimeter error with the accuracy needed for a 100- $\frac{1}{4}$ approach. To allow for this inherent error in the pressure altimeter, TM 1-215, page 2-34, allows a ± 70 feet deviation from a known altitude. While this error is an acceptable deviation for other conditions, it may have an adverse effect on a low PAR approach (100- $\frac{1}{4}$).

PILOT INDUCED ERROR

Another factor in total altimeter error is the position upon the airport surface where the above error is determined. Often when the reported altimeter setting is broadcast, the pilot will be sitting on the ramp. In determining the above error, the pilot will adjust his altimeter to the broadcast altimeter setting and compare it to the airport elevation. The published airport elevation is the highest elevation on the surface of that airport and may or may not be the elevation of the ramp. If the pilot uses the ramp area to determine his altimeter error and the ramp elevation is not the airfield elevation, he could unknowingly have an additional 20- to 30-foot error.

Temperature also affects the pressure altimeter. When the altimeter setting is reported, it has had a temperature correction applied. However, it is possible to have an error due to the interpolation process. While this error may be small—10 to 15 feet—it could be significant on a low approach.

While on a precision radar approach, the controller is required to advise the pilot when he is at decision height. He does this by saying three words, "at decision height," and then continues to give glide slope and course information. If the pilot's altimeter is showing above decision height or if he is distracted, he may not correctly perceive this information. The pilot could not request a clarification because at this point on the approach the controller's mike is constantly keyed, blocking the frequency. This could lead to the pilot continuing the approach to his altimeter decision height.

Based on the above, it is possible for a pilot to have a ± 70 -foot error in the altimeter, to have another 20- to 30-foot error due to position on the airfield, and a small error due to temperature. If all of these errors are combined, it is possible for his true altitude to be 100 or more feet below his indicated altitude. This fact coupled with not fully perceiving three words, "at decision height," could have serious consequences.

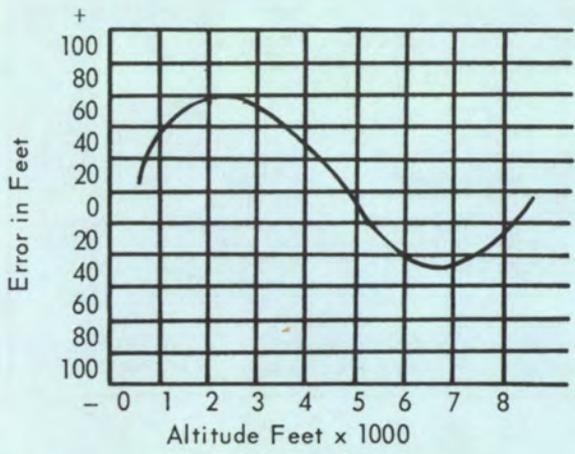


FIGURE 1

UTILITY/ATTACK

Fatalities: 0 ■ Accidents: 0
Injuries: 0 ■ Estimated Costs: \$8,868

DIVISION

■ MAJ Charles E. Toomer, Chief
558-4198

Four incidents, one forced landing, and thirty-three precautionary landings were reported.

UH-1

3 INCIDENTS ■ During sling load operations, load oscillated uncontrollably. Pilot could not release load. One plywood sheet from load struck main rotor and synchronized elevator. Cause of cargo hook malfunction unknown. (USA) ■ Right rear section soundproofing flew into tail rotor, damaging one blade. (USA) ■ Aircraft crossed gravel area of sod autorotation lane during PRACTICE TOUCHDOWN AUTOROTATION. Suspect damage to aft landing gear cross tube occurred during gravel crossing. (USA)

1 FORCED LANDING ■ Shortly after takeoff, aircraft nose yawed left and pitched down. Autorotation was successfully completed to very small field. Engine continued to run slowly after landing. Throttle rigging was adjusted. WELL DONE to Emmett P. Hughes, civilian, USAAVNS. (USA)

30 PRECAUTIONARY LANDINGS—following are selected briefs ■ Hydraulic caution light came on, with slight feedback in controls. Hydraulic pressure switch replaced. (USA) ■ Engine chip detector light came on. Metal particle found on magnetic chip detector plug. Plug was cleaned and oil sample taken. (ARNG) ■ During practice instrument approach, engine oil pressure light illuminated, followed by complete loss of engine oil pressure. Caused by failure of engine oil pump. (USA) ■ Smoke and liquid came from battery vents during landing approach. Battery overheated. (USA) ■ IP smelled hydraulic fluid odor. Chafed hydraulic line found after landing. (USA) ■ IP smelled fuel odor in level flight. Fuel was discovered on engine deck. Caused by failure of safety relief valve. (USA) ■ Transmission pressure gauge indicated zero. Caused by failure of transmission internal filter gasket. (USA) ■ Main rotor blade struck tree during approach to LZ. No damage. (ARNG)

AH-1

1 INCIDENT ■ Main rotor blades struck trees during low-level training flight, damaging blades. (USA)

3 PRECAUTIONARY LANDINGS ■ No. 1 hydraulic light came on and pedals became stiff. Caused by rupture of No. 1 hydraulic system pressure line. (USA) ■ Transmission oil temperature gauge indicated 135°. Caused by failure of transmission oil temperature gauge. (USA) ■ Transmission oil bypass light illuminated. Caused by loose oil line fitting on line from main filter to manifold. (USA) □

LOSS OF RESOURCES FROM THIS WEEK'S MISHAPS

FATALITIES: 0
INJURIES: 0
AIRCRAFT LOSSES: 0
ESTIMATED COSTS: \$15,739

UNITED STATES ARMY AGENCY FOR AVIATION SAFETY FORT RUCKER, ALABAMA 36360 AUTOVON NUMBERS

Commander/Deputy Commander	558-3410/3819
Technical Research and Applications	558-6404/6410
Plans, Operations and Education	558-4812/6510
Aircraft Accident Analysis and Investigation	558-3913/4202
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Publications & Graphics Division	558-6385/4218
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Commercial:	255-XXXX

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LOH

Fatalities: 0 ■ Accidents: 0
Injuries: 0 ■ Estimated Costs: \$2,671

DIVISION

■ CPT Walter L. Hinman, Chief
558-4202

Two incidents, four forced landings, and twenty-three precautionary landings were reported..

OH-58

1 INCIDENT ■ During NOE flight, left side of aircraft hit bush, pilot overcorrected, and both main rotor blades struck tree on right side. (USA)

3 FORCED LANDINGS ■ After 10 minutes of flight at 1,000 feet msl, smoke was seen coming from engine exhaust. Pilot lowered collective and started precautionary landing. However, due to continual rise of TOT, engine was shut down in flight and pilot completed emergency autorotation. An unsolicited WELL DONE to CW2 John T. Hanzelka, B Co., 2nd Avn Bn, 2nd Inf Div, APO SF 96224. (USA) ■ Two forced landings were caused by engine malfunctions. FOD caused internal failure of one engine and malfunction of fuel control caused the other engine to fail. (USA)

12 PRECAUTIONARY LANDINGS ■ Engine chip detector lights of two aircraft came on. Both were caused by normal wear metal particles (fuzz). (USA) ■ Tail rotor gearbox chip detector lights of two aircraft illuminated. One was caused by shorted electrical wire and no cause could be found for the other. (USA) ■ Two hydraulic pressure switches malfunctioned. (USA) ■ Transmission oil hot warning light illuminated. Caused by switch failure. (USA) ■ Transmission oil temperature light came on. Over-running clutch, rear seal, replaced. (USA) ■ Aircraft was hovering to parking area when smoke filled cockpit. Caused by short in landing light wiring. (USA) ■ Aircraft was flying at 1,500 feet when pilot heard thump sound and felt slight vibration. Aircraft was landed and inspection revealed evidence of bird strike. (USA) ■ Transmission chip detector light came on. Investigation revealed mast bearing failure. (USA) *On 13 May, this same aircraft made a precautionary landing. The transmission was changed but the mast bearing was not. Had the main mast bearing been replaced on 13 May, this precautionary landing might have been avoided.* ■ Fuel low warning light came on. Pilot landed, refueled aircraft, and flew back to home station without further incident. (USA)

OH-6

1 FORCED LANDING ■ Engine malfunctioned during cruise flight. Pilot entered autorotation, descending to about 1,000 feet agl. He then tried to increase power but this only resulted in very small power surges. Autorotation landing was completed without power on 10° uphill slope. WELL DONE to 1LT Cecil B. Hengeveld, Army Aviation Support Facility, Goodridge Armory, Washington, PA, 15301. (ARNG)

6 PRECAUTIONARY LANDINGS ■ Four transmission chip detector light illuminations. One was caused by internal transmission failure and the other three revealed fuzz on magnetic plugs. (2 ARNG, 2 USA) ■ High frequency airframe vibration occurred during climbout. Aircraft was landed and inspection revealed that transmission blanket insulation was sucked into impeller section of oil cooler. (ARNG) ■ Engine oil low pressure bypass caution light came on. Caused by internal failure of oil cooler. (ARNG)

TH-55

1 INCIDENT ■ IP made hard landing while performing practice straight-in autorotation. (USA)

5 PRECAUTIONARY LANDINGS ■ The following five materiel failures/malfunctions were reported as cause factors: oil pressure sending unit, main rotor damper assembly, broken exhaust manifold mounting flange, engine/rotor tachometer indicator, and alternator. (USA) □

CARGO/SYSTEMS

Fatalities: 0 ■ Accidents: 0
Injuries: 0 ■ Estimated Costs: \$0

DIVISION

■ CW4 Richard D. Havenstrite,
Acting Chief 558-4202

Five precautionary landings were reported.

CH-47

3 PRECAUTIONARY LANDINGS ■ No. 2 engine chip detector light came on. Caused by normal fuzz. (USA) ■ During climbout, No. 1 engine a.c. beep stuck and pilot used d.c. beep to break it loose. When it broke loose, No. 2 engine came off line because No. 1 engine assumed the load. Both engines were then brought back on line. Investigation revealed No. 1 engine N2 actuator had been previously written up for sticking. It was cleaned but not flight checked prior to being cleared for flight. Caused by failure of N2 actuator, P/N 114PS-205-2. (USA) ■ Aircraft was in cruise flight at 1,500 feet and 60 knots with sling load. FE was making ramp check and discovered the bolt holding bellcrank at station 482 was so loose that it could be turned by hand. Precautionary landing was made. FE checked bolts again and found two of the three bolts supporting the bellcrank assembly were loose. All three bellcrank bolts were changed and aircraft was cleared for one-time flight to home base. Aircraft had logged 22 hours since replacement of bolts in compliance with TB 55-1500-210-20-24. Bolts had been inspected prior to flight. Suspect improper torque. (USA) *When complying with a TB, special care must be taken so that careless or hurried maintenance cannot undo all the good for which the TB was intended. There have been other instances in the past where maintenance cause factor mishaps occurred after complying with TBs. Don't let a precautionary inspection end up in a permanent accident.*

CH-54

2 PRECAUTIONARY LANDINGS ■ First stage hydraulic warning light came on during cruise flight and pressure gauge went to zero. Caused by O-ring failure, FSN 5330-805-2966. (USA) ■ Second stage hydraulic pressure gauge indicated zero pressure during cruise and voice warning indicated loss of hydraulic pressure. Caused by ruptured hydraulic oil line. (USA)

LIFTING DEVICES

Did you know that TB 43-0142, dated 8 Feb 74, Safety Inspection and Testing of Lifting Devices, establishes criteria in conjunction with the appropriate TM for inspection of lifting devices? If your organization is involved in external cargo lifts, it is recommended that you become familiar with the TB. □

FIXED WING

Fatalities: 0 ■ Accidents: 0
Injuries: 0 ■ Estimated Costs: \$4,200

DIVISION

■ MAJ William G. Daly, Jr., Chief
558-4202

One incident and eight precautionary landings were reported.

T-28

1 INCIDENT ■ While en route to parking spot, aircraft was taxied over storm drain whose center was bent 2 inches below outer edge. This, in addition to the normal slope of approximately 9 inches from the ramp to the drain, permitted propeller tips to strike asphalt when nose wheel crossed grate. (USA)

T-42

1 PRECAUTIONARY LANDING ■ Approximately 2 hours into IFR service mission, climb was initiated from 7,000 feet to 8,000 feet msl and No. 2 engine quit. Fuel pressure varied from 9 to 11½ pounds. Aircraft was returned single engine to home base where it was determined fuel was contaminated. Source of contamination was not reported. (USA)

T-41

1 PRECAUTIONARY LANDING ■ Engine chip detector warning light came on. Examination of magnetic plug revealed fuzz. Special oil sample revealed no significant change, MOC was performed, and aircraft released for flight. (USA)

OV-1

1 PRECAUTIONARY LANDING ■ Pilot was preparing to land from VFR training flight when right main gear gave unsafe indication. Gear was extended by pneumatic emergency system and aircraft landed. Examination revealed down lock switch on right main gear had malfunctioned and required replacement. (USA)

U-8

5 PRECAUTIONARY LANDINGS ■ When gear was extended for functional test during test flight, nose gear indicated not locked. Gear was extended manually but still gave unsafe indication. Aircraft was landed without incident and examination revealed nose gear down lock bolt was too tight. This condition had been detected on preflight but maintenance personnel convinced crew that tightness was due to installation of new part. Bolt was retorqued and condition corrected. (USA) ■ During transition training flight, No. 1 engine was shut down and feathered at 9,500 feet msl (5,400 feet agl). Engine would not restart and single-engine landing was made at home base. After landing, engine started without difficulty with an APU. (USA) ■ IP shut down and feathered No. 2 engine during training flight. Engine would not respond to air start at 4,000 feet agl. During rollout after landing, IP started engine without difficulty. Maintenance personnel checked engine and could not duplicate malfunction. (USA) ■ Engine was shut down during VFR training flight (which engine was not identified). Three unsuccessful attempts were made to restart engine. Single-engine landing was made at home base where examination revealed starter had failed. Aircraft was not equipped with accumulators. (USA) ■ During test flight, nose gear indicator showed half down position and all three gear lights were green. Erroneous indication was caused by plate, ID (FSN 1560-639-6108, P/N 50-320219), being positioned too low on floor. (USA) □

CORRESPONDENCE COURSES

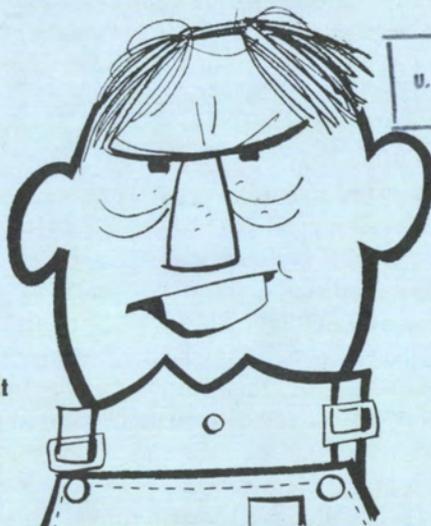
Many fine correspondence courses are available through the U.S. Army Aviation Center, Fort Rucker, Alabama.

This week, attention is directed to the "Aircraft Maintenance Entry Course," available to enlisted and other personnel of the active Army or a Reserve component and civilian employees of the Federal Government. Enrollment is for those whose actual or anticipated assignment is in MOS 67A10 or whose duties require knowledge of servicing and maintenance of Army aircraft.

Address correspondence to: **Department of Army-Wide Training Support**
U.S. Army Aviation Center
P. O. Box J
Fort Rucker, Alabama 36360

(Enrollment application should be submitted on DA Form 145.)

WANTED FOR CORRECTION



Would lose his
you-know-what if it
were not attached.

Can usually be
heard accusing
someone of
"borrowing"
his tools.

**"FOD" MURPHY
REWARD
BETTER MAINTENANCE
AND SAFER FLYING**

MURPHY'S LAW
"If an aircraft part can be installed improperly - someone will install it that way."

DEPARTMENT OF THE ARMY
UNITED STATES ARMY
AGENCY FOR AVIATION SAFETY
FORT RUCKER, ALABAMA 36360

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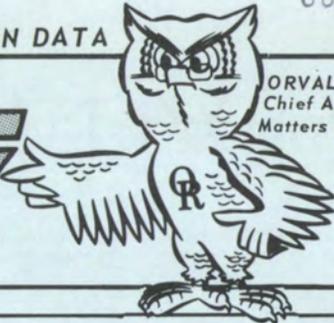
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JUL 16 1974



ARMY AIRCRAFT MISHAP PREVENTION DATA

FLIGHT FAX



ORVAL RIGHT
Chief Advisor on
Matters of Aviation

A USAAAVS PUBLICATION

VOL. 2, NO. 39 ■ 10 JULY 1974

mishaps for the period of 21-27 JUNE 1974

USAAAVS REQUEST FOR TEARDOWN ANALYSIS

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Requested by: X Tel Nr. (AUTOVON) X
 Adrs: X (ZIP CODE) X

Comp: X Comp _____ Comp _____
 SN: X SN _____ SN _____
 FSN X FSN _____ FSN _____
 P/N X P/N _____ P/N _____

Acft SN: <u>X</u>	Mishap Date: <u>X</u>
Mishap Class: <u>X</u>	Reason for Analysis: <u>X</u>
Who is to Perform Analysis:	Request
Date ARADMAC Notified:	Approved By:
Data Center Receipt:	Date Report Received:
(Signature)	Date:

REMARKS:

USAAAVS Form No. 400, (Rev) Jan 1972

Acft Type X Log Nr. _____

HELP US HELP YOU

During a normal week, USAAAVS receives numerous requests for teardown analysis control numbers. Some of these requests have had as many as 20 selected exhibits for analysis. Each time a control number is requested, certain information must be obtained from the requestor before a control log number is assigned. AR 95-5, at this time, does not state what information is needed for assignment of a control log number, but will be changed at a later date to include this information. Items needed to process a request without delay are marked with an X in the example.

CORRESPONDENCE COURSES

Many fine correspondence courses are available through the U.S. Army Aviation Center, Fort Rucker, Alabama.

This week, attention is directed to the "Army Aviation Command and Staff Officer Course," available to commissioned officers, warrant officers, or other personnel of the active Army or a Reserve component and civilian employees of the Federal Government. Enrollment is for those whose actual or anticipated assignment requires knowledge of the subject area.

Address correspondence to: Department of Army-Wide Training Support
U.S. Army Aviation Center
P. O. Box J
Fort Rucker, Alabama 36360

(Enrollment application should be submitted on DA Form 145.)

UTILITY/ATTACK

Fatalities: 0 ■ Accidents: 2
Injuries: 1 ■ Estimated Costs: \$83,816

DIVISION

■ MAJ Charles E. Toomer, Chief
558-4198

Two accidents, four incidents, two forced landings, and thirty precautionary landings were reported.

UH-1

2 ACCIDENTS ■ Engine failed at 2,500 feet msl. Aircraft landed hard, severing tail boom forward of 42° gearbox. Cause of engine failure unknown. (USA) ■ Engine lost power during landing. Aircraft struck ground tail first, turned 180°, and rolled onto left side. Cause of power loss unknown. (USA)

3 INCIDENTS ■ While firing from pad, barrel clamp assembly left M-134 gun. Projectile struck clamp, causing shrapnel damage to left side pilot door and main rotor blade. Caused by failure of barrel retaining clamp bolt, P/N 1/4-284NF-2A. EIR submitted. (ARNG) ■ During preflight inspection, crew noticed 10-inch hole in bottom of aircraft at station 106. Cause of hole unknown. (USA) ■ Pilot attempted to start aircraft with blade tied down. Crew chief untied blade, which made approximately five revolutions with tiedown attached. Tail rotor and vertical fin were damaged. (USA)

2 FORCED LANDINGS ■ Pilot noticed rapid egt rise on final approach, followed by series of sharp reports. During autorotation, egt indicated 950° and engine fluctuated approximately 400 rpm. Cause not reported. (USAR) ■ Engine failed during maintenance test flight engine topping check. Cause unknown. (USA)

29 PRECAUTIONARY LANDINGS—following are selected briefs ■ Tail rotor chip detector light came on. Cause reported as fuzz on 90° gearbox detector plug. (ARNG) ■ Transmission oil pressure light illuminated, with decrease in transmission oil pressure. Caused by failure of transmission internal oil filter gasket. (ARNG) ■ Total electrical failure occurred during cruise flight. Caused by failure of main generator. (USA) ■ IP smelled fuel fumes in aircraft during cruise flight. Left half fuel manifold replaced. (USA) ■ Engine made loud squeal and engine chip detector light came on. Oil analysis indicated internal bearing failure. (ARNG) ■ Pilot noticed lateral vibration in flight. Trailing edge of main rotor blade cracked at station 175. (ARNG) ■ Pilot smelled fumes in cockpit and saw vapor from battery vents. Caused by internal failure of battery. (ARNG) ■ Governor oversped in cruise flight. Caused by governor malfunction. (USA)

AH-1

1 INCIDENT ■ During simulated fixed left pitch tail rotor failure, rpm deteriorated and aircraft landed hard. Rpm warning box was removed from aircraft before this flight. (USA)

1 PRECAUTIONARY LANDING ■ Engine oil pressure fluctuated from 60 to 90 psi. Caused by failure of power-driven rotary pump. (USA)

COBRA EXTERNAL WING PYLON RACKS

Recent surveys have revealed that Cobras are being delivered to the user with the ejector foot pads safety-wired with steel wire. The users are installing external stores and are not removing the safety wire nor adjusting the foot pad against the store.

Until changes are received to TM 55-1520-221-20 and TM 9-1090-203-12, it is recommended that present installation instructions be followed with these additions:

LOSS OF RESOURCES FROM THIS WEEK'S MISHAPS

FATALITIES: 0
INJURIES: 1
AIRCRAFT LOSSES: 0
ESTIMATED COSTS: \$85,363

UNITED STATES ARMY AGENCY FOR AVIATION SAFETY FORT RUCKER, ALABAMA 36360 AUTOVON NUMBERS

Commander/Deputy Commander	558-3410/3819
Technical Research and Applications	558-6404/6410
Plans, Operations and Education	558-4812/6510
Aircraft Accident Analysis and Investigation	558-3913/4202
Management Information System	558-4200/2920
Publications & Graphics Division	558-6385/4218
After-duty tape recording of incoming calls to be returned following day (hours: 1615 to 0730)	558-6510
Commercial:	255-XXXX

Distribution to Army commands for accident prevention purposes only. Specifically prohibited for use for punitive purposes, or for matters of liability, litigation or competition. Information is subject to change and should not be used for statistical analyses. Direct communication authorized by AR 10-29.

a. Adjust the ejector foot pad finger tight against the launcher. Do not exceed a foot pad adjustment of 1.67 inches on the inboard ejector foot pad and .81 inch on the outboard foot. If additional adjustment is required, pull the ejector piston out of piston housing to fit snugly against the launcher.

b. When aircraft ejector racks are not carrying stores, the ejector foot pads may be safety-wired up with .020 copper safety wire (FSN 9525-554-4069). This procedure will protect the ejector foot pad pistons from environmental elements.

NOTE: Remove the safety wire when ejector racks are carrying stores. □

LOH

Fatalities: 0 ■ Accidents: 0
Injuries: 0 ■ Estimated Costs: \$754

DIVISION

■ CPT Walter L. Hinman, Chief
558-4202

Two incidents, one forced landing, and twenty-one precautionary landings were reported.

OH-58

1 FORCED LANDING ■ Engine oil bypass light illuminated, engine oil pressure dropped to zero, oil temperature gauge rose above red line, and engine torque dropped to 20 psi. Pilot rolled throttle off and autorotated to a logging road in the mountains. Suspect oil line crimped during installation. WELL DONE for a successful power-off emergency landing goes to CW2 Charles O. Delp, 81st Inf Bde, Fort Lewis, Washington. (USA)

16 PRECAUTIONARY LANDINGS ■ Six hydraulic pressure light illuminations—1 pump failure (USA)—1 suspected left and right cyclic servo failure (USA)—4 pressure switch failures (3 USA) with grinding noise evident when cyclic displaced in 1 (ARNG) aircraft. Suspect air in line or low rotor rpm caused noise. *Two of the above pilots demonstrated poor judgment after hydraulic pressure lights came on. One pilot took off after making a precautionary landing and flew to home base with light still on, and the other pilot hovered aircraft from active runway to parking ramp with light on.* ■ Transmission oil pressure light on—pressure switch failure. (USA) ■ Engine oil bypass light on—bleed air elbow assembly failed, causing oil leak. (USA) ■ Four transmission chip lights on—1 internal failure suspected due to large chip on detector—1 small filings—1 normal wear fuzz—1 unknown. (USA) ■ Two engine chip lights on—normal wear fuzz. (USA, USAR) ■ Two tail rotor chip lights on—small metal particles. (USA, ARNG)

TH-55

2 INCIDENTS ■ Hard landing occurred during PRACTICE TOUCHDOWN AUTOROTATION. Windshield and left rear landing gear damper assembly damaged. Left skid struck runway light, resulting in popped rivet on left aft skid shoe. (USA) ■ Student pilot lost directional control during hovering turn and diagnosed the problem as an antitorque control failure. He closed the throttle and made the touchdown while drifting rearward, resulting in bent left drag strut assembly. (USA)

5 PRECAUTIONARY LANDINGS ■ IP reported complete electrical failure during cruise flight. Suspect battery failure. (USA) ■ Engine oil pressure increased above 100 psi and remained high until termination of flight. Oil pressure sending unit malfunctioned. (USA) ■ Engine ran rough during magneto check. Magneto plate replaced. (USA) ■ Engine and rotor tachometers became erratic during flight and were replaced. (USA) ■ Voltage regulator malfunction caused alternator and radio to become inoperative during flight. (USA)

USAAVSCOM message (dated 282055Z Jun 74): Extension of TB-55-1520-228-30-7, Inspection of Pylon Link Assemblies. Subject TB is extended until receipt of improved steel pylon support link assembly kits and compliance with MWO 55-1520-228-30-23. Kit issue will begin September 1974 on priority basis with 1 year anticipated to deliver all kits. After MWO is complied with, only periodic or transmission change inspections are required.

THOUGHT FOR THE WEEK

IF YOU QUESTION THE VALUE OF PLANNING—THINK AGAIN AND REMEMBER IT WASN'T RAINING WHEN NOAH BUILT THE ARK! Last week, an OH-58A pilot stated he "planned" his flight with 2 hours and 45 minutes of flight time available before going into 30-minute fuel reserve (required by AR 95-1 for VFR flight). For his efforts he received a "20-minute fuel caution light" illumination only 2 hours and 10 minutes after takeoff. (NOTE: 40 pounds of fuel was burned while adjusting the voltage regulator prior to takeoff.) It is suspected by the unit and pilot that this particular OH-58A engine's fuel consumption is excessive. On the other hand, maybe the fuel consumption is only excessive in respect to

"planning." A point in question is how did the victim pilot "plan" his flight? Did he make the old routine assumption that there must be 3 hours and 15 minutes fuel on board simply because all the other pilots file the same magic number? Or did he take the time to take into consideration the many variables that affect fuel consumption? The rate of fuel consumption is a function of power required which is directly related to altitude, atmospheric conditions (winds, DA, temperature, etc.), aircraft weight (all four seats were occupied on this flight), and mission (airspeed) during flight. Proper fuel management requires a pilot to take these factors into account during preflight planning and during the actual flight. THE ONLY COVERAGE YOU'LL GET FROM "BLANKET" FLIGHT PLANNING TIME IS GROUND COVER! An article addressing this fuel problem will soon appear in the ARMY AVIATION DIGEST. □

CARGO/SYSTEMS

Fatalities: 0 ■ Accidents: 0
Injuries: 0 ■ Estimated Costs: \$0

DIVISION

■ CW4 Richard D. Havenstrite,
Acting Chief 558-4202

Eight precautionary landings were reported.

CH-47

8 PRECAUTIONARY LANDINGS ■ Grinding noise was heard while aircraft was at hover. Flight was discontinued. Inspection revealed a bolt from mount resilient assembly under drive shaft assembly. One drive shaft assembly was replaced due to excessive shaft scoring. (USAR) ■ No. 2 engine transmission chip light came on. Landing was made and chip detector plug inspected. Wear factor on detector plug was normal. (USA) ■ Student was given a simulated fire on No. 2 engine and it was pulled to ground idle. At completion of simulated emergency No. 2 engine was returned to flight at which time egt exceeded 816° for 8 seconds. Engine was shut down and single-engine running landing was made. Cause of failure unknown. (USA) ■ Aircraft was at hover when No. 2 engine N₁ dropped to 25 percent. Aircraft was landed and returned to parking area and shut down. Maintenance attempted to restart engine without results. Investigation revealed water in fuel control filter. Fuel system was completely purged two consecutive times with filter change each time, after which fuel sample was taken and no water detected. Engine start was normal. Aircraft was held on ground overnight and fuel sample was taken again. Aircraft was ground run for 30 minutes and released for flight. Fuel samples taken from POL trucks were good. Further investigation is being conducted. (USA) ■ Forward transmission chip detector light illuminated. Chip detector was removed, cleaned, and reinstalled. (USA) ■ Fuel quantity light came on approximately 1,800 pounds early. Cause not determined. (USA) ■ Pilot was pulling aircraft engine topping check on No. 1 engine at 2,000 feet and 120 knots. Engine torque indication was 99.5 percent when engine chip light illuminated. Engine was brought to ground idle and landing was made. Maintenance inspection revealed wire on No. 1 engine chip plug was grounded to engine. No metal was found on chip plug. (USA) ■ Crew heard loud noise from aft end of aircraft. No. 2 engine lost torque and pilot landed. Failure of No. 2 engine not determined. (USA)

The following messages were received:

Safety-of-flight message, 271845Z June 74, pertinent to CH-47 and other aircraft, subject: Aims Altimeter Malfunction. Type AAU-32/A altimeters are to be removed from service.

Message 131700Z June 74, pertinent to CH-54 aircraft, subject: Helicopter Rotor Blade Inspection Procedures. Strict compliance with Bim procedures is required. □

FIXED WING

Fatalities: 0 ■ Accidents: 0
Injuries: 0 ■ Estimated Costs: \$793

DIVISION

■ MAJ William G. Daly, Jr., Chief
558-3901

One incident and thirteen precautionary landings were reported.

T-42

1 INCIDENT ■ Aircraft porpoised on landing touchdown, resulting in hard landing. No. 1 prop and nose gear damaged. (USA)

2 PRECAUTIONARY LANDINGS ■ After takeoff, pilot was notified by tower that right main gear door had not closed after gear was retracted. Aircraft was landed and maintenance could not duplicate problem. Aircraft was released for flight. (USA) ■ During climb through 7,000 feet, fluctuation of fuel flow was seen on both engines. Caused by fuel vaporization. (USA) NOTE: This is a recognized problem. Paragraph 5

of AVSCOM letter AMSAV-EEF 2, dated 7 October 1971 is reprinted below:

Fuel Vaporization Problem. T-42A aircraft encountered fluctuating fuel pressures and double engine stoppage after a rapid climb to 9,000 feet msl. Both engines restarted after the auxiliary fuel pumps were turned on. The stoppages have been attributed to fuel vapor. Ambient temperatures were 35° F. to 40° F. above standard day at ground level and 30° F. above standard day at 9,000 feet. Fuel that has had time to heat soak in these temperatures at ground level will form substantial quantities of vapor as altitude is increased. When the vapor separation capability of the engine-driven fuel pumps is exceeded, vapor becomes entrained in the injector systems, causing fluctuating fuel pressures and unstable engine operation. Turning on the auxiliary fuel pumps pressurizes the fuel going to the engine-driven pumps, forcing the fuel vapor back into the liquid form. Manual leaning of the mixtures will normally be required when the auxiliary pumps are turned on, due to the additional boost in fuel pressures and fuel flow. Depending on cruising altitude and ambient temperature, auxiliary pump operation may no longer be required after the fuel has had time to cool.

OV-1

1 PRECAUTIONARY LANDING ■ Airspeed indicator read zero on takeoff. Caused by dirt in static parts. (USA)

U-8

5 PRECAUTIONARY LANDINGS ■ During test flight, No. 1 engine failed to restart after feather check. Front compartment door opened during flight, which disconnected electrical power to starter motor. Caused by improper lubrication of latch assembly, FSN 1560-605-5829, P/N 50-400180-8. (USA) ■ During test flight, nose gear indicator showed half down position and all three lights were green. Caused by plate, ID FSN 1560-639-6108, P/N 50-320219, being positioned too low on floor. (USA) ■ Engine failed at 4,500 feet after takeoff and engine chip light illuminated. Cause unknown pending analysis. (USA) ■ No. 1 engine chip light came on after takeoff. Small metal particle was found on plug. Aircraft was MOC'd and released for flight. (USA) ■ Aircraft was climbing through 5,400 feet when No. 2 engine lost power and chip light came on, followed by loss of engine oil pressure. No. 2 engine was shut down and aircraft returned to departure airport. Cause unknown pending analysis. (USA)

T-41

1 PRECAUTIONARY LANDING ■ Radios began to fade out during cruise flight. Pilot checked ammeter and did not notice any abnormal indication. All radios and electrical systems failed and aircraft was landed. Cause not reported. (USA)

C-7

4 PRECAUTIONARY LANDINGS ■ After level-off at 9,000 feet, No. 1 engine ran rough with fluctuation of rpm. Engine was shut down and aircraft landed. Caused by broken No. 8 exhaust push rod and housing. (USA) ■ No. 2 engine ran rough. Caused by crack around exhaust valve of No. 10 cylinder. (USA) ■ When landing gear was lowered, light in handle remained red. Left main gear would not lock down. Recycle and emergency gear procedures were unsuccessful. Pilot executed dive with an estimated 4 g pullout and left main gear locked into place. Caused by binding due to corrosion on strut assembly, FSN 1620-738-6819, P/N 5640-13. (USA) ■ During reduction from METO to climb power, No. 2 engine lost power and backfiring was noted. Engine was shut down and aircraft landed. Caused by cracked cylinder head on No. 10 cylinder. (USA)

FIXED WING 360-DAY MISHAP DATA

	Last 30 Days	Last 90 Days	Last 180 Days	Last 360 Days
Injuries	0	0	2	2
Fatalities	0	0	0	4
Dollar Costs	\$7,693	\$35,455	\$2,442,273	\$7,827,475

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FLIGHTFAX/21-27 JUNE 1974



VOL. 2, NO. 4 ■ 31 OCTOBER 1973

PRELIMINARY ARMY AIRCRAFT MISHAP DATA

FLIGHTFAX

mishaps for the period of 12-18 OCTOBER 1973

Wheels Watch - What is It ?

If you ever have occasion to land at a Navy installation you may wonder why a man stands out near the approach end of the runway and waves at you. The Navy positions a man (wheels watch) near the approach end of the runway during periods of high density traffic and when flight operations involve mostly single-piloted aircraft. The man visually checks each aircraft on final approach to insure the landing gear is DOWN.

If the landing gear is DOWN, the "wheels watch" will extend his arms horizontally, or display a green aldis lamp signal. If the gear is UP, the "wheels watch" will turn on waveoff (go-around) lights. These lights are a row of white lights in a bar shape situated off the approach end of the runway. At installations where waveoff lights have not been installed, a red aldis lamp or flare signal may be used.

The moral of the story is—don't get so engrossed in wondering what the man is doing there that you forget to put the gear down and make a safe landing!

OV-1 CHOCKS

Need chocks for your OV-1? Future change/revision to TM 55-1510-204-20P will incorporate chocks for the first time. You should requisition FSN 1730-294-3695, P/N 42D6594-2. Sufficient quantities are on hand.

One of the best sources of accident prevention information is knowledge gained from experiences of others. To prevent aviation accidents, all aviation personnel must have access to and be able to understand accident prevention information. Being aware of these facts, the Spanish Army believes in the widest dissemination of available information.

During a temporary duty assignment in the Spanish Sahara, Mr. Dudek (an AVSCOM tech rep) arranged for the Spanish Army aviation unit to receive *Flightfax* and *Maintenance Fax*. To be certain this valuable information is understood, unit personnel have taken the initiative to translate applicable portions of the two publications into Spanish.

To the personnel of the UNIDAD DE HELICOPTEROS NO. 2 EL AAIUN, SPANISH SAHARA, the U.S. Army Agency for Aviation Safety salutes you. The safe way is the only way. Keep up the good work.

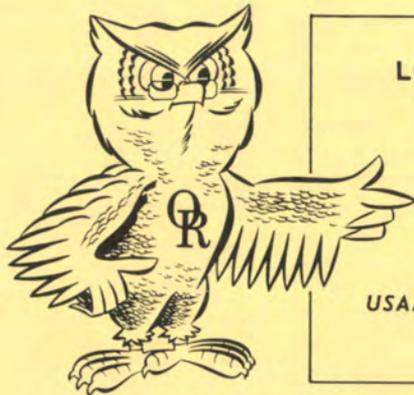
Una de las mejores fuentes de informacion para la prevencion de accidentes es el conocimiento adquirido con la experiencia de otros.

Para prevenir accidentes de vuelo, todo el personal debe tener acceso y ser capaz de entender toda la informacion concerniente a la prevencion de accidentes.

El Ejercito Espanol siente la necesidad de que esta informacion sea difundida ampliamente.

Durante su estancia en el Sahara Espanol, Mr. Dudek (de AVSCOM tech rep) hizo los acuerdos pertinentes para que la Unidad de Helicopteros recibiese *Flightfax* y *Maintenance Fax*. Para que toda esta informacion fuese debidamente entendida, el personal de esta Unidad ha tomado la iniciativa de traducir los puntos de mas aplicacion de las dos publicaciones al idioma espanol.

U.S. Army Agency for Aviation Safety saluda a la UNIDAD DE HELICOPTEROS II, EL AAIUN, SAHARA ESPANOL. La seguridad es el unico camino.



LOSS OF COMBAT EFFECTIVENESS FROM THIS WEEK'S MISHAPS

FATALITIES:	2
INJURIES:	0
AIRCRAFT LOSSES:	1
ESTIMATED COSTS:	\$154,262

USAAAVS: AUTOVON 558-6510/4714

Commercial AC 205, 255-6510/4714

U.S. ARMY AGENCY
FOR
AVIATION SAFETY
FORT RUCKER, AL 36360

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UTILITY/ATTACK

Fatalities: 0 ■ Accidents: 0
Injuries: 0 ■ Estimated Costs: \$476

DIVISION

■ MAJ Charles E. Toomer, Chief

One incident, three forced landings, and 27 precautionary landings were reported.

UH-1

1 INCIDENT ■ Pilot found tail rotor drive shaft cover open during postflight inspection. One section of drive shaft and drive shaft cover had been damaged during flight.

3 FORCED LANDINGS ■ Engine lost power during takeoff. Cause unknown. ■ Pilot heard loud noise in engine transmission area during cruise flight and autorotated to open field. Suspect failure of input quill (P/N 205-040-263-3). EIR submitted. ■ Partial power loss occurred during cruise flight. Rpm stabilized at 5700 and N1 stabilized at 65%. Aircraft was landed with partial power. Caused by fuel control malfunction (P/N 34200AS). EIR submitted.

25 PRECAUTIONARY LANDINGS ■ Two aircraft had compressor stalls. One occurred during takeoff and one while descending to land. Causes are unknown. ■ Pilot heard two loud explosions, followed by rapid left yaw and engine vibration. Aircraft was in possible icing conditions and ice from inlet screen was possibly ingested into engine. ■ Engine tachometer dropped to zero during landing. Dual tachometer indicator (P/N 204-071-555-1) failed internally. ■ Pilot inadvertently encountered IFR conditions and made precautionary landing as soon as ground was in sight. ■ During cruise flight, egt suddenly rose from 520° to 600°. Inspection revealed hot air valve (P/N 26330053) stuck open. EIR submitted. ■ Aircraft developed high frequency vibration during cruise flight. No. 2 hanger bearing (P/N 204-040-600-9) failed. ■ Fire warning light activated in flight. Fire sensing element (P/N 294 F 5VG180) was replaced and system functioned properly. ■ Two aircraft had tail rotor chip detector light illuminations. One had water in dust boot of 90° gearbox detector plug and normal metal wear was found on the second aircraft's 90° gearbox detector plug. ■ Batteries of two aircraft overheated. ■ Engine oil pressure steadily increased to 85 psi and pilot made precautionary landing. Caused by failure of pressure transmitter switch. ■ Engine chip detector light illuminated during maintenance test flight. Fuzz was found on chip detector plug and special oil sample has been submitted. ■ Engine oil temperature rose from normal to 115° within 15 seconds. Maintenance inspection revealed electrical wire insulation at sensing unit had deteriorated, allowing wire to short and transmit false temperature indication. ■ Aircraft developed severe vibrations during IFR training flight. Caused by failure of transmission damper (P/N 204-031-9203). EIR submitted. ■ Transmission oil temperature caution light illuminated and oil temperature rose to 110°, followed by loss of all transmission oil pressure. Internal transmission oil filter gasket (P/N 48-431-6291) failed, allowing transmission oil to be lost. ■ Transmission chip detector light came on. Moisture was found on chip detector plug. ■ Three fuel boost pump caution light illuminations were reported. All three were caused by failure of submerged fuel boost pump (P/N 205-060-606-3). One EIR submitted. ■ Engine fuel pump caution light came on during takeoff. Caused by failure of engine-driven fuel pump. EIR submitted. ■ Hydraulic caution lights of three aircraft illuminated, with two aircraft having complete hydraulic pressure losses. One was caused by crack in elbow tube at tail rotor servo (P/N MS21908D4). One was caused by internal failure of irreversible valve (P/N 42550-2), which allowed fluid to be lost. Cause of the third is unknown, pending maintenance inspection. Two EIR's submitted.

AH-1

2 PRECAUTIONARY LANDINGS ■ No. 2 hydraulic system caution lights of two aircraft illuminated. Both were caused by hydraulic leaks in turret fittings. One EIR submitted.

NOTICE: Change 9, par. 7-9d, dated 7 Sep 73, of the AH-1G Dash 10 states: "It is recommended that SCAS-off flight be limited to 100 KIAS and that no operations other than return-to-base or ferry flights be conducted with either lateral or directional SCAS channels inoperative. Additionally, high power settings should be avoided when operating at airspeeds between 60 and 100 KIAS with inoperative lateral and directional SCAS channel because of instability." USAAVS recommends that ferry flights NOT be conducted with either lateral or directional SCAS channels inoperative. □

LOH

Fatalities: 2 ■ Accidents: 1
Injuries: 0 ■ Estimated Costs: \$152,258

DIVISION

■ LTC David L. Boivin, Chief

One accident, one incident, one forced landing, and seven precautionary landings were reported.

OH-58

1 ACCIDENT ■ Pilot was flying VFR service cross-country mission at night when he encountered dense
FLIGHTFAX/12-18 OCTOBER 1973

fog. Aircraft crashed into heavily wooded area after pilot became disoriented. Pilot and passenger were killed and aircraft was destroyed.

6 PRECAUTIONARY LANDINGS ■ Hydraulics failed during cruise flight. Cause unknown. ■ Pilot heard noise from area of hydraulic pump as caution light illuminated. Hydraulics failed and running landing was made. Maintenance personnel had installed check valve backwards into pump. *To control this problem, a change was approved at a recent OH-58 Manual Review Conference to insert a caution in the dash 20 that "the check valve can be installed backwards and installer should insure arrow on valve is pointing up for correct installation."* This caution will appear in Change 7. ■ Pilot noticed odd odor in cockpit. Fumes became more intense and pilot shut off electrical equipment. EIR submitted on failure of instrument light rheostat. ■ Transmission oil temperature light illuminated. Suspect defective switch. ■ Fuel boost pump failure caused caution light to come on. EIR submitted. ■ Wire leading to engine chip detector broke and caused caution light to illuminate.

TH-55

1 INCIDENT ■ During termination of PRACTICE TOUCHDOWN AUTOROTATION, tail skid and tail rotor blades struck asphalt runway.

1 FORCED LANDING ■ Engine began running rough and power was lost. EIR submitted on engine failure. A WELL DONE for a successful power-off emergency landing goes to Doss IP James L. Gould, USAAVNS.

1 PRECAUTIONARY LANDING ■ Student pilot heard popping noise and noted engine tachometer fluctuating. Spark plug was changed.

THOUGHT FOR THE WEEK

FLYING SAFETY AND INSURANCE POLICIES BOTH PAY OFF . . . THE CHOICE IS YOURS. The weather-related accident that occurred this week is similar in conditions and consequences to another OH-58 mishap occurring recently in which a profound statement was made in the recommendations of the investigation board. The reviewing official's words of wisdom are being passed on to our readers in hopes that commanders and aviators alike will digest them as food for thought, subject to recall before demanding or attempting flight into marginal weather conditions with an OH-58: "Command emphasis at all levels should be placed on assigning higher priorities to flight safety. Commanders and aviators alike must come to the realization that mission completion during routine operations must be relegated to second place rather than accept an undesirable degree of risk and perform the service or training mission at all costs." Statistics prove you have little chance of completing your OH-58 mission when flight is continued into marginal weather. Evaluate the weight of the mission against the density of the weather, then choose a policy that pays a living wage! □

CARGO

Fatalities: 0 ■ Accidents: 0
Injuries: 0 ■ Estimated Costs: \$0

DIVISION

■ CW4 Gerald D. Verbeek,
Acting Chief

Three precautionary landings were reported.

CH-47

3 PRECAUTIONARY LANDINGS ■ No. 2 engine low oil light illuminated in flight. Engine was shut down and single-engine landing was made. No. 2 engine oil cap came loose because engine oil inspection panel hinge pins were worn, allowing panel to rise approximately 1 inch and causing engine oil cap spring lock to release. ■ No. 2 engine low oil light came on in flight. Engine oil pressure and temperature remained stable. Approximately 3 minutes from landing, oil pressure began to fluctuate. Engine oil temperature remained stable. No. 2 engine condition lever was placed in ground idle. Oil pressure dropped below 10 psi and engine was shut down. Caused by loose oil pressure transmitter line. Engine was serviced with oil and oil sample taken before flight. Flight engineer failed to properly torque oil line when previous oil sample was taken. ■ Aircraft was flying in IMC when auxiliary powerplant (APP) fire light illuminated. Crew obtained clearance to descend to VMC. Fire light went out before landing was made. APP and fire warning system was checked but cause for illumination could not be determined. □

FIXED WING

Fatalities: 0 ■ Accidents: 0
Injuries: 0 ■ Estimated Costs: \$1,528

DIVISION

■ LTC Charles E. Humphries, Chief

Two incidents and seven precautionary landings were reported.

RU-21

1 INCIDENT ■ During IFR training flight as aircraft started to climb, crew noticed right VHF antenna

broken but still attached to aircraft. IAS was 160 knots. Crew reduced airspeed and left VHF antenna started to vibrate. Aircraft was slipped to stop vibrating and slowed to 120 knots IAS. Landing was made without further incident. Inspection revealed right upper VHF antenna on horizontal stabilizer was broken. Suspect aircraft picked up unforecast clear ice in clouds at flight level, causing antenna to break.

T-42

1 INCIDENT ■ When landing gear was lowered, nose gear did not give down-and-locked indication. Recycling gear a number of times did not correct the situation. After unsuccessful attempt to lower gear manually, airfield was foamed for emergency landing. Aircraft was landed with main gear extended and nose gear partially extended. After touchdown, aircraft settled on nose, causing damage to nose cone, nose gear doors, and No. 2 propeller. Caused by failure of rod end bearing of nose gear retract mechanism (TM 55-1510-208-25P, fig. 53, item 42). Required bearing is HML-6. Bearings are manufactured by more than one vendor, which are identified by letter prefix of the P/N. Failed bearing was AHML-6.

OV-1

1 PRECAUTIONARY LANDING ■ During climbout on instrument departure, No. 1 engine chip detector light illuminated. Aircraft was landed and inspection revealed three metal particles on chip detector plug. Aircraft is grounded, awaiting results of special oil sample.

C-47

2 PRECAUTIONARY LANDINGS ■ No. 2 engine chip detector light illuminated during climb. Aircraft was landed and inspection revealed parts of rings, piston, and main bearing babbitt. Hours since overhaul: 1,240. Engine historical data is unknown. ■ During downwind leg at 2,300 feet msl, landing gear was lowered and gear locking handle would not go down. Landing gear lights indicated unsafe condition. Gear was cycled manually and tower verified both wheels were down. After landing, maintenance determined landing gear was out of phase. Cause unknown. Aircraft was test flown and released for flight.

U-8

1 PRECAUTIONARY LANDING ■ Right engine lost power during cruise flight. IP aborted planned flight and landed. Caused by heavy lead deposits on spark plugs.

U-1

1 PRECAUTIONARY LANDING ■ Aircraft was cruising at 5,500 feet when oil pressure fluctuated and propeller governor control was lost. Propeller control was moved forward and aircraft landed. Suspect propeller governor system failure.

U-6

1 PRECAUTIONARY LANDING ■ Smoke and fumes were detected from under instrument console during cruise flight. Master switches were shut off and smoke disappeared. Suspect frayed wire and/or internal electrical failure of circuit breaker. (UHF emergency standby circuit breaker popped at time of incident.)

T-41

1 PRECAUTIONARY LANDING ■ Pilot saw sudden propeller rpm bleed off and landed at nearest airport. Caused by broken fuel discharge tube assembly to No. 2 cylinder. □

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FOR AVIATION SAFETY
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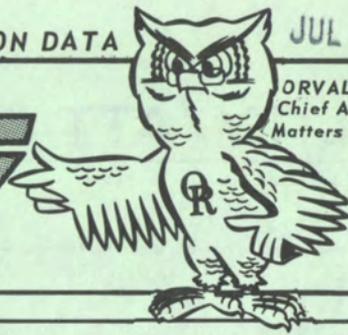
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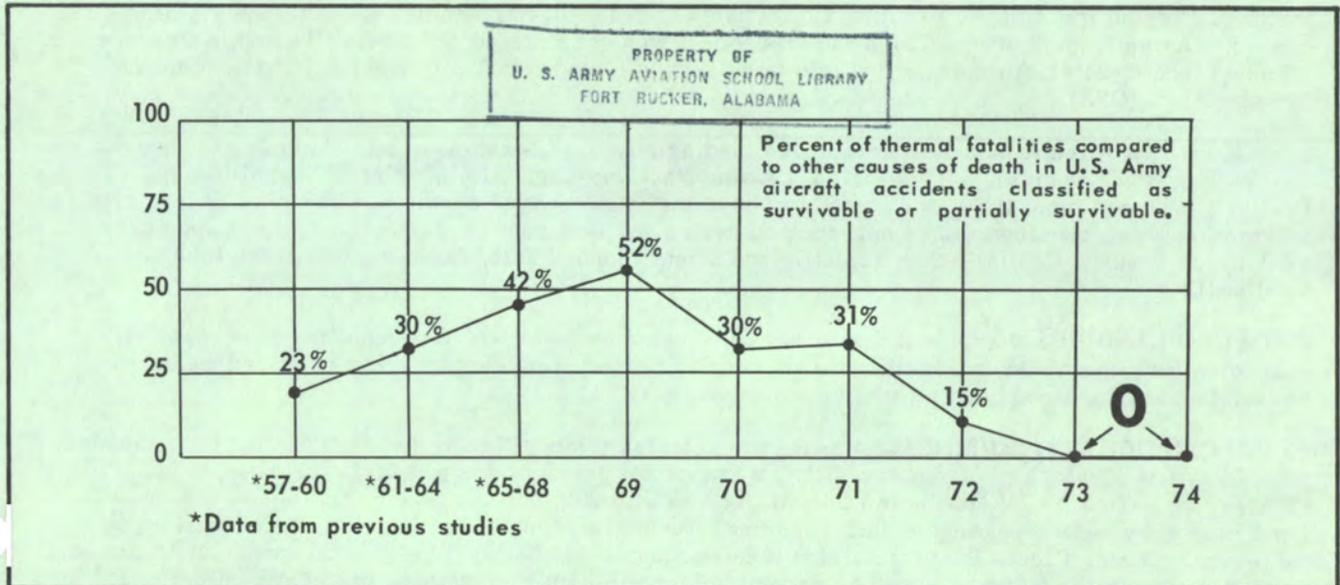


ORVAL RIGHT
Chief Advisor on
Matters of Aviation

A USAAAVS PUBLICATION

VOL. 2, NO. 40 ■ 17 JULY 1974

mishaps for the period of 28 JUNE-4 JULY 1974



WE'VE COME A LONG WAY

A crash injury study underway at USAAAVS has revealed that for the second consecutive fiscal year, *no thermal fatalities* were reported in aircraft accidents classified as survivable or partially survivable.

Since the installation of the first crashworthy fuel system in June 1970—and the conscientious wearing of Nomex flight suits and gloves, leather boots, and helmets—thermal fatalities have steadily declined to zero.

To those military and civilian organizations and to all individuals who made this possible, we thank you!

CORRESPONDENCE COURSES

Many fine correspondence courses are available through the U. S. Army Aviation Center, Fort Rucker, Alabama.

This week, attention is directed to the "Flight Operations Coordinator Course," available to enlisted and other personnel of the active Army or a Reserve component and civilian employees of the Federal Government. Enrollment is for those whose actual or anticipated assignment is in MOS71P29 or whose duties require knowledge of flight operations.

Address correspondence to: **Department of Army-Wide Training Support**
U. S. Army Aviation Center
P. O. Box J
Fort Rucker, Alabama 36360

(Enrollment application should be submitted on DA Form 145.)

UTILITY/ATTACK

Fatalities: 0 ■ Accidents: 3
Injuries: 4 ■ Estimated Costs: \$430,370

DIVISION

■ MAJ Charles E. Toomer, Chief
558-4198

Three accidents, three incidents, two forced landings, and seventeen precautionary landings were reported.

UH-1

3 ACCIDENTS ■ Cyclic control moved right during hover and crew was unable to correct movement. Aircraft rolled onto right side. Suspect hydraulic failure. (ARNG) ■ Student pilot applied abrupt control movement during PRACTICE AUTOROTATION, causing tail to strike runway. Tail rotor, tail boom, and underside of fuselage were damaged. (USA) ■ Aircraft vibrated and shuddered during cruise flight at 10,500 feet msl. Engine rpm dropped to 6200. Collective was reduced, rpm returned to 6600, and vibrations ceased. During landing attempt, high rate of descent was encountered and aircraft landed in trees short of intended landing site. Aircraft settled into trees vertically and rolled onto right side. Cause under investigation. (USA)

2 INCIDENTS ■ Aircraft landed in unimproved landing zone on 12-inch-deep rut. Aircraft assumed extreme nose-high attitude when rut wall crumbled, causing mast bumping. Aircraft slid backward into rut, damaging landing gear cross tube. (USA) ■ Aircraft was hovering in gusty wind condition when pilot seat slipped to full rear position, causing pilot to pull back on cyclic and lose control of pedals. Aircraft spun and tail skid struck ground. Copilot reduced throttle and aircraft landed hard, damaging rear cross tube and saddle. (USA)

2 FORCED LANDINGS ■ Engine failed at hover. Caused by fuel starvation resulting from improperly connected fuel line. (USA) ■ Pilot heard loud banging noise during descent. Egt exceeded maximum allowable. Engine bleed band failure, cause unknown. (USA)

17 PRECAUTIONARY LANDINGS—following are selected briefs ■ Tail rotor chip detector light illuminated. Caused by frayed wire on 90° gearbox. (USA) ■ Engine oil pressure dropped in flight. Caused by failure of oil pressure switch. (ARNG) ■ During takeoff to hover at 8,800 feet msl, engine rpm decreased to 6000. Loud noise was heard from engine during landing. Suspect compressor stall. (USA) ■ Cabin filled with white smoke during flight. Suspect solvent in heater ducts. (ARNG) ■ Pilot noticed smoke and fumes in cockpit during cruise flight. Caused by battery failure. (USA) ■ Fire warning light came on during landing. Fire detection element replaced. (USA)

AH-1

1 INCIDENT ■ Metal ruler left on tail rotor drive shaft deck contacted shaft during test flight, causing damage to shaft and shaft cover. (USA)

540 MAIN ROTOR BLADE PROBLEMS

Message from commander, USAAVSCOM, St. Louis, MO, 082225Z May 1974, contains summary of all actions taken in reference to the 540 main rotor blade problems and is quoted in its entirety for AH-1 and UH-1 type aircraft:

SUBJ: Information/summary of 540 series main rotor blade problem, inspection and actions taken (AH-1-74-7, UH-1-74-7).

LOSS OF RESOURCES FROM THIS WEEK'S MISHAPS		UNITED STATES ARMY AGENCY FOR AVIATION SAFETY FORT RUCKER, ALABAMA 36360 AUTOVON NUMBERS	
FATALITIES:	0	Commander/Deputy Commander	558-3410/3819
INJURIES:	4	Technical Research and Applications	558-6404/6410
AIRCRAFT LOSSES:	0	Plans, Operations and Education	558-4812/6510
ESTIMATED COSTS:	\$432,598	Aircraft Accident Analysis and Investigation	558-3913/4202
		Management Information System	558-4200/2920
		Publications & Graphics Division	558-6385/4218
		After-duty tape recording of incoming calls to be returned following day (hours: 1615 to 0730)	558-6510
			Commercial: 255-XXXX

Distribution to Army commands for accident prevention purposes only. Specifically prohibited for use for punitive purposes, or for matters of liability, litigation or competition. Information is subject to change and should not be used for statistical analyses. Direct communication authorized by AR 10-29.

- A. Our 272109Z Mar 74, (U), Subject: One-Time Inspection of 540 Series Main Rotor Blades (AH-1-74-4, UH-1-74-4).
- B. Our 291540Z Mar 74, (U), Subject: Ultrasonic Inspection of 540 Series Main Rotor Blades (AH-1-74-5, UH-1-74-5).
- C. TB 55-1500-206-20-20, 1 Apr 74.
- D. Our 181720Z Apr 74, (U), Subj: Disposition of 540 Series Main Rotor Blades Having Accumulated More Than 550 Hours Operating Time.
- E. Our 251305Z Apr 74, (U), Subj: Disposition of Rejected 540 Series Main Rotor Blades On UH-1C/M, AH-1G, TH-1G (AH-1-74-6 and UH-1-76-6).
- F. TB 55-1500-206-50-1, 1 Apr 74.

1. The purpose of this message is to provide commanders information and guidance concerning the 540 rotor blade problem which was identified in safety-of-flight message (Ref A).

2. The 540 rotor blade was first introduced into the field in 1965. Since that time over 18,000 have been acquired and have accumulated approximately 4.5 million hours. During this period four blade failures have occurred which have been confirmed as resulting from debonding of the "C" spar to the closure. The four blades had 798, 655, 708, and 795 hours in use.

3. The debonding results in fretting of metal and eventually causes corrosion and fatigue. Evidence of this metal fatigue or weakness sometimes manifests itself in certain indicators which can be used to detect the problem in the field. These indicators are:

A. Skin cracks on the surface of the blade. Instruction for a daily wipe-down of the blade and visual inspection was to detect any surface cracks.

B. Blade out of track.

C. Slight deformity in the trailing edge of the blade which can be noticed when the blade is removed from the helicopter and sighting down the trailing edge indicates out of line position.

D. Vibration.

4. As a result of replacement of blades when the above indicators are noted (they may not always indicate debonding), the system tends to be self-policing. This may explain the very low number of blade failures which are attributed to debonding. In fact, two of the four failures were actually determined by noting surface cracks on the blade during the daily inspection routine.

5. Based upon statistical analysis and engineering investigations, Bell Helicopter engineers state that there is a .999 percent probability that no blade will fail because of debonding prior to 550 hours. Bell and the U. S. Army Air Mobility Lab engineers are continuing to conduct further tests and analysis to verify the Bell position. It is expected that results of these further investigations will be available in late June 1974.

6. Ultrasonic testing of blades for debonding is continuing (Ref F). The test procedure is conservative, reliable, and errs on the side of safety. Improper technique may indicate bonding voids which do not exist because of template misalignment; however, this inspection provides optimum assurance that existing voids will be detected. In order to lessen adverse logistical impact, inspection personnel are being retrained to a higher skill level and all blades which previously indicated debonding will be reinspected.

7. Pending the reinspection and the completion of further investigation the following criteria should be used:

A. All blades which do not indicate debonding under ultrasonic testing should continue in service for 1,100 hours of finite life.

B. The blades with over 550 hours which have been ultrasonically inspected and found to contain debonded areas should be removed from the aircraft and reported for disposition (Ref E).

C. Blades under 550 hours which under the ultrasonic test procedure have indications of debonding may be continued in service for emergency purposes. The circle Red X should be utilized to identify this condition (Ref E).

8. In view of the current supply situation, it is conceivable that a number of NORS requisitions for blades cannot be satisfied pending further maintenance and procurement action. Based upon current estimates, this tight supply position will exist for the balance of this calendar year. Three actions are underway to resolve this problem.

A. All rotor blades which indicated debonding are being reinspected.

B. Maintenance contract programs are underway both within the Army depot system and by private contractors to repair otherwise unserviceable blades that have passed the ultrasonic test. Output from this program has started and issues to the field are being made.

C. Production of new blades by Bell Helicopter using a new design and additional quality control and test procedures including the ultrasonic test. These blades will start to be delivered in June 1974. □

LOH

Fatalities: 0 ■ Accidents: 0
Injuries: 0 ■ Estimated Costs: \$228

DIVISION

■ CPT Walter L. Hinman, Chief
558-4202

One incident, one forced landing, and seven precautionary landings were reported.

OH-58

1 FORCED LANDING ■ Engine failed on base leg of practice GCA. Cause unknown. WELL DONE for a successful power-off emergency landing goes to MAJ Larry H. Woodard, 207th Aviation Co., APO 09102. (USA)

5 PRECAUTIONARY LANDINGS ■ Aircraft yawed 15° right. Pilot noted N2 at 110 percent as he entered autorotation. Pilot attempted to join needles. However, due to engine surging, autorotation was continued to airfield. Suspect temporary restriction of double check valve. (USA) ■ Engine lost power and TOT increased to red line. Caused by broken bleed air elbow from engine compressor section. (ARNG) ■ One engine chip light (USA) and one tail rotor chip light (ARNG) illuminated. Both causes unknown pending oil sample results. ■ Transmission oil temperature light came on. MOC performed and aircraft released for flight. (ARNG)

TH-55

1 INCIDENT ■ During straight-in autorotation, student pilot applied too much collective pitch, causing helicopter to ascend to 10 feet with low rotor rpm. Instructor pilot was late with corrective action and helicopter landed hard. (USA)

2 PRECAUTIONARY LANDINGS ■ One engine oil pressure indicating below 60 psi and one engine oil pressure fluctuating. Both caused by malfunction of pressure sending unit. (USA)

THOUGHT FOR THE WEEK

WATCH THOSE "HOT" SITUATIONS—As you know, NICAD batteries have been a major concern of the Army aviation program for the past few years. It appears that the severity of the NICAD battery problem presents itself generally during the hot summer months. During this time, battery fires, explosions, corrosion, and thermal-runaway conditions cause numerous and needless mishaps. For example, one or two mishaps are reported daily to USAAAVS as a result of NICAD battery malfunctions. Appropriate Army agencies are presently conducting tests on early warning devices and ways to eliminate this safety-of-flight problem. However, these tests will not be completed until sometime next year. One aviation unit, however, asked and received permission from USAAVSCOM to locally purchase and install a *battery temperature and warning monitoring kit* on two of their NOV-1D aircraft. Since installation of these kits, batteries of three aircraft have overheated and the temperature monitoring device has provided warning to the pilots prior to major damage to the battery or aircraft. In fact, the last occurrence appears in the Fixed Wing Division portion of this FLIGHTFAX.

We are not saying that all units should request permission to locally purchase a temperature warning device, but are pointing out the value of such a device.

If your unit is having excessive problems in the NICAD battery area, we suggest that you keep USAAVSCOM informed by implementing corrective action as requested in accordance with TM 38-750, chapter 3, par. 3-16 and AR 95-5, part 3, chapter 13. Possibly through this media, action can be accomplished to speed up our testing programs, enabling the installation of temperature warning kits in *all* Army aircraft using the NICAD battery. □

CARGO/SYSTEMS

Fatalities: 0 ■ Accidents: 0
Injuries: 0 ■ Estimated Costs: \$0

DIVISION

■ CW4 Richard D. Havenstrite,
Acting Chief 558-4202

No mishaps were reported.

FIXED WING

Fatalities: 0 ■ Accidents: 0
Injuries: 0 ■ Estimated Costs: \$2,000

DIVISION

■ MAJ William G. Daly, Chief
558-3901

Two incidents and ten precautionary landings were reported.

U-3

1 INCIDENT ■ Pilot was landing during maintenance test flight. After rolling out approximately 200 feet, loud noise was heard and right wing began to settle. Mixture was closed on both engines. Aircraft turned to right and went off runway. Right propeller tips, right inboard landing gear door, right main fuel tank, bottom of fuselage, gear retraction bellcrank, and push rod were damaged. Examination revealed bellcrank upper support bracket broke loose where it attaches to bulkhead and caused push-pull tube to retract right main gear. (ARNG)

1 PRECAUTIONARY LANDING ■ No. 2 engine was shut down and feathered during transition training flight. When restart was attempted, propeller would not come out of feather and air start was not successful. It was noticed that idle cutoff controls were binding. After single-engine landing at home base, propeller accumulator was found to be below operating pressure. Idle-cutoff control linkage was inspected and found to be in need of servicing. (USAR)

U-8

1 INCIDENT ■ During landing rollout following test flight, nose gear tire blew out, resulting in severe vibration which caused drag brace bolt to shear and minor sheet metal damage. Cause of blown nose gear tire was not determined. (USA)

2 PRECAUTIONARY LANDINGS ■ During climbout after takeoff, No. 2 engine started running rough. Climb was continued to 3,500 feet and aircraft leveled, but No. 2 engine continued to run rough. Aircraft was returned to home base and landed. Cause of rough-running engine was not reported. (USA) ■ During power reduction to cruise setting after climb to 6,000 feet, No. 1 engine surged, then rapidly lost power. Cylinder head temperature rapidly decreased but all other instruments, including fuel pressure, remained normal. Throttle and propeller were moved through engine operating range with no effect. Engine was secured and aircraft landed at departure airfield. Examination revealed engine failed because hose clamp on hose between oil pump connection intake pipe and No. 4 cylinder intake pipe became loose. Suspect clamp was tightened on intake pipe flange and vibrated off flange during flight. (USA)

C-47

2 PRECAUTIONARY LANDINGS ■ No. 2 engine chip detector warning lights of two aircraft came on. Small metal particles were found on magnetic plugs. (USA)

C-54

1 PRECAUTIONARY LANDING ■ No. 1 engine started to run rough shortly after aircraft began cruise flight. A 200-rpm drop was noted on No. 1 engine. Engine was shut down and aircraft landed at home base. Caused by failure of intake valve on No. 2 cylinder. (USA)

OV-1

1 PRECAUTIONARY LANDING ■ Battery began to overheat during flight. Battery switch was turned off and mission completed. Overheat condition was caused by failure of battery cell. Damage was limited to minor internal damage to battery. (USA) *The battery overheat warning was provided by a battery temperature monitoring unit purchased and installed by the using unit with the approval of USAAVSCOM. This was the third occurrence of battery overheat where a temperature monitoring unit has provided warning prior to major damage to the battery, aircraft, or related components. Two OV-1 and one U-21 losses come to mind in which in-flight fires were reported. Such a device may well have prevented these losses. The U-21 accident also involved loss of several lives. It appears such a device would be advantageous on all Army NICAD battery-equipped aircraft. FAA has already recognized the "overheat" problem and is directing that such devices be installed in NICAD battery-equipped aircraft.*

T-41

1 PRECAUTIONARY LANDING ■ Engine chip detector warning light came on immediately after takeoff. Examination revealed moisture had shorted magnetic plug. (USA)

U-21

2 PRECAUTIONARY LANDINGS ■ While climbing to FL 155 on tactical flight, loud explosion was heard from left engine and extensive flames were seen spewing from both exhaust ports. The copilot, a Fort Rucker-trained IP, was at the controls and immediately executed engine shutdown procedures while the pilot closed left firewall and turned off boost pump, transfer pump, and cross feed. Following engine shutdown, flames were continuous approximately the width of the exhaust ports and extending 2 feet beyond both exhaust ports for approximately 30-40 seconds. Flames then diminished until they were no longer visible. Aircraft was returned to home base and single-engine landing was made. Cause of internal fire and failure unknown pending teardown analysis. (USA) ■ Torque, ITT, N1, and fuel flow gauges began fluctuating on No. 1 engine during flight at 7,000 feet msl. Power began decreasing and when throttle was advanced torque exceeded 1,325 pounds and ITT exceeded 900°. Engine was immediately shut down and aircraft landed at nearby airfield. Suspect fuel control failure. (USA) □

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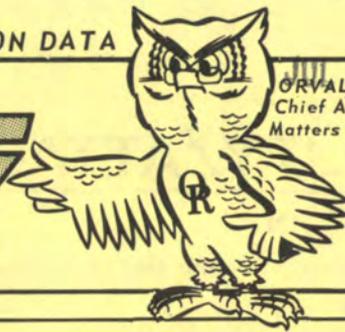
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FLIGHT FAX



ORVAL RIGBY
Chief Advisor on
Matters of Aviation

A USAAVS PUBLICATION

VOL. 2, NO. 41 ■ 24 JULY 1974

mishaps for the period of 5-11 JULY 1974

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WRONG FUEL

Refueling aircraft with the wrong fuel is not an exclusive Army problem. The Air Force has it too and here is one instance that was double trouble.

Two O-2A aircraft were refueled with Jet Fuel Type B (JP4 equivalent) by a civilian facility. Both aircraft crashed as a result of this mistake.

One pilot stated that the fuel sample from the aircraft sumps was a light purple color. His statement was supported by the first fuel out of the sumps when samples were taken at the crash site.

Further investigation revealed that a 50/50 mixture of JP4 and 115/145 avgas was difficult to distinguish from a 50/50 mixture of 100/120 and 115/145 avgas.

Determination of type fuel by color alone is an unreliable method. Commanders must emphasize, to all personnel, the importance of positive identification of fuel prior to servicing aircraft.

Units should establish coordination with federal and state authorities to insure that all aviation fuel dispensing pumps and facilities (military and civilian) are clearly marked for positive identification of fuel being dispensed.

Hopefully a simplified fuel test will be developed, through combined efforts of the Army and Air Force, for aircrews to use in the field for determining fuel types even when they are accidentally mixed.

AVSCOM FERRY FLIGHT KIT/BOOKLET

The FY 75 AVSCOM Ferry Flight Kit is now available. It consists of purchase forms and a booklet of instructions listing crew and travel limitations, pickup and delivery procedures, en route purchasing procedures, en route maintenance support, reporting requirements, facility information, and other essential information. The kit is a MUST for all AVSCOM-directed ferry flights and is issued at the contractor or depot sites. To obtain either the kit or the booklet of instructions for flights to a depot/contractor/storage site or for advance crew briefings before departing for pickup of aircraft, call AVSCOM, Autovon 698-2727/2668/2963, or write to: Commander, USAAVSCOM, ATTN: AMSAV-QNDS, P. O. Box 209, St. Louis, MO 63166.

CORRESPONDENCE COURSES

Many fine correspondence courses are available through the U.S. Army Aviation Center, Fort Rucker, Alabama.

This week, attention is directed to the "Aviation Accident Prevention Plan-Avn 31," which is available to commissioned officers, warrant officers, or other personnel of the Active Army or a Reserve component and civilian employees of the Federal Government. Enrollment is for those whose actual or anticipated

assignment requires knowledge of the subject area.

Address correspondence to:

Department of Army-Wide Training Support
U.S. Army Aviation Center
P. O. Box J
Fort Rucker, Alabama 36360

(Enrollment application should be submitted on DA Form 145.)

UTILITY/ATTACK

Fatalities: 1 ■ Accidents: 1
Injuries: 2 ■ Estimated Costs: \$302,465

DIVISION

■ MAJ Charles E. Toomey, Chief
558-4198

One accident, three incidents, one forced landing, and twenty-one precautionary landings were reported.

UH-1

1 ACCIDENT ■ Aircraft crashed in corn field following simulated forced landing. Cause under investigation. (USA)

3 INCIDENTS ■ Tail rotor chip detector light came on. Pilot attempted to land in clear area but noticed large boulders in area. Go-around was attempted but engine rpm deteriorated. Aircraft landed hard on 40° slope, damaging tail rotor, 90° gearbox, and right landing skid. (USAR) ■ Aircraft was started with main rotor tiedown attached. Tiedown device struck tail rotor, damaging one blade. (USA) ■ Main rotor struck tree limb during NOE flight, damaging one blade. (USA)

1 FORCED LANDING ■ Aircraft was on maintenance test flight when engine failed during hover check. Cause unknown. (ARNG)

19 PRECAUTIONARY LANDINGS—following are selected briefs ■ Fire detector light came on. Cause not reported. (USAR) ■ Aircraft yawed left and engine and rotor rpm decayed. IP reduced collective, retarded throttle, and placed governor in emergency. Suspect underspeeding N2 governor. (ARNG) ■ Engine chip detector light came on during landing. Caused by fuzz on magnetic plug. (USA) ■ Engine oil pressure reading fluctuated between 0 and 95 psi. Caused by malfunction of engine oil pressure gauge. (USA) ■ Crew chief noticed hydraulic leak during refueling. Caused by failure of hydraulic filter elbow tube seal which deteriorated due to extended maintenance down time. (USA) ■ Crew noticed unusual odor in flight. Caused by failure of starter generator. (USA) ■ Crew heard four loud bangs during takeoff. Suspect compressor stall. (USA)

AH-1

2 PRECAUTIONARY LANDINGS ■ Aircraft rolled approximately 20° right before pilot disengaged SCAS. Loud squeal was heard and No. 1 hydraulic light illuminated. Cause unknown. (USA) ■ During pullup from dive, low rpm light and audio came on. Engine rpm decreased during attempts to increase collective. Caused by failure of governor assembly. (USA) □

LOH

Fatalities: 0 ■ Accidents: 2
Injuries: 0 ■ Estimated Costs: \$33,453

DIVISION

■ CPT Walter L. Hinman, Chief
558-4202

Two accidents, two incidents, one forced landing, and seven precautionary landings were reported.

OH-58

1 ACCIDENT ■ Engine rpm went to zero during cruise flight and all other instruments remained in the green. Thirty seconds later TOT went to 800° and back down. Engine quit and pilot autorotated to open field. Main rotor blades struck tail boom and skids were spread. (USA)

LOSS OF RESOURCES FROM THIS WEEK'S MISHAPS

FATALITIES: 1
INJURIES: 2
AIRCRAFT LOSSES: 1
ESTIMATED COSTS: \$336,918

UNITED STATES ARMY AGENCY FOR AVIATION SAFETY FORT RUCKER, ALABAMA 36360 AUTOVON NUMBERS

Commander/Deputy Commander	558-3410/3819
Technical Research and Applications	558-6404/6410
Plans, Operations and Education	558-4812/6510
Aircraft Accident Analysis and Investigation	558-3913/4202
Management Information System	558-4200/2920
Publications & Graphics Division	558-6385/4218
After-duty tape recording of incoming calls to be returned following day (hours: 1615 to 0730)	558-6510
Commercial:	255-XXXX

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2 INCIDENTS ■ Pilot turned right during takeoff and main rotor blade hit tree. Pilot landed without further incident. (USA) ■ While cargo was being loaded into back of OH-58, a UH-1 hovered behind OH-58, causing right rear door to be blown off. (ARNG)

5 PRECAUTIONARY LANDINGS ■ During cruise flight, complete electrical failure was experienced. Caused by defective voltage regulator. (USA) ■ D.C. generator segment light flickered for about 5 minutes, then went off. Buzzing sound was also heard. Cause unknown pending further investigation. (USA) ■ Tail rotor chip light came on. Normal wear fuzz. (ARNG) ■ Transmission oil pressure light illuminated. Cause not reported pending supplemental information. (ARNG) ■ Grinding noise was heard from transmission area. Cause unknown pending further investigation. (USA)

TH-55

1 ACCIDENT ■ During practice hovering autorotation, engine surged when collective pitch was applied, causing student pilot to lose directional control. Instructor pilot was late with corrective action and aircraft touched down left skid first, causing main rotor blades to strike runway. Aircraft then rolled on left side. (USA)

1 INCIDENT ■ Engine failed during hover. Suspect connecting rod failure. (USA)

2 PRECAUTIONARY LANDINGS ■ Transmission gearbox warning light illuminated during approach. Suspect failure of gearbox oil pressure switch. (USA) ■ High engine oil pressure was noted during hovering flight. Caused by pressure switch failure. (USA)

THOUGHT FOR THE WEEK

Preserving resources—lives and equipment—receives much attention in the Army today. Many dollars and much time and effort are spent emphasizing flight safety. Monthly safety meetings are “spiced up” with talks by weather personnel about summer flying hazards. All too often, hazards, which cost us resources in the form of lost lives and work days, do not receive their proper share of attention. Summer recreation activities deserve the same approach, safety-wise, that we apply to summer flying activities. Drownings, automobile accidents, overexertion, sunburn, snakebites, poison oak, heat strokes, etc., reduce resources as surely as aircraft accidents. Prevention methods such as use of the buddy system while swimming reduce the probability of accidents just as surely as use of the checklist during aircraft operation. □

CARGO/SYSTEMS

Fatalities: 0 ■ Accidents: 0
Injuries: 0 ■ Estimated Costs: \$0

DIVISION

■ CW4 Richard D. Havenstrite,
Acting Chief 558-4202

Five precautionary landings were reported.

CH-47

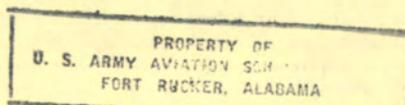
4 PRECAUTIONARY LANDINGS ■ No. 1 engine chip detector light came on shortly after takeoff. Chip detector plug and filter were inspected. Wear condition was normal. Components were cleaned and reinstalled, and aircraft returned to service. (USA) ■ No. 2 engine chip detector light illuminated. Chip detector plugs were inspected. Wear condition was normal, plug was reinstalled, and aircraft was returned to service. (USA) ■ Aircraft was in cruise flight at 1,000 feet when grinding noise was heard from ramp area. Noise was preceded by hydraulic leak from hydraulic oil cooler fan assembly. Landing was made and fan area inspected. Caused by hydraulic oil cooler impeller fan disintegration during flight. (USA) ■ No. 2 flight boost gauge indicated loss of pressure and caution light came on. Caused by sheared No. 2 flight boost hydraulic pump shaft. (USA)

CH-54

1 PRECAUTIONARY LANDING ■ No. 2 engine fire warning light came on during cruise flight. Caused by electrical short in fire warning system. (USA)

FIRST AID KITS

A photo copy of an EIR was received from the field indicating that some first aid kits were being sealed and safetied with .020 steel safety wire. Criteria for first aid kits can be found in TM 55-1500-328-25, dated 21 Jul 72, with change 2. Specific information on the type of seal and wire to be used is on page 10-5, paragraph 10-7, of this TM. □



FIXED WING

Fatalities: 0 ■ Accidents: 0
Injuries: 0 ■ Estimated Costs: \$1,000

DIVISION

■ MAJ William G. Daly, Jr., Chief
558-3901

One incident and seven precautionary landings were reported.

T-42

1 INCIDENT ■ Aircraft was taxiing to runway. No. 1 propeller struck ground as aircraft taxied over dip in ramp area. (ARNG)

2 PRECAUTIONARY LANDINGS ■ No. 1 alternator failed in flight. No. 2 circuit breaker popped and was reset twice. All electrical equipment was shut off and aircraft returned to home field. After landing gear was lowered, battery went dead. Caused by failure of alternator belt. Battery was also replaced. (USA)
■ No. 2 engine lost power in cruise flight. Oil and cylinder head temperature rose to red line and loss of oil pressure was noted. Engine was secured. Caused by failure of No. 6 cylinder and piston, P/N 632932A3. (USA)

C-7

2 PRECAUTIONARY LANDINGS ■ No. 2 engine lost power on takeoff. Caused by failure of intake valve on No. 11 cylinder. (USA) ■ No. 1 engine lost power after takeoff. Caused by cracked cylinder head on No. 6 cylinder. (USA)

U-8

3 PRECAUTIONARY LANDINGS ■ During test flight No. 2 engine was shut down for feather check and would not restart. Caused by misadjustment of sensitive switch, P/N M525 383-L, of engine ignition cutout circuit. (USA) ■ No. 2 engine cylinder head temperature rose to 240° C. and oil temperature rose to 105° C. after takeoff. Caused by clogged oil filter. (USA) ■ When gear was extended for landing, left main gear indicated unsafe. Tower made visual check and informed pilot that gear appeared down and locked. Aircraft landed without mishap. Caused by defective left main gear down-lock microswitch. (USA) □

DEPARTMENT OF THE ARMY
UNITED STATES ARMY
AGENCY FOR AVIATION SAFETY
FORT RUCKER, ALABAMA 36360

OFFICIAL BUSINESS

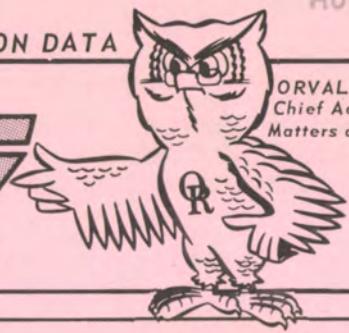


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VOL. 2, NO. 42 ■ 31 JULY 1974

mishaps for the period of 12-18 JULY 1974

FLIGHT CLOTHING

The U.S. Army Support Center, Philadelphia, PA, Supply Information Letter No. 4-74, 1 June 74, indicates the following items have been reclassified as Standard, LCC B:

- Jacket, Flying, Winter Weight, Type N3B, FSN 8415-269-0418(S), LIN L15115.
- Jacket, Flightline Crewman's, FSN 8415-268-7773(S), LIN L15252.
- Jacket, Flying, Intermediate Weight, Reversible, Type MA-1, FSN 8415-818-7352(S), LIN L14567.
- Jacket, Flying, Summer Weight, Type L-2B, FSN 8415-817-0595(S), LIN L14841.
- Trousers, Flyer's, Heavyweight, FSN 8415-269-0517(S), LIN X35741.
- Trousers, Flyer's, Medium Weight, FSN 8415-266-9890(S), LIN X35810.
- Coveralls, Flyer's, Intermediate Weight, Type CWU-1/P, FSN 8415-576-3399(S), LIN F32124.

Existing stocks of the above items will be issued until exhausted and no further procurements will be made.

Jacket, Flying, Winter Weight, Type N-2B, w/Natural Fur, FSN 8415-270-0367(S), LIN L14978, has been changed to Jacket, Flying, Winter Weight, Type N-2B, w/Synthetic Fur, FSN 8415-118-7569(S), based on DA decision to discontinue use of natural fur. Stocks on hand of jackets w/natural fur will be issued until exhausted and no further procurements will be made. Estimated date of supply (EDOS) for the jacket w/synthetic fur is 1 June 1974. Basis of Issue (BOI) is published in CTA 50-900 under LIN L14978.

The following items have been type classified as Standard, LCC A, and replace those listed above. For supply planning purposes, EDOS/anticipated availability date is also furnished:

- Parka, Insulated, Extreme Cold Weather, Type CWU-8/P, FSN 8415-890-2028(S), LIN N69886, EDOS 1 July 1974.
- Trousers, Extreme Cold Weather, Type CWU-6/P, FSN 8415-768-4152(S), LIN X35961, EDOS 1 August 1974.

■ Jacket, Flyer's, Lightweight, Heat Resistant, Non-Melting, FSN 8415-217-7201(S), LIN to be assigned. Item will not be available prior to 4th quarter FY 75.

■ Jacket, Flyer's, Medium Weight, Heat Resistant, Non-Melting, FSN 8415-221-8870(S), LIN to be assigned. Item will not be available prior to 4th quarter FY 75.

BOI for the above Parka, Extreme Cold Weather and Trousers, Extreme Cold Weather, is published in CTA 50-900. BOI for the Jacket, Flyer's, Lightweight and Jacket, Flyer's, Medium Weight, will appear in a subsequent revision.

Since no further procurements will be made of replaced items, it is recommended that maintenance be effected to afford the maximum extent of serviceability and utilization possible for these items at the user level pending availability of the new items.

USAAVS recommends units survey aviation personnel and insure all required winter flight clothing and survival equipment is on hand and in a serviceable condition.

CORRESPONDENCE COURSES

Many fine correspondence courses are available through the U.S. Army Aviation Center, Fort Rucker, Alabama.

This week, attention is directed to "Crash Safety Concepts-Avn 33," which is available to commissioned officers, warrant officers, or other personnel of the Active Army or a Reserve component and civilian employees of the Federal Government. Enrollment is for those whose actual or anticipated assignment requires knowledge of the subject area.

Address correspondence to:

Department of Army-Wide Training Support
U.S. Army Aviation Center
P. O. Box J
Fort Rucker, Alabama 36360

(Enrollment application should be submitted on DA Form 145.)

UTILITY/ATTACK

Fatalities: 0 ■ Accidents: 1
Injuries: 0 ■ Estimated Costs: \$73,800

DIVISION

■ MAJ Charles E. Toomer, Chief
558-4198

One accident, three incidents, and thirty-four precautionary landings were reported.

UH-1

1 ACCIDENT ■ During night practice autorotation, aircraft struck ground in an extremely nose-high attitude. Tail rotor was severed and aircraft landed hard, resulting in major damage. (USA)

3 INCIDENTS ■ Severe compressor stall occurred during left turn, resulting in major vibration and hard landing. Skids and crosstubes were bent. (USA) ■ During air drop of "C" rations, static line came loose from aircraft and parachute struck tail rotor blades. (USA) ■ Aircraft, making night landing to LZ without use of landing light, landed hard. Incident damage to rear cross tube. (USA)

28 PRECAUTIONARY LANDINGS—following are selected briefs ■ Trim tab separated from main rotor blade in flight, resulting in overspeed of main rotor head components, tail rotor hub and blade assembly, and drive train components. (USA) ■ Engine chip detector light came on and aircraft was landed at nearby airfield. Plug was removed, found normal, and reinstalled. Operation check was satisfactory. Aircraft returned to home airfield where oil sample was taken. Unit is awaiting results of laboratory analysis of oil sample. (USA) ■ During test flight phase calling for hydraulic check, pilot inadvertently switched governor to emergency mode, causing high engine/rotor overspeed. (USA) ■ Fire warning light came on. Wiring harness system for warning system was crimped between cowling and airframe. (USA) ■ Transmission oil pressure light came on. Caused by faulty oil pressure switch. EIR submitted. (USA) ■ Engine tachometer dropped to 6000 rpm and rotor tachometer indicated 300 rpm during cruise flight. Pilot lowered collective and rpm returned to 6600 and remained there for duration of flight. Maintenance inspected aircraft at home airfield and found faulty overspeed governor. (USA)

AH-1

6 PRECAUTIONARY LANDINGS ■ Egt fluctuated between 540° and zero. Wiring harness leading from egt couplers chafed through, causing short. Harness was replaced and aircraft returned to service. (USA) ■ Aircraft was in cruise flight when pilot noticed severe drop in transmission oil pressure (52 to 10 psi). This was followed by transmission oil pressure segment light, oil bypass segment light, and master caution warning light. Inspection revealed elbow oil cooler was cracked at fitting due to overtorque. (USA) ■ Pilot noted high frequency vibration in pedals and excessive SCAS feedback in yaw channel was felt. Pilot landed aircraft on heliport. (USA) ■ Aircraft was in cruise flight at 5,000 feet msl when egt increased to 590° C. at 30 pounds torque. Rpm decreased to 6000. Pilot entered autorotation and placed throttle in emergency governor position. Rpm and egt stabilized and aircraft was flown back to home airfield. (USA)

LOSS OF RESOURCES FROM THIS WEEK'S MISHAPS

FATALITIES: 0
INJURIES: 3
AIRCRAFT LOSSES: 0
ESTIMATED COSTS: \$115,965

UNITED STATES ARMY AGENCY FOR AVIATION SAFETY FORT RUCKER, ALABAMA 36360 AUTOVON NUMBERS

Commander/Deputy Commander	558-3410/3819
Technical Research and Applications	558-6404/6410
Plans, Operations and Education	558-4812/6510
Aircraft Accident Analysis and Investigation	558-3913/4202
Management Information System	558-4200/2920
Publications & Graphics Division	558-6385/4218
After-duty tape recording of incoming calls to be returned following day (hours: 1615 to 0730)	558-6510
Commercial:	255-XXXX

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- Transmission oil pressure caution light illuminated and transmission oil pressure fluctuated. (USA)
- Master caution light came on at 1,500 feet and oil pressure decreased to below 40 psi. Pilot initiated autorotation. Engine oil pressure caution light came on, pressure dropped to 20 psi, and oil temperature was 85° C. Power-on autorotation was made to airfield. (USA) □

LOH

Fatalities: 0 ■ Accidents: 1
Injuries: 3 ■ Estimated Costs: \$27,390

DIVISION

■ CPT Walter L. Hinman, Chief
558-4202

One accident, five incidents, three forced landings, and nine precautionary landings were reported.

OH-58

1 ACCIDENT ■ Aircraft started to spin to right during takeoff. Pilot attempted to gain airspeed, but aircraft settled into side of hill, bounced, and rolled on left side. Pilot and two passengers received minor injuries. Investigation is in progress. (USA)

2 INCIDENTS ■ During demonstration of NOE flight techniques, pilot misjudged main rotor blade clearance and aircraft struck tree, causing damage to both rotor blades. (USA) ■ Pilot did not notice that passenger was not properly strapped in and that seat belt was dangling outside aircraft. Left side of fuselage was damaged. (USA) *Haven't heard this one for a while. Passengers say and do the strangest things, so pilots, beware.*

2 FORCED LANDINGS ■ During pretakeoff check, pilot noticed N2, N1, and TOT fluctuating. Aircraft was landed and rpm stabilized at 103%. Pilot brought aircraft to hover and rpm dropped to 99% and then back to 104%. Pilot then elected to hover back to pad. During this hover, rpm dropped slowly and engine finally quit. Suspect engine flamed out due to water ingestion. (USA) ■ N2 decayed to 70-75 percent. Engine audio and low rpm light activated. Reduction of collective increased rotor rpm, but N2 remained at 70-75 percent. Pilot then autorotated and landed. Situation could not be duplicated by maintenance personnel. Aircraft is grounded pending results of fuel sample. (USA)

5 PRECAUTIONARY LANDINGS ■ Hydraulic pressure light came on and pilot returned to airfield. Hydraulic switch was recycled and light went out. (USA) ■ Engine chip light illuminated. Metal sliver was found on plug and plug was cleaned and reinstalled. Aircraft was run up and released for flight. (USA) ■ Oil was seen leaking from engine deck drain line. Caused by failure of engine seal. (ARNG) ■ Tail rotor chip light came on during hover. Normal fuzz. (USA) ■ N1 dropped to 97%. Caused by malfunction of linear actuator. (ARNG)

OH-6

1 FORCED LANDING ■ N2 governor failure caused engine to overspeed. Aircraft was landed with partial power. (ARNG)

1 PRECAUTIONARY LANDING ■ Pilot experienced partial loss of tail rotor control during hover to parking area. Lower bolt of bellcrank, station 142, came out of bellcrank. Suspect nut was not properly secured during installation. (ARNG)

TH-55

3 INCIDENTS ■ During short final to approach panel at stagefield, left pedal came off pedal arm. Student pilot lost directional control and made two rapid 360° turns. Tail skid and tail rotor struck runway and broke away. Student pilot then lowered collective and reduced throttle for landing. Pedal retaining pin was found in chin bubble of aircraft. (USA) ■ Aircraft landed hard at termination of practice autorotation. (USA) ■ IP stated that he felt slight bind in collective during hover. When he reduced collective pitch

for landing, helicopter touched down hard. Maintenance inspection did not show binding in collective. (USA)

3 PRECAUTIONARY LANDINGS ■ Lateral vibration was noted during flight. Caused by defective main rotor damper. (USA) ■ Oil pressure indicated above 100 psi during flight. Caused by malfunction of oil pressure sender unit. (USA) ■ Excessive fluctuation of engine tachometer needle was caused by defective engine/rotor tachometer indicator. (USA)

THOUGHT FOR THE WEEK

PULL TO FIRE—Did you know that under some uncontrolled flight conditions the face blind on the MK-J5B ejection seat cannot be used to initiate the ejection egress? That's right! The lateral g forces experienced during a flat spin or like uncontrollable condition will make grasping of the face blind handle a very difficult task. The lateral g forces will cause the arms to become nearly uncontrollable as they are moved from the flight controls to the face blind handle location.

Mechanically, the face blind is "design limited" in these uncontrolled flight conditions. Pulling the face blind "full out" to an angle of approximately 30 degrees or more to the right or left of "straight out" will cause the upper firing cable "effective-run-length" to be changed to such an extent that the primary firing mechanism sear cannot be extracted, and therefore the ejection catapult will not "fire."

The change in upper firing cable "effective running length" is caused by the face blind restraint straps being "pulled" at an angle which causes the restraint straps to become taut before the upper firing cable has moved the "linear" distance necessary for "sear removal." Simple design alteration of the upper firing cable length and/or face blind restraint strap length is not appropriate because of other functional design considerations.

The physiological considerations and face blind design limitations are presented here to focus attention on the lower firing handle for "uncontrolled" flight ejection egress. The lower firing handle is closest to the hands during flight performance, and because of its location is the most accessible during high lateral g force conditions. Additionally, the lower firing handle is the end-point of the lower firing cable, and is therefore omni-directional. □

CARGO/SYSTEMS

Fatalities: 0 ■ Accidents: 0
Injuries: 0 ■ Estimated Costs: \$14,000

DIVISION

■ CW4 Richard D. Havenstrite,
Acting Chief 558-4202

One incident, one forced landing, and five precautionary landings were reported.

CH-47

1 INCIDENT ■ Copilot's jettisonable door came off during cruise flight. Crew reported incident by radio and orbited area in attempt to locate and recover the item. Crew was unable to recover door and no cause could be established as to why door ejection occurred. (USA)

1 FORCED LANDING ■ Peculiar odor was detected during flight, followed immediately by cargo and cockpit compartments filling with white smoke. Battery was switched to "off," emergency descent initiated, and crew chief used fire extinguisher on apparent source of smoke behind left forward seat area. Landing was made, battery was removed, and fire extinguisher used on spattered electrolyte in battery compartment area. Caused by internal failure of battery. (USA)

5 PRECAUTIONARY LANDINGS ■ Hydraulic line ruptured during flight. Caused by leaking fluid from cracked tee fitting in utility hydraulic system. (USA) ■ Aft transmission chip detector light came on.

Small amount of metal fuzz was found on chip detector plug and oil sample indicated normal wear. Aircraft was released for flight. (ARNG) ■ No. 2 engine chip detector light came on. Small piece of metal was found on chip detector and oil sample results indicated normal wear. (ARNG) ■ No. 1 generator failed. First indication of trouble was smoke odor, followed by sparks from unit. No abnormal indications on loadmeters or other instruments occurred. (USA) ■ No. 2 engine N1 went to 80 percent and egt to 750° C. Engine would not respond to a.c. beep. Fire light illuminated, engine was shut down, and aircraft was landed. Engine was T55-L-7C. (USA)

Message received from USAAVSCOM, dated 18 July 1974, subject: **CH-47A, B, and C Helicopter Transmission Bolt Replacement**. This message pertains to a new dash number for the forward and aft transmission mounting bolt and nut. □

FIXED WING

Fatalities: 0 ■ Accidents: 0
Injuries: 0 ■ Estimated Costs: \$775

DIVISION

■ MAJ William G. Daly, Jr., Chief
558-4202

One incident and eight precautionary landings were reported.

U-21

1 INCIDENT ■ After leveling off at 8,000 feet on IFR training flight, left inboard forward edge of engine cowling (unidentified) came loose, forcing aft latch to fail. Cowling then popped completely open. Aircraft was returned to home base where examination revealed no evidence of materiel failure. However, lock washer and nut, items 15 and 16, fig. 33, TM 55-1510-209-34P, were missing off forward latch. Threads on item 17, fig. 33, were stripped on both latches. Suspect failure to install nut and lock washer. (USA)

2 PRECAUTIONARY LANDINGS ■ During an IFR service mission, aircraft required refueling. Crew checked weather during stop (approximately 1 hour) and after breaking ground to continue mission noticed left fuel cap was off and hanging by chain. Aircraft remained in closed traffic and after landing required 40 gallons of fuel to top the tank. Service personnel apparently left fuel cap off after refueling and crew failed to check security of fuel caps prior to takeoff. (USA) ■ Right main landing gear failed to retract during takeoff. Pilot performed gear extension procedures in accordance with the dash 10 CL. Tower confirmed gear was fully extended and aircraft was landed. Excessively worn main actuator assembly prevented right main gear from retracting. (USA)

C-47

1 PRECAUTIONARY LANDING ■ No. 1 engine chip detector warning light came on. All engine indications remained normal. Caused by failure of No. 12 cylinder. (USA)

OV-1

1 PRECAUTIONARY LANDING ■ Aircraft rolled approximately 1,000 feet after touchdown and suddenly veered off left side of runway. Pilot secured both engines as aircraft came to rest off runway. Post-landing check revealed nose gear tire failure was caused by FOD on runway. (USA)

T-41

1 PRECAUTIONARY LANDING ■ Pilot heard unusual noise during climbout, returned, and landed. Suspect loose engine cowling. (USA)

T-42

1 PRECAUTIONARY LANDING ■ Left alternator became inoperative during flight. After 3.3 hours of flight, battery became depleted due to right alternator not being able to assume load. (USA)

U-3

1 PRECAUTIONARY LANDING ■ After ½-hour flight, major oil leak was seen on No. 1 engine. Engine was secured and aircraft landed. Postlanding check revealed oil pan of No. 1 engine was cracked. Suspect oil pan was damaged in packing for shipment or during installation on aircraft. (ARNG)

U-8

1 PRECAUTIONARY LANDING ■ During VFR training flight, IP instructed student to initiate go-around from short final to avoid light civilian fixed wing aircraft that had taxied out onto active runway. Throttle was increased without changing propeller setting, creating sufficient overboost to require engine inspection. Engines were inspected, flown 10 hours, and borescoped. Oil samples were taken. Tests indicated no damage to either engine and aircraft was released for flight. (USA)

U-8F WIND LIMITATIONS

The following wind limitations for U-8F aircraft are designed to serve as guides only. Prime consideration must be given to the skill and experience level of individual pilots.

90-degree crosswind	20 knots
60-degree crosswind	25 knots
30-degree crosswind	30 knots
Maximum wind—no crosswind	40 knots
Maximum gust spread	15 knots

A dash 10 change reflecting this information is being prepared for distribution to the field. □

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A USAAAVS PUBLICATION

VOL. 2, NO. 43 ■ 7 AUGUST 1974

mishaps for the period of 19-25 JULY 1974

A CALL FOR ASSISTANCE

Anyone knowing the whereabouts of an AH-1 Cobra fuselage hulk (the main area of interest is the pilot/gunner cockpit seating area) please write or call USAAAVS, Directorate for Technical Research and Applications (TR&A), AUTOVON 558-4806/2091, ATTN: CW4 Johnson.

PROFESSIONALISM (?) TOO LATE

The crew departed home base in a UH-1H and arrived at their destination the next day. After resting for two days, they prepared to ferry a UH-1H back to home base.

They inventoried and preflighted the aircraft. During a 30-minute test flight, they made a ground and air check of the ADF and VOR equipment. These systems checked out okay.

The pilot filed an IFR flight plan and received his weather briefing. He determined his true airspeed to be 84 knots, total distance to facility serving the destination as 129 nautical miles, and estimated time en route as 1 hour and 30 minutes. His weather briefing listed winds at his selected altitude as 250 degrees at 25 knots. An alternate airfield was required, based on forecast destination weather, but he did not file for an alternate.

The aircraft log book had a circle red X condition for an unreliable fuel gauge, restricting this aircraft to 2 hours flight. Based on the pilot's experience as a maintenance officer and his observations during the 30-minute test flight, he listed 2 hours and 30 minutes of fuel on board the aircraft. The weather briefer advised against departing that day because of weather that was

moving from west to east. He told the pilot that the weather would worsen within an hour after his ETA, but the pilot elected to go ahead.

When he arrived back at the aircraft it had not been refueled. The crew flagged down a passing fuel truck and topped off their fuel tank with 52 gallons. They departed the airfield at 1534Z, after 10-15 minutes ground runup and hovering for departure. Their flight was conducted under IFR conditions soon after departure.

After departing they were dropped from radar and advised to contact destination at intersection A. The pilot reported intersection A to destination tower who directed them to hold at intersection B. The crew reported holding at intersection B at 1736Z. Sometime shortly before or just after they reached intersection B, the winds increased to about 40 knots. The crew never did become aware of this problem. They thought they were having a VOR problem because they did not receive station passage indication in the proper time frame based on their estimated ground speed. They never physically made a ground speed check.

At 1750Z the aircraft was cleared to destination VOR and was instructed to hold there. Shortly after entering holding, the 20-minute fuel

Continued on page 2

Continued from front page

warning light came on. The fuel gauge indicated 470 pounds of fuel. The crew did not report this condition to the tower. The pilot reported departing intersection B at 1756Z and asked the tower how long he would have to hold. They told him it would be only a few minutes.

At 1810Z the pilot told the tower that he only had 20 minutes of fuel left and requested a DF steer to the airfield. The tower advised them of the terrain elevation in their area and gave them a DF steer to the airfield, a direction of 320 degrees. The pilot received permission to descend and find a place to set the aircraft down. At 1,400 feet they were still IFR but could see treetops straight below them. At 1820Z the engine quit and the pilot zeroed his airspeed and cushioned the aircraft into the treetops. The aircraft came to rest on its right side, basically intact. The crew got out of the aircraft without help and notified authorities.

FINDINGS

■ The pilot elected to file IFR in violation of AVSCOM ferry rules and a local regulation which prohibited IFR flight on the first leg of a ferry flight. The pilot was aware of this restriction but was not issued an AVSCOM ferry packet. The restriction was covered in a briefing prior to departing on the ferry flight. The reason for this error can be attributed to the absence of all other crewmembers at the briefing and the fact that the pilot did not adhere to published regulations.

■ The pilot was the only crewmember who attended the weather briefing and he alone planned the flight. This resulted in a computation error of time en route (should have been

2 hours plus 12 minutes) and lack of selection of an alternate airfield, required by AR 95-5, par. 4-23b. The reason for this can be attributed to the pilot's haste to beat the worsening weather forecast for his destination and his lack of understanding of the requirement for an alternate airfield.

■ The crew disregarded a circle red X condition for an unreliable fuel gauge.

■ The crew did not recognize the problem of increased headwinds and the resultant decrease in ground speed which lengthened their en route time. They focused too much attention on a suspected faulty VOR and ignored the low fuel state.

■ The crew exercised poor judgment in not declaring an emergency to expedite their landing when their fuel supply reached a critical point or when they believed their navigation equipment to be faulty. At no time did they report suspected faulty navigation equipment. The only indication they gave the controller of a fuel problem was to report 20 minutes of fuel remaining at 1810Z. The engine quit at 1820Z. The reason for this error in judgment can only be explained by the crew's unwillingness to admit to the controller that they were in trouble.

The accident report stated: "The crew at this point (crash was inevitable) did show a sense of professionalism in that they knew what was about to happen and prepared themselves for it. The actual autorotation, when no landing area could be found, was done with near zero airspeed and cushioned into the trees." This sounds like a nice way of saying the crew finally did something right.

LOSS OF RESOURCES FROM THIS WEEK'S MISHAPS

FATALITIES: 0
INJURIES: 0
AIRCRAFT LOSSES: 0
ESTIMATED COSTS: \$100,135

UNITED STATES ARMY AGENCY FOR AVIATION SAFETY FORT RUCKER, ALABAMA 36360 AUTOVON NUMBERS

Commander/Deputy Commander	558-3410/3819
Technical Research and Applications	558-6404/6410
Plans, Operations and Education	558-4812/6510
Aircraft Accident Analysis and Investigation	558-3913/4202
Management Information System	558-4200/2920
Publications & Graphics Division	558-6385/4218
After-duty tape recording of incoming calls to be returned following day (hours: 1615 to 0730)	558-6510
Commercial:	255-XXXX

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UTILITY/ATTACK

Fatalities: 0 ■ Accidents: 1
Injuries: 0 ■ Estimated Costs: \$93,840

DIVISION

■ MAJ Charles E. Toomer, Chief
558-4198

One accident, six incidents, two forced landings, and thirty-eight precautionary landings were reported.

UH-1

1 ACCIDENT ■ Tail rotor left aircraft during cruise flight at 2,000 feet msl, damaging tail boom, 90° gearbox, and tail rotor drive shaft. Landing gear skids and cross tubes damaged during landing. Cause of tail rotor failure unknown pending investigation. (USA)

4 INCIDENTS ■ During maintenance test flight autorotational rpm check, engine oversped, then failed. Aircraft landed hard, damaging cross tubes, right chin bubble, and main rotor mast. Suspect main drive shaft failure. (USAR) ■ Right cargo door came off in flight, striking one main rotor blade. Caused by worn lower door channel. (ARNG) ■ While flying authorized NOE course, aircraft hit tree, damaging main rotor blades. (ARNG) ■ During low-level flight at 75 feet agl, aircraft struck wire, damaging one main rotor blade. (USA)

1 FORCED LANDING ■ Engine failed during simulated forced landing. Caused by fuel control failure. (USA)

31 PRECAUTIONARY LANDINGS—following are selected briefs ■ Fuel boost caution light came on. Boost pump replaced. (USA) ■ Tail rotor chip light illuminated. Caused by failure of 90° gearbox. (ARNG) ■ Pilot detected vapor from battery overflow during cruise. Suspect improper voltage regulator. (USA) ■ Engine chip light came on during takeoff. Caused by normal wear. (USA) ■ Engine tachometer became inoperative during landing approach. Tachometer generator replaced. (USA) ■ Cockpit filled with smoke in cruise flight. Suspect failure of preformed packing prevented proper lubrication of No. 1 or No. 2 engine bearing packs. (ARNG) ■ Hydraulic pressure light came on. Caused by failure of hydraulic pressure switch. (USA) ■ Transmission oil pressure dropped rapidly. Caused by internal oil filter gasket failure. (USA)

AH-1

2 INCIDENTS ■ While flying NOE formation, aircraft struck tree while avoiding another aircraft, damaging main rotor blades. (USA) ■ Aircraft continued descent after gun run and struck trees before pilot could recover. (USA)

1 FORCED LANDING ■ After takeoff, pilot noted pedals stuck in fixed left pitch condition. Aircraft made four revolutions during autorotation and came to rest on embankment alongside road. Caused by loose tail rotor pitch control chain. WELL DONE to CW2 Jeffrey T. Griffin, 129th Aviation Company. (USA)

7 PRECAUTIONARY LANDINGS ■ Engine rpm dropped to 5800. Caused by failure of overspeed governor. (USA) ■ Engine oil pressure dropped to zero during landing. Maintenance check revealed loose engine oil pressure transmitter plug. (USA) ■ No. 2 hydraulic light illuminated. Cause unknown. (USA) ■ Engine chip detector light came on. Normal wear found on magnetic plug. (USA) ■ Pilot smelled fumes during flight. Caused by failure of voltage regulator. (USA) ■ Pilot noticed hydraulic fluid seeping during hot refueling. Caused by failure of hydraulic tubing. (USA) ■ Transmission oil bypass light came on. Cause not reported. (USA) □

LOH

Fatalities: 0 ■ Accidents: 1
Injuries: 0 ■ Estimated Costs: \$5,000

DIVISION

■ CPT Walter L. Hinman, Chief
558-4202

One accident, three forced landings, and eight precautionary landings were reported.

OH-58

1 ACCIDENT ■ During NOE flight, aircraft struck thirty 10-gauge single-strand copper telephone wires midway between poles. Aircraft was at approximately 30 feet altitude and 30 knots airspeed. Initial indications reveal wire contact was made at nose section of aircraft. Pilot made a controlled deceleration and landed without further incident. Windshields, chin bubbles, and greenhouses were scratched. Transmission cowling was torn, right FM antenna mount was broken, and structural panel skin below fuel cell was penetrated. (USA)

2 FORCED LANDINGS ■ Engine lost rpm during cruise. Collective was lowered and rpm returned to normal. When collective was increased slightly, rpm again went below the green. Pilot elected to enter autorotation and landed without further incident. Fuel accumulator was found to be clogged. (ARNG) ■ Low rpm light and audio activated at 800 feet agl. N2 dropped to 97 percent. Collective was lowered and rpm returned to normal. Throttle was checked and collective was increased, but rpm decreased. Pilot elected to autorotate and landed without further incident. Double check valve failed. (USA)

6 PRECAUTIONARY LANDINGS ■ Tail rotor chip lights of three aircraft came on. One was caused by fuzz, one had metal shavings, and the cause of the other was a frayed wire. (USA) ■ During cruise flight, rpm dropped to 95 percent. Pilot autorotated and landed with power. Suspect governor malfunction. (USA) ■ Transmission oil hot light came on. Cause unknown. (ARNG) ■ Engine oil temperature rose above red line. Engine temperature sensor shorted out. (USA)

OH-6

1 FORCED LANDING ■ Engine would not respond during attempted recovery from simulated forced landing. Partial-power autorotation was made to unimproved field. Suspect copilot's throttle linkage failed. (ARNG)

1 PRECAUTIONARY LANDING ■ Transmission chip light came on. Small metal particles were found on plug. (ARNG)

TH-55

1 PRECAUTIONARY LANDING ■ Pilot reported smoke in cockpit, followed by electrical system failure. Inspection revealed oil leaking from transmission drain plug caused alternator to malfunction. (USA)

THOUGHT FOR THE WEEK

Have you ever wondered about the effects of nonflying versus proficiency flying regarding the retention of flying skills? HUMRRO Technical Report 73-32, dated December 1973, discusses this hypothesis and offers these observations:

- Proficiency flying as typically performed in the past has not been effective in maintaining flying skills at high levels of proficiency.
- Large losses in flying ability occur whether or not proficiency flying is performed.
- The retention curve was found to be typical for flying skills. The loss rate decreased to nearly zero after 12 months and then remained practically constant.
- After one year, flying minimums reduced the refresher flight instruction actually received to 6.5 hours versus 8.5 hours for the nonflying group. □

CARGO/SYSTEMS

Fatalities: 0 ■ Accidents: 0
Injuries: 0 ■ Estimated Costs: \$295

DIVISION

■ CW4 Richard D. Havenstrite,
Acting Chief 558-4202

One incident and four precautionary landings were reported.

CH-47

1 INCIDENT ■ As aircraft was taxiing for takeoff, left aft wheel rolled over taxiway light protruding above ground level. As outer tire struck concrete block which housed the light, damage occurred to inboard hub and tire assembly. (ARNG)

3 PRECAUTIONARY LANDINGS ■ Transmission oil temperature gauge indicated maximum temperature and transmission oil "hot" light came on. Suspect cannon plug for switch rotary oil temperature (SCAN) came loose. (USAR) ■ Immediately after takeoff, crew chief notified pilots that fuel was being pumped overboard from left fuel tank. Investigation revealed tank had been overfilled. (USA) ■ During cruise flight with slingload, master caution light and No. 2 flight boost caution light came on, with drop in No. 2 flight boost pressure. Caused by ruptured hydraulic metal tube which failed due to rubbing against phenolic standoff assembly. Maintenance records indicate that antichafing material was not installed at factory rebuild facility. (USA)

CH-54

1 PRECAUTIONARY LANDING ■ Second stage hydraulic light came on during hover. Caused by broken line. (USA)

BELLCRANK CORROSION PROBLEMS

Due to recent corrosion problems occurring in the second stage flight control bellcranks, USAAAVS recommends the following prevention measures:

- The new criteria established by AVSCOM's message dated 12 July 1974, subject: Corrosion of CH-47 Magnesium Flight Control Bellcranks, be used pending changes to appropriate manuals.
- Inspection requirements for this area be reemphasized and corrosion be arrested upon detection.
- Command emphasis be placed on aircraft cleanliness and appropriate cleaning compounds and associated equipment be conveniently located adjacent to washing facility and in sufficient quantities for this purpose. □

FIXED WING

Fatalities: 0 ■ Accidents: 0
Injuries: 0 ■ Estimated Costs: \$1,000

DIVISION

■ LTC Howard D. Deane, Chief
558-4202

One incident and three precautionary landings were reported.

U-10

1 INCIDENT ■ During landing rollout, aircraft was struck by civilian all-terrain vehicle, punching several holes in fuselage below right cargo door. (ARNG)

1 PRECAUTIONARY LANDING ■ Pilot detected smoke in cockpit during test flight and returned to departure airfield. Bearing froze up and caused dynamotor to heat up and smoke. (ARNG)

OV-1

1 PRECAUTIONARY LANDING ■ No. 1 engine was shut down during maintenance test flight and pilot was unable to effect an airstart between 9,500 and 4,500 feet msl. Single-engine emergency procedures were performed by dash 10 CL and landing was made at home base. Examination could determine no reason for malfunction. Several normal starts were made on the ground. (USA)

T-42

1 PRECAUTIONARY LANDING ■ After takeoff at approximately 800 feet agl on training flight, IP simulated engine failure by retarding mixture lever on No. 2 engine. After completion of simulated engine failure, power could not be regained. Aircraft was landed at home base where complete runup of No. 2 engine was accomplished. Problem could not be duplicated. (USA)

FIXED WING 360-DAY MISHAP DATA

	Last 30 Days	Last 90 Days	Last 180 Days	Last 360 Days
Injuries	0	0	0	2
Fatalities	0	0	0	2
Dollar Cost	\$3,775	\$33,147	\$389,307	\$5,788,726

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mishaps for the period of 26 JUL-1 AUG 1974

VOL. 2, NO. 44 ■ 14 AUGUST 1974

SURFACE WIND GUST SPREAD

MAJOR JAMES M. SMITH, USAF
STAFF WEATHER OFFICER
DETACHMENT 9, 16th WEATHER SQUADRON
FORT RUCKER, ALABAMA

Recurrent discussions with pilots at the weather briefing counter reveal there is a general misunderstanding concerning conclusions that can be drawn from the values of observed and/or forecast surface windspeed and peak gust. A significant number of crewmembers believe these values are pure indications of the surface wind gust spread. This is not true and decisions based on this misconception will eventually lead to undesirable incidents. The following definitions and discussion should receive the widest dissemination among pilots:

■ **OBSERVED OR FORECAST SURFACE WINDSPEED**—The mean value of observed or forecast surface windspeed, composed of variations in speed limited to a maximum total range of 10 knots. When observed it is based on the variations during the 1-minute period prior to the time of observation. When forecast, it is the maximum mean value expected during the forecast period.

■ **PEAK GUST**—The observed or forecast maximum speed of the surface wind during gusty conditions. When observed it is the maximum windspeed during the 10-minute period prior to the time of observation. When forecast, it is the maximum speed expected during the forecast period.

■ **GUSTINESS**—Variations in windspeed, measured from maximum to minimum, which exceed 10 knots, as a criteria. When this condition is met the peak gust must be included in the observation. When the condition is expected to be met the peak gust must be included in the forecast.

■ **GUST SPREAD**—The maximum value of the range of windspeed during gusty conditions, "obtained" from the minimum and maximum values during the gust cycle that has the greatest variation in speed.

A simple subtraction of mean surface windspeed from the peak gust is meaningless for the

following reasons:

■ There is a relationship between mean windspeed and peak gust, but it is general and ill-defined.

■ Mean windspeed is a statistical value and peak gust is a concrete value. Any assumption of gust spread must consider the lower end of the range open to large variations.

■ The maximum gust spread does not necessarily occur with the peak gust.

The high degree of difficulty in observing and forecasting the maximum gust spread, as a continuous task, precludes providing this type of data as a normal service. When gustiness is a factor in flight planning, a thorough discussion with the forecaster should assist the pilot in estimating the gust spread that can be expected. The following points are offered as ideas to discuss:

■ Reported or forecast gusty winds indicate a minimum gust spread of at least 10 knots, by definition.

■ If the difference between the mean windspeed and the peak gust exceeds the limit for the aircraft, your decision is obvious because the maximum gust spread is *always* greater than this value.

■ If the gusts are associated with thunderstorm or rainshower activity, the gust spread can, and may be, as high as the value of the peak gust; that is, the windspeed may rise from calm to the peak gust value, almost instantaneously, with the initial downdraft in the area immediately adjacent to the shower.

■ If the gustiness is general, i.e., resulting from a tightened pressure field that is relatively broad, the gust spread *may* be well represented by the difference between the prevailing windspeed and the maximum gust. This is probably the condition that requires the most consideration and best judgment, because the indications are not as obvious.

UTILITY/ATTACK

Fatalities: 0 ■ Accidents: 2
Injuries: 3 ■ Estimated Costs: \$367,088

DIVISION

■ MAJ Charles E. Toomer, Chief
558-4198

Two accidents, two incidents, one forced landing, and thirty-four precautionary landings were reported.

UH-1

2 ACCIDENTS ■ Tail stinger hit ground during autorotation. Tail rotor struck ground and severed 90° gearbox and tail rotor assembly. Aircraft turned 180° and came to rest upright. (USA) ■ Aircraft was on approach for landing at PZ when it crashed and burned short of intended landing area. Cause undetermined. Accident under investigation. (USA)

2 INCIDENTS ■ Coming out of confined area, aircraft encountered gust of wind and slid to right, causing main rotor to strike tree. (USA) ■ Main rotor struck tree during authorized, supervised NOE training flight. (USA)

1 FORCED LANDING ■ Contact training was being conducted. IP entered autorotation and N1 stabilized at 58 percent. Engine failed between 100 feet and touchdown as IP rolled throttle against flight idle stop. Fuel control malfunctioned, allowing engine to flame out due to fuel starvation. (USA)

25 PRECAUTIONARY LANDINGS—following are selected briefs ■ Master caution and chip detector lights came on. Forty-two-degree gearbox had metal shavings on magnetic plug. (USA) ■ Aircraft was on base leg for landing when popping noise was heard from rear of aircraft and aircraft yawed left and right several times. Power was increased and then decreased slightly, but popping and yawing resumed. Master caution and tail rotor chip detector lights illuminated. Metal fuzz was found on 90° gearbox plug. (USA) ■ Engine chip detector light came on during final approach. Metal sliver was found on engine chip detector plug. (USA) ■ Right fuel boost light and master caution light illuminated. Caused by failure of right fuel boost pump. (USA) ■ Master caution and tail rotor chip detector lights came on. Fuzz was found on 90° gearbox magnetic plug. Gearbox was flushed, oil sample taken, and aircraft released for flight. (USA) ■ Aircraft was on downwind for GCA when crew smelled something unusual. A few seconds later, they heard a muffled explosion-type sound, followed by feedback in controls. Master caution and hydraulic control warning lights came on. Checklist followed for hydraulic failure. IFR clearance was cancelled and VFR approach was made to runway. Hydraulic pressure line from pump to test stand connection broke. EIR submitted. (USA)

AH-1

9 PRECAUTIONARY LANDINGS—following are selected briefs ■ Aircraft was at 100 knots and 1,000 feet msl on maintenance test flight for vertical vibration. When pilot added slight amount of power he noted rapid yaw in aircraft. He then initiated approach to airfield and noted another rapid yaw. Power-on approach to airfield was made. Maintenance personnel inspected aircraft and test flew it but could not locate any malfunction or duplicate the symptoms. Suspect momentary SCAS interruption. (USA) ■ Aircraft

LOSS OF RESOURCES FROM THIS WEEK'S MISHAPS

FATALITIES: 0
INJURIES: 3
AIRCRAFT LOSSES: 1
ESTIMATED COSTS: \$421,737

UNITED STATES ARMY AGENCY FOR AVIATION SAFETY FORT RUCKER, ALABAMA 36360 AUTOVON NUMBERS

Commander/Deputy Commander	558-3410/3819
Technical Research and Applications	558-6404/6410
Plans, Operations and Education	558-4812/6510
Aircraft Accident Analysis and Investigation	558-3913/4202
Management Information System	558-4200/2920
Publications & Graphics Division	558-6385/4218
After-duty tape recording of incoming calls to be returned following day (hours: 1615 to 0730)	558-6510
Commercial:	255-XXXX

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was performing authorized, supervised night NOE flight when it had three consecutive hardovers in yaw channel in less than 5 minutes. (USA) ■ No. 1 hydraulic line broke inside fitting, allowing No. 1 system to bleed off. Caused by failure of line to collective servo. (USA) ■ Ninety-degree gearbox chip detector light came on. Normal wear particles were found on plug. (USA) □

LOH

Fatalities: 0 ■ Accidents: 3
Injuries: 0 ■ Estimated Costs: \$54,649

DIVISION

■ CPT Walter L. Hinman, Chief
558-4202

Three accidents, two incidents, and eighteen precautionary landings were reported.

OH-58

1 ACCIDENT ■ Aircraft was flying at 300 feet agl in right turn. Pilot looked to left rear and aircraft descended. Pilot noted descent and added power in effort to correct, but aircraft continued to descend and struck tree. Nose section, pilot's door, main rotor, and tail rotor were damaged. Right horizontal stabilizer and lower vertical fin were torn from aircraft. *A lot of things can happen at 300 feet, especially when you're not looking where you're going.* (USA)

1 INCIDENT ■ Aircraft vibrated severely during departure from airfield and pilot landed. Inspection revealed oil sample bottle in oil cooling fan, causing damage to impeller blades and severe vibration damage to No. 1 and No. 2 hanger bearings. (USA)

16 PRECAUTIONARY LANDINGS ■ Hydraulic pressure lights of five aircraft illuminated. Four were caused by pressure switch failures and one by partial hydraulic pump failure. (USA) ■ TOT climbed to 900°. Threads in lower left bleed air scroll were stripped, allowing elbow assembly to come out. (ARNG) ■ During power change, N2 dropped to 85 percent. Cause unknown. (USA) ■ Compressor stalled while pilot was advancing throttle to operating rpm. Engine replaced. (USA) ■ Main generator light illuminated. Caused by failure of starter generator. (USA) ■ High frequency vibration was noted and aircraft shuddered for about 5 seconds. Inspection revealed main drive shaft had insufficient grease, causing overheat condition. (USA) ■ Transmission oil pressure light came on. Caused by defective oil pressure switch. (USA) ■ Tail rotor chip light came on. Small sliver of metal found on plug. (USA) ■ Engine chip light illuminated. Fuzz found on plug. Aircraft MOC'd and released for flight. (ARNG) ■ Transmission chip light illuminated. Caused by loose wire on detector plug. (USA) ■ Fuel boost pump caution light came on. Fuel boost pump replaced. (ARNG) ■ Aircraft vibrated severely during termination of sideward flight. Cause unknown pending investigation. (USA)

OH-6

1 ACCIDENT ■ During practice autorotation, pilot applied collective pitch early, causing aircraft to land hard with low rotor rpm. IP took control of aircraft before touchdown, but could not restore rpm. Aircraft landed hard and main rotor blades severed tail boom. (ARNG)

1 PRECAUTIONARY LANDING ■ Generator warning light came on during takeoff. Caused by malfunction of voltage regulator. (ARNG)

TH-55

1 ACCIDENT ■ Student pilot was practicing slope operations with right skid up slope when he lost control of aircraft during takeoff to hover. He allowed aircraft to tilt to right enough for main rotor blade to strike ground. Aircraft then continued to roll until it came to rest on right side, resulting in damage to all components. (USA)

1 INCIDENT ■ Student pilot lost directional control during takeoff to hover. Aircraft made rapid 180° turn to right, with tail skid and tail rotor blades striking ground. Tail skid was bent into tail rotor blades and was damaged before tail rotor blades were destroyed by ground contact. (USA)

1 PRECAUTIONARY LANDING ■ Pilot reported excessive in-flight vibration. Inspection revealed outer bearing of lower pulley failed. (USA)

THOUGHT FOR THE WEEK

ACCIDENT RATES. USAAAVS has recently received a number of requests from people for accident rates of commands other than their own. A comparison of rates between commands is valid only when operating conditions are similar. This is seldom the case. A comparison of rates within the same command is of considerable value to show the effect of accident prevention efforts because the person making the comparison is aware of all circumstances which might explain changes in the rate.

A low rate does not necessarily indicate a good accident prevention program. For example, a certain post might have a very low overall accident rate but have two accidents within a year attributed to the same supervisory error. On the other hand, another installation with a higher rate might have a number of accidents in which the environment and type missions are strong contributory causes. None of the accidents is a repeat type. Which unit would you say had the best accident prevention program?

We recommend you do not compare your accident rates with those of other commands in an attempt to evaluate your safety program. Use your own rate to see how you have done over various periods. The best prevention program is to remove the maximum number of accident causes disclosed by an adequate safety survey. Examine each accident for proper corrective measures, and follow up to insure that your command does not have a similar accident through failure to take indicated corrective action. □

CARGO/SYSTEMS

Fatalities: 0 ■ Accidents: 0
Injuries: 0 ■ Estimated Costs: \$0

DIVISION

■ CW4 Richard D. Havenstrite,
Acting Chief 558-4202

Five precautionary landings were reported.

CH-47

5 PRECAUTIONARY LANDINGS ■ Oil began leaking from forward transmission onto pilot's sleeve and copilot floor area. Caused by improper installation of transmission oil filter O-ring. (ARNG) ■ Unusual vibration was noted during test flight. Landing was made and thorough check of aircraft was performed. No cause was found and aircraft was returned to home base. (USA) ■ No. 2 engine chip detector light came on. No cause reported. (USA) ■ Combining gearbox chip detector light came on when aircraft was in downwind traffic pattern. Normal wear fuzz was found on plug. MOC was performed and aircraft released for flight. (USA) ■ No. 1 engine chip detector light came on. Inspection revealed steel retainer ring on magnetic plug. Engine is being removed to determine source. (USA) □

FIXED WING

Fatalities: 0 ■ Accidents: 0
Injuries: 0 ■ Estimated Costs: \$0

DIVISION

■ LTC Howard D. Deane, Chief
558-4202

Four precautionary landings were reported.

OV-1

1 PRECAUTIONARY LANDING ■ Hydraulic pressure was lost during landing check. Gear was blown down and landing completed. Postlanding check revealed O-ring in left wing was blown. (USA)

T-42

2 PRECAUTIONARY LANDINGS ■ No. 2 engine chip detector warning light came on after takeoff. Aircraft remained in traffic pattern and landed. Metal shavings were found on magnetic plug. Special oil sample was taken and aircraft released for flight. (USA) ■ IP was demonstrating single-engine flight at 4,500 feet indicated altitude (IA) with No. 2 engine shut down and propeller feathered. Engine would not restart by checklist procedures. Alternator on good engine failed and battery power began deteriorating. At 4,000 feet IA over home field, gear was manually extended due to loss of battery power. Although gear-down indication was not received in cockpit, aircraft was safely landed. Postlanding check revealed No. 2 engine propeller accumulator pressure was 90 psi instead of 105 psi. No. 1 engine alternator could not carry the load with No. 2 engine off line, causing fuse to blow. (USA)

U-21

1 PRECAUTIONARY LANDING ■ No. 1 engine was shut down during VFR training flight at 7,500 feet msl to demonstrate restart procedures. Approximately 30 seconds after engine shutdown, main inverter failed. IP switched to standby inverter, then attempted a starter-assisted restart of No. 1 engine. When starter circuit was energized, IP noted no engine rotation. Second attempt also failed to restart engine. Aircraft was returned to home base where inspection of electrical system revealed no discrepancies. Attempts to duplicate failure were unsuccessful.

T-41B OPERATORS MANUALS AND CHECKLISTS

In the near future a new approved T-41B Operators Manual TM-1510-212-10, and Checklist TM 55-1510-212-CL, will be distributed. These publications will contain significant changes to present operating procedures which have resulted from Airworthiness Directives, and Service Letters published by USAAVSCOM and the aircraft manufacturer.

Special significance is attached to Cessna Service Letter, MS-742, dated 1 February 1974, subject: Auxiliary Fuel Pump Switch. This modification to electrical circuits and the installation of a new boost pump switch has changed the starting and emergency in-flight procedures. These changes will be found in the new manuals.

In addition, the engine oil level has been changed by Cessna Service Letter MS-74-3, dated 8 April 1974. This letter recommends reducing the oil level in the engine from 10 quarts to 8 quarts and provides the necessary guidance for this modification. Information regarding these and other significant changes or modifications may be obtained by writing: Commander, U.S. Army Aviation Systems Command, ATTN: AMSAV-FEW, P. O. Box 209, St. Louis, MO 63166. □

CORRESPONDENCE COURSES

Many fine correspondence courses are available through the U.S. Army Aviation Center, Fort Rucker, AL.

This week, attention is directed to "Aircraft Accident Investigation and Reports—Avn 36," which is available to commissioned officers, warrant officers, or other personnel of the Active Army or a Reserve component and civilian employees of the Federal Government. Enrollment is for those whose actual or anticipated assignment requires knowledge of the subject area.

Address correspondence to: **Department of Army-Wide Training Support**
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HOURS FLOWN AND ACCIDENT AND INCIDENT RATES BY COMMAND

COMMAND	ALL AIRCRAFT			ROTARY WING			FIXED WING		
	FY 74			FY 74			FY 74		
	FLYING HOURS IN 1,000's	RATE ACCIDENT INCIDENT		FLYING HOURS IN 1,000's	RATE ACCIDENT INCIDENT		FLYING HOURS IN 1,000's	RATE ACCIDENT INCIDENT	
**WORLDWIDE	1,638	7.08	16.18	1,423	6.68	15.32	215	9.74	21.81
TRADOC	423	7.32	16.30	373	7.51	15.28	50	5.95	23.79
FORSKOM	404	6.44	24.77	368	5.71	26.09	36	14.01	11.21
USARAL	26	15.53	11.65	24	12.71	12.71	2	46.38	
USAREUR	158	6.98	10.79	145	5.53	9.67	13	23.53	23.53
USARSO	9	10.70	53.49	8	12.93	25.87	1		185.53
USARPAC	41	9.71	21.86	33	12.14	24.29	8		12.14
8th ARMY	68	13.28	4.43	65	12.42	4.66	3	29.84	
USAMC	90	2.21	15.49	57		12.17	33	6.08	21.28
ARADCOM	9	10.83		5			4	26.53	
HQDA	8	11.99	11.99	4	26.27		4		22.07
MDW	19		20.58	8		12.75	11		25.87
ASA	14		43.22	2			12		51.08
HLTH CMD	4			3			1		
*USAAVNS	295	7.11	17.60	277	7.22	16.60	18	5.47	32.83
*USAPHS	36	8.41	2.80	36	8.41	2.80			
ACTIVE ARMY	1,285	7.08	18.21	1,099	6.74	17.39	186	9.12	23.08
RESERVE	66	3.01	7.52	57	3.47	8.69	9		
NAT'L GUARD	287	8.02	9.06	267	7.13	8.25	20	19.77	19.77

*Included in TRADOC. USAPHS data represents training conducted at Ft. Wolters, TX, during the first half of FY 74.

**Includes Active Army, USARNG, USAR

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FORT RUCKER, ALABAMA 36360

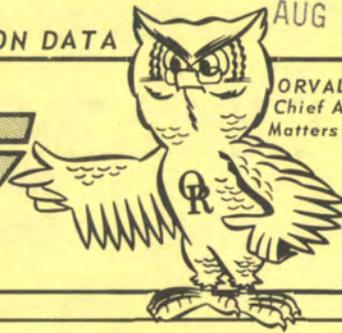
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VOL. 2, NO. 45 ■ 21 AUGUST 1974

mishaps for the period of 2-8 AUGUST 1974

NIGHT DISORIENTATION

An aviation unit was conducting reverse cycle training in the field. An OH-58A, parked on a pad by the operations tent, was to be moved so the pad could be used for the division commander's aircraft. At about 2300 hours, the operations officer asked a pilot to reposition the OH-58 to another pad approximately 200 meters to the south and on the opposite side of the taxiway.

A ground guide using lighted night wands for hand signals directed the pilot onto the taxiway.

The pilot had difficulty in keeping the aircraft over the centerline. After hovering about 200 meters he was directed to set the aircraft down. The ground guide checked the pad to be sure it was clear.

The guide had the pilot bring the aircraft to a hover and turn 90 degrees to the pilot's right. At this point the pilot had difficulty seeing the guide because the background was much darker. He attempted to switch the landing lights on but could not find the switch. He looked down to locate the switch and when he raised his head he experienced a sensation of moving forward at a rapid rate. The pilot became momentarily disoriented after losing sight of the ground. He pulled back on the cyclic to retard what he thought was forward movement, when in fact he was still at a stationary hover, causing the aircraft to move rearward into a parked Cobra.

There's a lesson here for commanders and supervisors:

Standing operating procedures concerning field exercises should be reviewed and revised as necessary to minimize the necessity for repositioning aircraft at night in unlighted areas and to limit the time parking pads used for passenger loading and unloading will be occupied by parked aircraft.

Low-time aviators should be given special training in night operations in field locations before engaging in field exercises at night.



LOSS OF RESOURCES FROM THIS WEEK'S MISHAPS

FATALITIES: 2
INJURIES: 0
AIRCRAFT LOSSES: 1
ESTIMATED COSTS: \$632,827

UNITED STATES ARMY AGENCY FOR AVIATION SAFETY FORT RUCKER, ALABAMA 36360 AUTOVON NUMBERS

Commander/Deputy Commander	558-3410/3819
Technical Research and Applications	558-6404/6410
Plans, Operations and Education	558-4812/6510
Aircraft Accident Analysis and Investigation	558-3913/4202
Management Information System	558-4200/2920
Publications & Graphics Division	558-6385/4218
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Commercial:	255-XXXX

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UTILITY/ATTACK

Fatalities: 2 ■ Accidents: 2
Injuries: 0 ■ Estimated Costs: \$613,833

DIVISION

■ MAJ Charles E. Toomer, Chief
558-4198

Two accidents, one incident, and thirty precautionary landings were reported.

UH-1

26 PRECAUTIONARY LANDINGS—following are selected briefs ■ Excessive feedback of flight controls required the efforts of both pilots to lower collective and hold cyclic on short final. At the same time, a loud squeal was heard in the area of the hydraulic pump. Hydraulic pump failed internally. (USA) ■ Pilot smelled and observed smoke in cockpit in cruise flight at 800 feet agl. Battery was turned off and landing made. Voltage regulator malfunctioned. (USA) ■ Cross check revealed transmission oil pressure to be excessively high at cruise altitude (6,000 feet). Emergency was declared and GCA was accomplished. Transmission oil bypass gauge failed. (USA) ■ Hydraulic pressure caution light came on during cruise flight and slight feedback was noted in conjunction with stiffness in flight controls. Emergency procedures failed to restore hydraulic pressure and running landing was made. Hydraulic pressure switch (P/N 204-0706-057-1) failed. (USA) ■ Moderate vibration of aircraft was noted at 9,000 feet msl (IFR flight plan). Pilot suspected blade stall and slowed aircraft to 70 knots. As vibrations became severe, pilot began descent and aircraft entered VMC at 4,000 feet msl. IFR clearance was cancelled and landing made. Self-locking nut (P/N MS 21042L4) on transmission damper failed to retain applied torque. (USA) ■ Hydraulic power was intermittently inoperative to tail rotor pedals during cruise. Landing was made with no further difficulty. Replaced tail rotor servo (FSN 1650-944-8169). (ARNG) ■ Fuel odors were detected by crew while repositioning aircraft from taxiway to runway. Aircraft was landed on runway and crew chief found no leaks. Aircraft was returned to hover and odors were again detected. Pilot notified tower and returned to parking area. Fuel manifold (P/N 1-160-160-09) was cracked at the 10 o'clock position, allowing fuel to leak on engine diffuser section and engine deck. (USAR)

AH-1

2 ACCIDENTS ■ Aircraft crashed during authorized, supervised night NOE flight. Suspect aircraft struck wires. Both occupants were killed. (USA) ■ Aircraft touched down hard on heel of skids during PRACTICE AUTOROTATION. Main rotor blades flexed into tail boom. Aircraft bounced and spun approximately eight times from loss of tail rotor control. Impact broke off crosstubes and aircraft came to rest upright. (USA)

1 INCIDENT ■ Aircraft was in right turn after completing simulated low-level gun run. Pilot's attention was directed on wing aircraft when aircraft struck tree. Damage to right wing and right side synchronized elevator. (USA)

4 PRECAUTIONARY LANDINGS ■ Transmission oil bypass caution light illuminated. Transmission oil temperature was 110 degrees. Quill, seal fan drive (P/N 209-040-153-1) failed. (USA) ■ No. 1 hydraulic system failed. Inboard hydraulic filter clogged with small metal shavings caused back pressure in system, resulting in loose line leaking all hydraulic fluid. (USA) ■ Ninety-degree gearbox chip detector light came on during cruise flight. Caused by loose wire on magnetic chip detector plug. (USA) ■ Vertical vibration was noted in level flight. Vibration stopped after 30 seconds and aircraft was slowed down. When more severe vibration started landing was made. Suspect failure of white outboard feathering bearing. (USA) □

LOH

Fatalities: 0 ■ Accidents: 0
Injuries: 0 ■ Estimated Costs: \$4,012

DIVISION

■ CPT Walter L. Hinman, Chief
558-4202

Two incidents, one forced landing, and twelve precautionary landings were reported.

OH-58

2 INCIDENTS ■ Aircraft drifted left during hover and struck tree branch. Red main rotor blade was damaged. (USA) ■ Aircraft struck wire during unauthorized low-level flight. Windshield was damaged. (USAR)

10 PRECAUTIONARY LANDINGS ■ N2 fluctuated during flight. Suspect governor assembly malfunction. (ARNG) ■ Complete loss of electrical power caused by generator failure. (USA) ■ Engine lost power during flight. Suspect failure of linear actuator. (ARNG) ■ Tail rotor chip lights of three aircraft came on. Two had normal fuzz and one had small metal particle on plug. (USA) ■ Hydraulic pressure light came on.

Caused by failure of hydraulic pressure switch. (ARNG) ■ Engine oil bypass light came on. Suspect internal leak of engine oil cooler. (USA) ■ Engine chip light came on during flight. Caused by normal wear. (USA) ■ Transmission chip light came on. Caused by broken wire on detector plug. (USA)

TH-55

1 FORCED LANDING ■ At 100 feet agl, while demonstrating normal autorotation, IP rolled throttle into the override position and engine quit. Aircraft was test flown and released for flight. (USA)

2 PRECAUTIONARY LANDINGS ■ Fuel boost pump check prior to takeoff indicated pump was not operating. Further inspection revealed pump switch had failed. (USA) ■ Airspeed indicator dropped to zero during flight. Inspection revealed airspeed indicator had failed. (USA)

THOUGHT FOR THE WEEK

PULSE PACER. Do you get an insecure feeling at altitude when you hear a sharp popping sound together with feeling an increase or decrease in air pressure? If this happens to you in a CH-47 you will not have to be told that you have just lost a cockpit door panel. You'll know this when the old blood pressure increases a point or two, and there seems to be a very large bottomless opening at your elbow. You won't really think about that big opening because you'll be too busy. Let's see how busy.

First you check to insure that you are securely fastened in your seat. You'll do this several times during the next few minutes. At the same time, you are checking controls, instruments, and gauges and trying to see where the door landed so recovery can be made if possible. As things start to slow down a bit, you ask yourself, "Did I check that door as closely as I might have on the cockpit check?"

No doubt there is a concerned crew chief who has aged somewhat asking himself a few questions, too. For instance, "When was that door last removed?" "Who reinstalled it?" "Why didn't I check it closer?"

The point is, a lot of doors have been lost due to unknown causes. USAAVS records show three losses in 1970, one in 1971, one in 1972, and none in 1973. This year, three doors have been lost so far.

We may not be able to do anything about your insecure feelings at the moment a mishap of this nature occurs, but you most assuredly can do something about the worry involved. Inspect these assemblies before each flight. Also, it is the crew chief's business to know that all access panels, as well as door assemblies, are properly installed, properly maintained, and personally inspected before each flight. □

CARGO/SYSTEMS

Fatalities: 0 ■ Accidents: 0
Injuries: 0 ■ Estimated Costs: \$14,000

DIVISION

■ CW4*Richard D. Havenstrite,
Acting Chief 558-4202

One incident and eight precautionary landings were reported.

CH-47

1 INCIDENT ■ Aircraft was run up near a concrete wall and two light poles and cleared to taxi to runway for departure. Copilot released brakes and aircraft moved forward but was unable to start a right turn. Copilot braked aircraft and right turn was started when aft blades struck one of the light poles. Ground guides were not used. Power steering problems had been experienced during earlier operations. (USA)

7 PRECAUTIONARY LANDINGS ■ Pilot observed that No. 2 engine did not recover rpm after power change. Pilot elected to land after attempting to maintain operating rpm with no response in either the a.c. or d.c. beep. N2 actuator was replaced, MOC performed, and aircraft released for flight. (ARNG) ■ Loss of No. 2 flight boost hydraulic system occurred during cruise flight at night. Failure of pump drive shaft retaining ring caused shaft to move away from hydraulic pump and into splines of auxiliary gearbox. (USAR) ■ No. 2 engine chip light came on in cruise flight. Caused by normal wear. (USA) ■ During takeoff, aircraft would climb no higher than 100 feet but would maintain level flight. Pilot elected to land aircraft rather than chance crossing a series of powerlines. Aircraft was landed, defueled, and returned to departure point, where it was again refueled (main tanks only) and departed without further problems. (USA) ■ No. 1 engine oil pressure indicator showed zero psi in cruise flight. Caused by failure of oil pressure transmitter. (USA) ■ Dual a.c. low side beep failure occurred in flight. Problem could not be duplicated during ground check. (USA) ■ No. 2 engine chip light came on momentarily during cruise flight. Engine was inspected at destination and loose wire was found. Aircraft had been flown in moderate turbulence for approximately one hour before caution light came on. (USA)

CH-54

1 PRECAUTIONARY LANDING ■ Intermediate transmission oil pressure light came on in flight. Caused by broken wire to oil pressure switch assembly. (USA) □

FIXED WING

Fatalities: 0 ■ Accidents: 0
Injuries: 0 ■ Estimated Costs: \$982

DIVISION

■ LTC Howard D. Deane, Chief
558-4202

One incident and five precautionary landings were reported.

T-42

1 INCIDENT ■ Aircraft began to porpoise badly after initial touchdown. Right propeller struck runway five times. Go-around and subsequent landing accomplished. Propeller will probably require replacement. (USA)

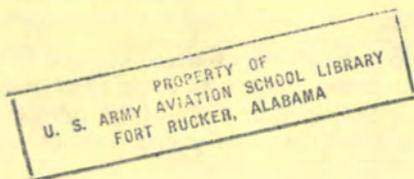
1 PRECAUTIONARY LANDING ■ Gear switch handle was placed in "down" position but gear did not extend. Gear was manually lowered and aircraft landed. Examination determined landing gear actuator motor had failed internally. (USA)

U-3

1 PRECAUTIONARY LANDING ■ Fuel siphoned from right auxiliary tank cover at a high rate (estimated 3 gallons/minute) during climb. Landing was made and the tank checked. Fuel tank cap was fully closed and seated. Problem was caused by overfilling tank. Low pressure drew fuel out past cap gasket and over wing. Reportedly, corrective action will include installation of an additional cap gasket and more careful servicing of the aircraft. (ARNG)

U-21

3 PRECAUTIONARY LANDINGS ■ No. 2 propeller rpm decreased slowly with a corresponding increase in torque during IFR cruise flight. No. 1 engine was functioning normally. Postlanding examination determined distribution box (FSN 6110-003-8584) had failed. (USA) ■ Loud noise was heard in rear of aircraft while in flat turn during maintenance test flight. Pilot suspected possible vertical stabilizer damage and returned to home base. Examination determined ASN 86 computer had been installed incorrectly. (USA) *Old man "Murphy" rears his ugly head again. There is reportedly no way to insure the computer (CP-941/ASN 86, FSN 5826-179-8437) is correctly attached to mount 4065/ASN 86 (FSN 5826-220-2065). Unit suggests safety straps be installed as additional safeguard and has submitted an EIR.* ■ Gradual loss of fuel pressure to 17 psi on the No. 1 engine was noted during cruise flight. Pressure was normal (28-29 psi) on both engines when operating on No. 2 fuel boost pump. Aircraft was returned to home base where ground check revealed unusual noises during operation, indicating internal malfunction of fuel boost pump (FSN 2915-936-8555; P/N 71154). (USA) □



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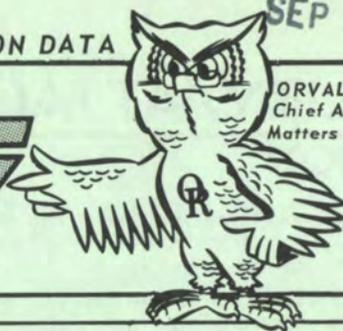


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VOL. 2, NO. 46 ■ 28 AUGUST 1974

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mishaps for the period of 9-15 AUGUST 1974

MORE ABOUT SURFACE WIND GUST SPREADS

The wind limits appearing in Army aircraft Operator's Manuals are provided as guides for ground operations under varying wind conditions. For example, the UH-1H is limited to a maximum wind velocity of 30 knots and a maximum gust spread of 15 knots (par. 7-17, TM 55-1520-210-10). These are related primarily to starting and stopping the rotor. What this means to the pilot is simply that the rotor blades are more likely to hit the tail boom at low rpm during starting and shutdown when winds exceed these limits. These wind limits do not apply in flight. As a matter of fact, it would be desirable to take advantage of a 60-knot westerly wind at 9,000 feet when flying from Corpus Christi, Texas, to Fort Rucker, Alabama.

The helicopter rotor system reacts to minimum and maximum velocities in gusty wind conditions, *not* the average (or mean) and maximum as reported by the control tower. A report from the tower of wind "15 knots gusting to 27" indicates an *average* wind velocity of 15 knots with a maximum of 27 knots, or, put another way, the wind is gusting from the average of 15 knots to a maximum of 27 knots. The difference of 12 knots is *not* the gust spread to which a helicopter rotor system reacts. The wind in this case may be varying in velocity from a low of 10 knots or below to a high of 27 knots, thereby giving a gust spread of 17 knots or greater. This would exceed the limit for the UH-1H. When a helicopter pilot suspects the gust spread is approaching or exceeding his aircraft limits, he should ask the tower for the minimum and maximum wind velocities, rather than

rely on the standard report given by the tower. When obtaining wind data, remember that the peak gust was observed during the 10-minute period prior to the observation.

Another limit for the UH-1H is a control limit which applies in winds of 30 knots as well as rearward or sideward flight at airspeeds of 30 knots. This tells the pilot that at a hover with a crosswind of 30 knots and at a light gross weight, the helicopter may not have sufficient tail rotor control to maintain the desired heading. As gross weight increases the safe pedal margin will decrease. So, even though a safe start may be made in a steady wind of 29 knots, it may not be advisable to operate the helicopter because of control limits after the start is completed.

If a pilot is forced to land when the maximum wind velocity exceeds the Operator's Manual wind limits required for starting and shutdown, a recommended procedure would be to head the helicopter into the wind (when feasible), place the cyclic control stick in NEUTRAL position, and remain on the controls until the rotor system has completely stopped turning.

Fixed wing aircraft are also limited by crosswinds and wind gusts during takeoffs, landings, and taxi operations. The maximum wind velocities and gusts do not apply in flight. Crosswind charts are provided in fixed wing manuals for easy computation of takeoff and landing limits.

FLIGHTFAX, Vol. 2, No. 44, dated 14 August 74, also carried an article dealing with common misunderstandings about surface wind gust spreads.

LOSS OF RESOURCES FROM THIS WEEK'S MISHAPS

FATALITIES:	0
INJURIES:	0
AIRCRAFT LOSSES:	0
ESTIMATED COSTS:	\$90,701

UNITED STATES ARMY AGENCY FOR AVIATION SAFETY FORT RUCKER, ALABAMA 36360 AUTOVON NUMBERS

Commander/Deputy Commander	558-3410/3819
Technical Research and Applications	558-6404/6410
Plans, Operations and Education	558-4812/6510
Aircraft Accident Analysis and Investigation	558-3913/4202
Management Information System	558-4200/2920
Publications & Graphics Division	558-6385/4218
After-duty tape recording of incoming calls to be returned following day (hours: 1615 to 0730)	558-6510
Commercial:	255-XXXX

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UTILITY/ATTACK

Fatalities: 0 ■ Accidents: 2
Injuries: 0 ■ Estimated Costs: \$90,701

DIVISION

■ MAJ Charles E. Toomer, Chief
558-4198

Two accidents, three incidents, two forced landings, and twenty-seven precautionary landings were reported.

UH-1

2 ACCIDENTS ■ Aircraft struck ground during termination of night formation landing approach. At the time visual reference was lost in blowing sand. Go-around was attempted, but rpm decayed. Aircraft landed hard, spreading cross tubes. (USA) ■ Aircraft was on approach to 13,000-foot level on mountain. On short final, rpm bled off. Aircraft went out of control and hit ground with skids level, and then rolled on side. (USA)

1 INCIDENT ■ Aircraft was one of five in formation flight moving troops to and from LZ's. LZ's contained dead tree stumps and bushes. During postflight inspection, puncture about 1¼ inches was found just forward of aft inspection panel on lower side of tail boom. (USA)

22 PRECAUTIONARY LANDINGS—following are selected briefs ■ Aircraft was hovering out of ground effect in rain when fire detector light illuminated. Aircraft was landed on beach. Maintenance inspected aircraft, but could not determine cause. Suspect moisture. (USA) ■ Transmission oil pressure suddenly dropped to zero during cruise flight. No caution lights illuminated. Caused by failure of pressure gauge. (USA) ■ Hydraulic failure occurred in cruise flight. Running landing was made at airfield. Left lateral irreversible valve failed. (USA) ■ Engine chip detector light illuminated during approach. Inspection of chip plug showed normal wear metal. (USA) ■ Transmission oil pressure light came on and pressure went to zero. Internal oil filter gasket failed. (USA) ■ Tail rotor chip detector light came on during takeoff—flight was aborted. Caused by internal short in chip plug. (USA) ■ Engine fuel pump and master caution lights illuminated. Defective fuel pressure switch was replaced. (USA) ■ Engine oil temperature increased to 140°. Caused by engine oil cooler fan bearing failure. Engine is being replaced. (USA)

AH-1

2 INCIDENTS ■ Aircraft was taking off from confined area when three low-flying aircraft appeared over trees directly in flight path. Pilot attempted shallow right turn to avoid midair collision. Advancing blade hit 3-inch-diameter tree 3 feet from top. Aircraft was landed immediately. (USA) ■ Aircraft had been on low-level mission 50-100 feet above terrain at varying airspeeds. No unusual noises or vibrations were felt in flight. Large dents were found on lower surface of both main rotor blades during postflight inspection, necessitating replacement of both blades. (USA)

5 PRECAUTIONARY LANDINGS ■ Aircraft leveled to cruise flight at 1,500 feet agl and 120 knots, following dive recovery. Pilot heard hydraulic pump cavitate and 30 seconds later No. 2 system warning light came on. Approximately 30 seconds later, No. 1 system warning light illuminated. Aircraft control was manageable above 70 knots. Landing was made at airfield. Fitting backed off in flight. (USA) ■ Master caution light flickered, then remained on. Transmission oil pressure was 15 pounds and dropping. Gasket blown on oil filter. (USA) ■ During contour flight and left turn to avoid tree, blade struck another tree. Main rotor blades were inspected and found to be within tolerance. Aircraft released for flight. (USA) ■ Transmission chip detector light came on. Maintenance determined normal wear metal on plug. Oil sample was submitted and aircraft released for flight. (USA) ■ Engine chip detector light came on. Normal fuzz was found on plug. (USA) □

LOH

Fatalities: 0 ■ Accidents: 0
Injuries: 0 ■ Estimated Costs: \$0

DIVISION

■ CPT Walter L. Hinman, Chief
558-4202

Eleven precautionary landings were reported.

OH-58

8 PRECAUTIONARY LANDINGS ■ Hydraulic pressure lights of two aircraft illuminated. Both were caused by failure of hydraulic pressure switch. (USA) ■ Engine chip detector light came on. Small metal chip found on plug. (USA) ■ Transmission chip detector lights of two aircraft came on. Suspect one was caused by maintenance error and the other by internal failure of main transmission. (USA, ARNG) ■ Engine failed during runup. Caused by fuel leak at breakaway fitting. (USA) ■ Transmission pressure warning light came on. Caused by failure of transmission oil pump. (USA) ■ TOT fluctuated 50° and N1 fluctuated 10 percent. Cause unknown pending investigation. (USA)

OH-6

1 PRECAUTIONARY LANDING ■ Transmission chip detector light came on. Fuzz and several metal chips were found on plug. Transmission was changed. (ARNG)

TH-55

2 PRECAUTIONARY LANDINGS ■ Throttle was inadvertently increased to full open position during practice autorotation. Engine rpm went to 3350 for 1 second. (USA) ■ Rotor tachometer failed in flight. (USA)

THOUGHT FOR THE WEEK

"TEAM MEMBER." The aviator with only 500 hours is like a football pro in his second season. He has come through the hard knocks of school and unit training. He survived his rookie season and is now a full-fledged member of the team. Where does he go from here?

He either (1) takes stock of his limitations and decides he's now in a position to learn the finer points of his game, or (2) reaches the point where he thinks he knows it all and just stops right there.

Aviators who make the first choice keep their thinking and learning fertile. Their wings grow with stars and wreaths. Those who make the second choice have no further need of the team and all they want is an open field to show their stuff. These aviators often wind up as statistics, or you hear them scream, "What do you mean, pilot error?" □

CARGO/SYSTEMS

Fatalities: 0 ■ Accidents: 0
Injuries: 0 ■ Estimated Costs: \$0

DIVISION

■ CW4 Richard D. Havenstrite,
Acting Chief 558-4202

Eight precautionary landings were reported.

CH-47

8 PRECAUTIONARY LANDINGS ■ Aircraft vibrated during descent and vibration intensified as maneuver was continued. Inspection revealed vibration was normal and aircraft was returned to service. (USAR) ■ Crew detected vibration in forward area of aircraft during cruise flight. Test flight was performed and vibration could not be duplicated. Aircraft was returned to service. (ARNG) ■ Unusual vibration was noted at 2,500 feet msl. Test flight was performed with no indication of described problem and aircraft was returned to service. (USA) ■ Flight engineer discovered hydraulic leak in forward transmission area during ground operation. Aircraft was shut down. Investigation established cause of leak as rupture in hydraulic line between No. 2 boost system pressure reducer and hydraulic filter. Line was replaced and aircraft returned to service. (USA) ■ System check during cruise flight indicated aft transmission was operating at maximum oil pressure. Caused by failure of oil pressure transducer. (USA) ■ During start procedure, No. 2 engine would not accelerate past 35 percent N₁ and 450° egt. After 15 to 30 seconds, egt and N₁ decreased to minimum and engine was shut down. Maintenance check failed to duplicate deficiency. (USA) ■ Shortly after takeoff crew detected fuel fumes in cabin. Inspection revealed fuel leaking from No. 2 engine. Caused by improper installation of O-ring in fuel line. (USA) ■ Aircraft was on ground runup when No. 2 engine chip detector light illuminated. Aircraft was shut down and plug removed and inspected. Normal fuzz was cleaned from plug and detector was reinstalled. MOC was performed and aircraft returned to service. (USA) □

FIXED WING

Fatalities: 0 ■ Accidents: 0
Injuries: 0 ■ Estimated Costs: \$0

DIVISION

■ LTC Howard D. Deane, Chief
558-4202

Nine precautionary landings were reported.

C-47

1 PRECAUTIONARY LANDING ■ No. 1 engine chip detector warning light came on during takeoff. Fuzz was found on magnetic plug. (USA)

OV-1

4 PRECAUTIONARY LANDINGS ■ Gear would not retract after takeoff and continued to indicate down. Hydraulic dump valve had been left open during scheduled maintenance. (USA) ■ Gear would not lock down as pilot was preparing to land. Pilot activated emergency pneumatic system and blew gear down. Post-landing examination revealed right main gear did not indicate safe down lock due to foreign matter being

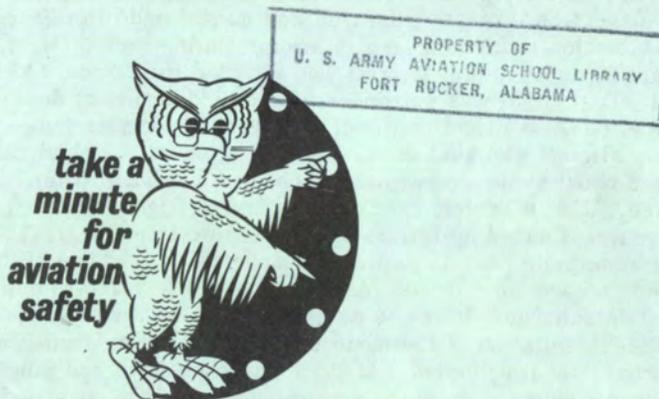
lodged in elbow of drag brace, not allowing total contact with microswitch. No other faults were discovered and aircraft was returned to service following retraction tests. (USA) ■ Right main gear did not indicate down and locked when gear was extended. Visual checks revealed that gear was down and locked and aircraft was landed. Examination revealed loose wire on microswitch. (USA) ■ Aircraft was returning to home base when pilot noticed fuel flow increased to 600 pounds/hour on No. 2 engine, and it would not develop more than 60 pounds torque. All other engine indications were normal. Technical observer (TO) visually checked No. 2 engine and saw fuel leaking from upper aft inboard portion of engine nacelle. Pilot reduced power on right engine and TO noticed fuel leakage was considerably reduced. Pilot secured No. 2 engine, notified ATC of emergency, and performed single-engine landing at home base. Examination revealed main fuel manifold assembly had cracked at soldered joint. (ARNG)

T-42

1 PRECAUTIONARY LANDING ■ Gear was extended over outer marker for landing during IFR training flight. Gear-down light did not illuminate. Press-to-test light functioned properly. Pilots made low pass and tower personnel confirmed that gear was down. Gear light had been completely dimmed. (USA)

U-8

3 PRECAUTIONARY LANDINGS ■ No. 2 engine surged during flight. All instruments were within normal operating ranges. Power was reduced on No. 2 engine and landing was made at intermediate field. Suspect No. 2 cylinder failed. (ARNG) ■ During landing from local orientation flight, IP thought SP was on brakes during rollout and told him to get off of brakes. IP took control of aircraft but it continued to swerve to right. Aircraft rolled approximately 1,000 feet, turned onto intersecting runway, and after rolling another 250 feet came to rest 10 feet off edge of intersected runway on sod. IP stated he applied left brake, then power on right engine and left aileron, but was not able to control right swerve. IP also stated he initially thought he had blown the right main tire, but then realized right main brake had locked. Maintenance determined the control, brake lock (FSN 1560-589-4064), did not release completely. (USA) ■ Cigarette lighter shorted during use, causing circuit to remain open and cigarette lighter resistor to overheat. Heat radiated from this resistor and melted a portion of the rudder trim wheel. (USA) □



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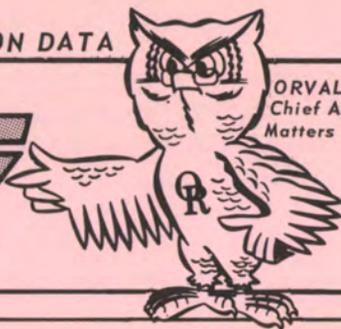


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VOL. 2, NO. 47 ■ 4 SEPTEMBER 1974

mishaps for the period of 16-22 AUGUST 1974

SAFETY ATTITUDE

It is appalling to watch the amazing acrobatics people employ to inflict injury upon themselves and others. Almost with startling casualness, they merrily go about their gruesome task of maiming and killing themselves and their friends. This addiction for unsafe acts is not peculiar to any specific task, position, or service, but has proven its applicability to be all encompassing. Safety does not begin and end with the job. A casual glimpse through the local paper clearly illustrates the daily hurts inflicted by the hot rod enthusiasts, the week-end Hiawathas, and the goof-it-yourselfers. One wonders why people, under a constant barrage of warnings by every type of communication technique, continue to inflict painful injury upon themselves and those about them. Surely, this degree of self-destruction is not the result of a few accident prone individuals, but results from the wanton disregard of safety practices by a multitude of personnel. Why are these safety warnings unheeded? Why do people not benefit from the

experience of others in the area of safety as they do in the other fields?

The answer to these questions has to be attitude. The attitude that many personnel exhibit toward safety is an attitude developed during childhood. A negative attitude—an attitude that associates safety with the words “don’t,” “stop,” and “quit.” It is this supposed curtailment of normal desires that has fashioned safety with this limitation stigma. We realize that “safety” does not impose limitation on activities but desires only to assure that these activities are carried out in a hazard-free manner. However, we have not been successful in establishing this philosophy among our cohorts. The elimination of this negative attitude adolescently associated with safety could possibly be the greatest achievement in the history of safety. It has to begin at the lowest level; otherwise the limitation stigma will prevail. Safety is an attitude—so make it a positive attitude.

USAF SAFETY KIT

CORRESPONDENCE COURSES

Many fine correspondence courses are available through the U.S. Army Aviation Center, Fort Rucker, Alabama.

This week, attention is directed to “Human Factors in Aircraft Accident Prevention—Avn 32,” which is available to commissioned officers, warrant officers, or other personnel of the Active Army or a Reserve component and civilian employees of the Federal Government. Enrollment is for those whose actual or anticipated assignment requires knowledge of the subject area.

Address correspondence to: **Department of Army-Wide Training Support
U.S. Army Aviation Center
P. O. Box J
Fort Rucker, Alabama 36360**

(Enrollment application should be submitted on DA Form 145.)

UTILITY/ATTACK

Fatalities: 0 ■ Accidents: 1
Injuries: 0 ■ Estimated Costs: \$69,216

DIVISION

■ MAJ Charles E. Toomer, Chief
558-4198

One accident, two incidents, one forced landing, and twenty-nine precautionary landings were reported.

UH-1

1 ACCIDENT ■ During hover for takeoff, tail rotor separated from aircraft, causing loss of antitorque control. Suspect failure of tail rotor blade grip. (USA)

1 INCIDENT ■ During postflight inspection, pilot discovered equipment cover located in aft cargo compartment had come off in flight and struck right synchronized elevator. (USA)

1 FORCED LANDING ■ Pilot spotted grass fire and descended to investigate. Attempt to blow out fire was made when engine failed. Cause of failure unknown. (USA)

24 PRECAUTIONARY LANDINGS—following are selected briefs ■ Aircraft shuddered violently during radar approach. Suspected cause was wake turbulence from large aircraft. (ARNG) ■ Crew noticed fumes and suspected electrical fire. After landing, battery was found to be extremely hot and smoking. Cause of battery problem not reported. (USAR) ■ Transmission oil pressure gauge fluctuated in flight. Gauge replaced. (USA) ■ Aircraft developed high frequency vibration in flight. Caused by failure of oil cooler blower fan. (USA) ■ Engine chip detector light came on during takeoff. Caused by short in electrical wiring. (USA) ■ Partial hydraulic failure was experienced in cruise flight. Caused by contaminant in hydraulic system. (USA) ■ Wind sock flew into main rotor during hover. Blades were inspected and no damage found. (USA)

AH-1

1 INCIDENT ■ During simulated target engagement, ground troops discharged flares and artillery simulators, causing damage to aircraft. (USA)

5 PRECAUTIONARY LANDINGS ■ Loud banging sound was heard from engine during flight. Banging stopped about 30 seconds after power was reduced. Caused by failure of fuel control. (USA) ■ Aircraft yawed left and right about 45° during liftoff and loud noises were heard from engine area. Cause unknown. (USA) ■ Tail rotor chip detector light came on. Caused by short in wire to magnetic plug. (USA) ■ No. 2 hydraulic system light came on during descent. Caused by malfunction of hydraulic pressure switch. (USA) ■ Pilot smelled hydraulic fumes in cockpit. Cause not reported. (USA)

LOSS OF RESOURCES FROM THIS WEEK'S MISHAPS

FATALITIES: 0
INJURIES: 0
AIRCRAFT LOSSES: 0
ESTIMATED COSTS: \$84,048

UNITED STATES ARMY AGENCY FOR AVIATION SAFETY FORT RUCKER, ALABAMA 36360 AUTOVON NUMBERS

Commander/Deputy Commander	558-3410/3819
Technical Research and Applications	558-6404/6410
Plans, Operations and Education	558-4812/6510
Aircraft Accident Analysis and Investigation	558-3913/4202
Management Information System	558-4200/2920
Publications & Graphics Division	558-6385/4218
After-duty tape recording of incoming calls to be returned following day (hours: 1615 to 0730)	558-6510
Commercial:	255-XXXX

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CORRECTION ■ FLIGHTFAX, dated 2-8 August, UH-1 precautionary landings, read transmission oil bypass gauge failed. It should have read transmission oil pressure gauge failed. □

LOH

Fatalities: 0 ■ Accidents: 0
Injuries: 0 ■ Estimated Costs: \$4,842

DIVISION

■ CPT Walter L. Hinman, Chief
558-4202

Four incidents, one forced landing, and twelve precautionary landings were reported.

OH-58

3 INCIDENTS ■ During takeoff, pilot noticed fixed wing aircraft landing on same runway. During attempt to set helicopter back down, tail skid was bent and stabilizer wrinkled. (ARNG) ■ During cruise flight, copilot noted safety pin was not in cockpit door bottom hinge pin. During attempt to install safety pin, door separated, damaging rear passenger door and main fuselage bulkhead. (ARNG) ■ During touchdown autorotation, main rotor rpm was allowed to get too low, resulting in "spike knock" damaging swashplate assembly and particle separator cowling. (USA)

1 FORCED LANDING ■ Engine quit during autorotation entry and autorotation was completed. EIR was submitted on engine. (USA)

10 PRECAUTIONARY LANDINGS—following are selected briefs ■ Hydraulic pressure warning lights of two aircraft illuminated. Both were caused by malfunction of hydraulic pressure switches. (USA) ■ Transmission chip detector lights of two aircraft illuminated. One aircraft is grounded pending oil spectroanalysis. (ARNG) The other revealed normal wear fuzz. (USA) ■ Two precautionary landings were caused by illumination of transmission oil temperature and oil pressure lights. One was caused by failure of oil pressure switch and the other by a faulty oil temperature transmitter. (USA)

OH-6

1 PRECAUTIONARY LANDING ■ Transmission oil pressure light came on. Oil filter was clogged. Filter replaced and aircraft released for flying. (USA)

TH-55

1 INCIDENT ■ During solo training flight, student pilot attempted to hover aircraft, not thinking about the loss of weight of the instructor pilot in the left seat. Left cyclic was applied (due to right-side-low attitude) and aircraft started left turn. Student lowered collective abruptly, resulting in incident damage to helicopter. (USA)

1 PRECAUTIONARY LANDING ■ Engine oil pressure decreased during hover/taxi operation. Caused by malfunction of oil pressure sending unit. (USA)

THOUGHT FOR THE WEEK

ROTORWASH CAUTION. Through the years Army aviation has experienced many rotor downwash mishaps. Rotorwash is a force—a force which must be contemplated and contended with. This force can be destructive—in some cases as much as a hurricane (winds in excess of 75 mph). Rotorwash winds are primarily a function of disk loading and aircraft gross weight. The Hawker Harrier, for example, creates quite a jet blast for vertical thrust development, and the CH-47 at maximum gross weight will flatten a tent.

The "rotorwasher" and "rotorwashee" can exercise caution to reduce rotorwash mishaps. The rotorwashee can assist by delaying engagement/disengagement until any passing helicopter is clear, and the rotorwasher must exercise caution to avoid those situations where his rotorwash may affect others. □

CARGO / SYSTEMS

Fatalities: 0 ■ Accidents: 0
Injuries: 0 ■ Estimated Costs: \$4,991

DIVISION

■ CW4 Richard D. Havenstrite,
Acting Chief 558-4202

Two incidents were reported.

CH-47

2 INCIDENTS ■ Copilot's jettisonable door blew off during flight. Incident is being investigated. No cause has been established. (USA) ■ Aircraft was in traffic pattern when pilot's door jettisoned. Cause is being investigated. (USA)

CH-47 USERS:

Due to the recent losses of cockpit jettisonable door assemblies during flight, USAAAVS Cargo Division has initiated a study of these incidents. The results of this study indicate the probable cause is improper maintenance procedures. It is suggested that instructions provided in TM 55-1520-227-20-1, dated August 1973, par. 4-196, Inspection of Door; 4-197, Removal of Door; and 4-198, Installation and Adjustment, be strictly followed. Instructions for inspection can be found in par. 4-199, and functional test of the door in par. 4-200. Par. 4-209 provides instructions for modifications to door components should the requirement exist. Instructions for use of installation adjustment gauge (156-CH-47-403-1) is on page 4-82, fig. 4-48. Provision for local manufacture of this gauge is found in Appendix C, page C-114, TM 55-1520-227-34, dated 3 August 73, and B/V Tandem Notes under airframe number 057, reference number 114-0461, dated 19 Oct 70. Further information on door rigging can be found in B/V Tandem Note under airframe 058, reference number 114-0424, dated 29 Sep 71. If the door assemblies are not installed and adjusted as directed in the procedures outlined in TM 55-1520-227-20-1, the door could be lost in flight. □

FIXED WING

Fatalities: 0 ■ Accidents: 0
Injuries: 0 ■ Estimated Costs: \$4,999

DIVISION

■ LTC Howard D. Deane, Chief
558-4202

Three incidents, one forced landing, and eight precautionary landings were reported.

U-21

1 INCIDENT ■ While parking aircraft, pilot attempted to turn left on uncontrolled parking ramp in close proximity to civilian gliders. Turn was not made to right because of possible prop wash damage to gliders. Right wing tip struck metal pole holding airfield welcome sign. Only a profile of the sign was visible to the crew. Pole holding sign is approximately 3 feet from edge of parking ramp. Speed at impact was one mph or less. Pilot stopped aircraft upon impact. *It is assumed a ground guide was not being used since no reference was made to one in the crash facts message. Had one been used this mishap probably would not have occurred.* (USA)

1 FORCED LANDING ■ Aircraft was returning from IFR service mission when No. 2 engine quit. Attempted restart did not relight engine. Fuel quantity indicated 350 pounds on each side. Approximately 15 minutes later No. 1 engine started losing power but did not quit. Auto ignition system was turned on, power reduced to flight idle, and propeller feathered. Upon request ATC provided vectors to nearest airfield and on final approach No. 1 propeller was unfeathered and power added. Approximately 400-500 pounds torque was developed, gear was extended, and landing made. Suspect fuel gauge was not calibrated properly. Fuel check valve (FSN 2915-938-3255) had clogged, causing inboard fuel tank to collapse, resulting in fuel starvation of engine. (USA)

2 PRECAUTIONARY LANDINGS ■ No. 1 engine oil pressure fluctuated and visual checks showed oil leaking aft of No. 1 engine cowling. Aircraft was returned to the takeoff point and landed. Engine oil temperature and other engine instruments remained normal throughout flight. Examination of engine revealed oil filler cap had not been secured nor checked on preflight, allowing cap to vibrate loose and creating siphoning action of engine oil. (USA) ■ During VFR training flight, approach flaps were lowered at altitude to perform slow cruise maneuvers. When flap switch was placed in up position, flaps remained in approach position. IP lowered flaps to 50% position but again could not retract them. Postlanding examination revealed reverse windings of motor assembly flap drive were burned out. (USA)

OV-1

1 INCIDENT ■ Just after liftoff as pilot retracted gear, he noticed a large bird pass left to right in front of windshield and disappear to the right of his vision. No impact was heard or felt. After landing, dent was found in leading edge of right wing and remains of bird were found on runway. In addition to skin damage, two ribs (and stringer) were found to be bent. (USA)

2 PRECAUTIONARY LANDINGS ■ No. 2 engine oil temperature gradually increased to and remained at maximum during flight. Pilot secured engine and landed at home base. Transmitter converter had developed short circuit. (USA) ■ Hydraulic pressure was lost during flight. Caused by failure of lower hydraulic hose for left speed brake. (USA)

U-8

1 INCIDENT ■ Pilot noticed aircraft was consuming excessive fuel from right main fuel tank during flight. Pilot then suspected fuel leak when right engine fuel pressure fluctuated. Pilot switched to reserve tank and engine continued to operate normally with normal fuel pressure. Upon request, ATC cleared aircraft to nearby airport. A VFR descent and landing were made with gear and flaps extended in normal manner. At touchdown, pilot asked copilot to see if there was any evidence of fire in right engine and copilot stated there was smoke coming from it. Pilot immediately secured right engine, turned aircraft off runway at nearest taxiway, and stopped aircraft. Pilot attempted unsuccessfully to extinguish fire with onboard portable extinguisher. Fire was extinguished approximately 2 minutes later by airfield fire department. Initial inspection revealed no structural damage. Damage appeared to be confined to engine wiring and right rear engine mount. Suspect failed fuel line. (USA) *This is the second mishap since January 1974 where the crews had indications of a fuel leak (fuel pressure drop/fluctuation) and were suspicious of possible fire. But neither crew applied the procedures prescribed in the dash 10 to prevent fire. The result was one major accident and one incident caused by fire.*

1 PRECAUTIONARY LANDING ■ During test flight No. 2 engine surged. All instruments remained within normal operating ranges. Power was reduced on No. 2 engine and landing was made. Examination revealed No. 2 cylinder of No. 2 engine had failed. (ARNG)

T-41

1 PRECAUTIONARY LANDING ■ During VFR training flight, IP noticed a fuel leak through back window and landed. Locking flange on fuel cap was worn, allowing fuel to siphon out. (USA)

T-42

2 PRECAUTIONARY LANDINGS ■ Landing gear would not retract during go-around. Nose wheel indicator showed down with light on. Main gear light was out. When cranked three times, green light came on and landing was made. Landing gear motor had malfunctioned and required replacement. (USA) ■ No. 1 engine began to run rough during IFR training flight. Efforts to eliminate problem failed. No. 1 engine was secured and landing was made. Right magneto on No. 1 engine was worn internally and required replacement. (USA) □

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Chief Advisor on
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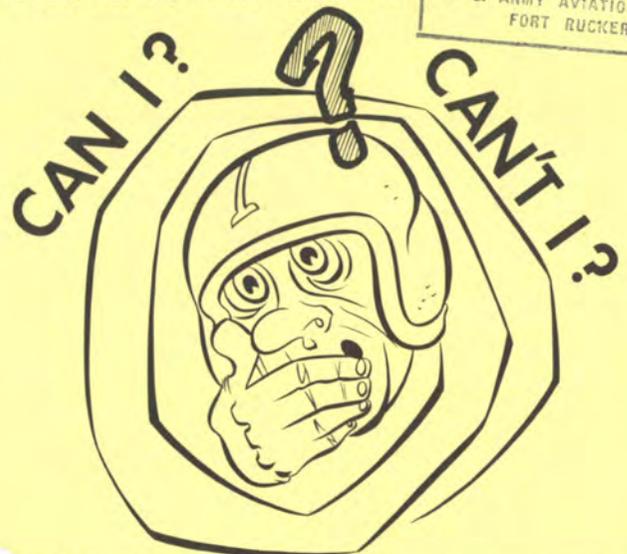
FLIGHT FAX

A USAAAVS PUBLICATION

VOL. 2, NO. 48 11 SEPTEMBER 1974

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Mishaps for the period of 23-29 AUGUST 1974



QUERY: Can I fly an OH-58 with three people on board (2,588 pounds gross weight) to a landing zone at 6,400 feet msl and hover with a density altitude of 9800? Or can't I?

RESPONSE:

- a. We can try it and see what happens!
- b. We can check the dash 10 for performance capability and limitations!

DISCUSSION: We got a type *a* response to this query in the form of a report of an accident which resulted in the total loss of the aircraft. Fortunately, there were no fatalities.

A study of the dash 10 (type *b* response) showed some interesting data on the performance capabilities of the OH-58A in hovering flight with a gross weight of 2,588 pounds, 6,400 feet pressure altitude, and

9,800 feet density altitude (or 33° C.). The torque and power required to hover in ground effect (2 feet skid high) is 54 psi (185 SHP). The power available is shown as 55 psi (188 SHP). So the aircraft can hover, given these parameters, with 1 psi to spare. The out-of-ground-effect hover chart shows a power required of 66 psi (226 SHP). Obviously, with the above parameters we can't hover out of ground effect.

Looking at our problem from a hover ceiling limitation, we find a capability to hover in ground effect (2,588 pounds and 33° C.) at about the 6,600-foot pressure altitude level. The hover ceiling out-of-ground-effect (6,348 pressure altitude and 33° C.) chart shows our gross weight limit (zero wind and rate of climb) to be 2,250 pounds.

A quick summation of the type *b* response (a check of the dash 10) to our query indicates that the OH-58 could not hover out of ground effect. However, it could hover in ground effect with 1 psi power to spare—a very slim safety margin to compensate for the unexpected.

CONCLUSIONS:

- a. I can! In ground effect, but close!
- b. I can't! Out of ground effect!

RECOMMENDATIONS: In planning your flights, always use the type *b* response and check the performance data of the dash 10 to determine the capabilities and limitations of your aircraft. To give yourself a margin for error, and allow for the unexpected, use the out-of-ground-effect performance data, and adapt as necessary to conduct an accident-free mission.

REFERENCES: TM 55-1520-228-10, figures 14-7, 14-4, 14-9, 14-10, and 14-12.

**LOSS OF RESOURCES
FROM THIS WEEK'S MISHAPS**

FATALITIES:	0
INJURIES:	1
AIRCRAFT LOSSES:	0
ESTIMATED COSTS:	\$71,496

**UNITED STATES ARMY AGENCY FOR AVIATION SAFETY
FORT RUCKER, ALABAMA 36360
AUTOVON NUMBERS**

Commander/Deputy Commander	558-3410/3819
Technical Research and Applications	558-6404/6410
Plans, Operations and Education	558-4812/6510
Aircraft Accident Analysis and Investigation	558-3913/4202
Management Information System	558-4200/2920
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Commercial:	255-XXXX

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UTILITY/ATTACK

Fatalities: 0 ■ Accidents: 1
Injuries: 1 ■ Estimated Costs: \$69,496

DIVISION

■ MAJ Charles E. Toomer, Chief
558-4198

One accident, four incidents, one forced landing, and twenty-five precautionary landings were reported.

UH-1

1 ACCIDENT ■ Pilot heard loud noise from engine, followed by left yaw. Pilot autorotated to sloping confined area and aircraft landed hard. Main rotor struck tail boom. Suspect internal engine failure. (USA)

3 INCIDENTS ■ Aircraft was started with tail rotor tied down, damaging tail rotor system. (USA) ■ Ratchet extension was found under tail rotor drive shaft during maintenance inspection. Drive shaft hanger bearing and shaft couplings were damaged. (USA) ■ Postflight inspection revealed dent and cut in left synchronized elevator. Elevator was struck by ammunition box cover which blew off in flight after failure of box cover safety line attachments. (USA)

1 FORCED LANDING ■ While downwind, aircraft yawed and rpm decreased. Instructor pilot autorotated to open field. Cause under investigation. (USA)

22 PRECAUTIONARY LANDINGS—following are selected briefs ■ Crew detected fuel odor in flight. Crack found in fuel manifold. (ARNG) ■ Hydraulic pressure light came on during takeoff. Hydraulic pressure switch failed. (USA) ■ Fire warning light came on. Caused by failure of connector on left fire warning element. (USA) ■ Engine chip detector light came on. Fuzz found on detector plug. (USA) ■ Transmission oil pressure gauge failed during hover. (USA) ■ Transmission hot light came on during climb. Caused by loose wire on temperature switch. (USA) ■ Aircraft vibrated above 85 knots. Cause unknown. (USA) ■ Engine surged during descent and egt rose to 1,000°. Suspect failure of fuel control or engine bearing. (USA) ■ N1 and N2 rpm fluctuated. Caused by malfunction of overspeed governor. (USA) ■ After landing, crew chief saw smoke coming from battery compartment. High voltage reading was noted. Caused by internal failure of battery. (USAR)

AH-1

1 INCIDENT ■ Aircraft was struck by shrapnel during target engagement, damaging windscreen and hitting instructor pilot in shoulder. (USA)

3 PRECAUTIONARY LANDINGS ■ Aircraft developed severe 1:1 vertical vibration. Caused by failure of feather bearing. (USA) ■ Cyclic control became stiff during instrument approach. Nut on lateral uniball backed off, causing stiffness. (USA) ■ Aircraft was in cruise flight when severe 1:1 vertical vibration was noted. Vibration increased during descent. Cause unknown. (USA) □

LOH

Fatalities: 0 ■ Accidents: 0
Injuries: 0 ■ Estimated Costs: \$2,000

DIVISION

■ CPT Walter L. Hinman, Chief
558-4202

Two forced landings and ten precautionary landings were reported.

OH-58

2 FORCED LANDINGS ■ Pilot noted TOT rise to 850° and he was unable to maintain cruise power. Suspect failure of compressor bearing. Engine was replaced. (USAR) ■ Aircraft was in level flight at 500 feet agl when compressor failed. Autorotation was made to open field. WELL DONE to CW2 Fred R. Shimke, HHC, 2d Brigade, 3d Armored Division, APO 09091. (USA)

5 PRECAUTIONARY LANDINGS ■ Hydraulic pressure warning lights of three aircraft came on. Caused by failure of hydraulic pressure switches. (USA) ■ Engine oil pressure started fluctuating shortly after takeoff. Oil pressure gauge was replaced and aircraft released for flight. (USA) ■ Transmission chip detector warning light came on. After ground check, maintenance personnel approved one-time flight back to home base. On short final to home base, chip detector light came on again. Transmission was sent in for teardown analysis. (USA)

OH-6

1 PRECAUTIONARY LANDING ■ Main transmission chip detector light came on. Metal fuzz was found on chip detector. (ARNG)

TH-55

4 PRECAUTIONARY LANDINGS ■ Engine overspeed occurred when student pilot lowered collective and increased engine rpm during approach. (USA) ■ Student pilot noted decrease in rotor rpm during flight. Caused by malfunction of dual tachometer. (USA) ■ Student pilot noted oil leak during ground recon. Aircraft was shut down and maintenance inspection revealed oil line to Hartzell overspeed unit leaking. (USA) ■ During landing approach, IP noticed engine oil pressure indicating zero and oil temperature above red line. Cause of engine failure undetermined, pending teardown analysis. (USA)

THOUGHT FOR THE WEEK

WHAT YOU SEE IS WHAT YOU GET—BUT WHAT YOU DON'T MAY GET YOU YET. Be observant. Perform that preflight with the checklist. Be sure those filler caps are all secure and look for foreign objects and trash that might cause FOD. □

CARGO/SYSTEMS

Fatalities: 0 ■ Accidents: 0
Injuries: 0 ■ Estimated Costs: \$0

DIVISION

■ CW4 Richard D. Havenstrite,
Acting Chief 558-4202

Nine precautionary landings were reported.

CH-47

9 PRECAUTIONARY LANDINGS ■ Aircraft stabilized at hover when No. 2 N1 gauge indicated zero. Aircraft was landed and turned back to maintenance. Maintenance personnel could not duplicate failure and released aircraft for flight. (USA) ■ No. 2 engine chip detector light illuminated. No. 2 engine was brought to ground idle and single-engine running landing was made. Inspection revealed chips on detector. Engine oil system was flushed and aircraft was returned to service. (USA) ■ Flight engineer noted hydraulic fluid coming from aft transmission area during runup. Aircraft was shut down, but source of leaking fluid could not be found. (USA) ■ No. 2 engine oil pressure caution light came on without loss of oil pressure on gauge. MOC was accomplished, but problem could not be duplicated. (USA) ■ Approximately one minute after takeoff, No. 1 flight boost indicator began fluctuating and showing decreasing pressure. After approximately 30 seconds, gauge indicated pressure below minimum operating limits and No. 1 flight boost pressure warning light came on. Caused by internal failure of No. 1 flight boost system hydraulic pump. (USA) ■ No. 1 engine chip detector light illuminated. Fuzz was found on plug. (USA) ■ No. 2 engine low oil warning light illuminated. Aircraft was inspected by maintenance personnel and released for flight. (USA) ■ Pilot was performing SAS check during test flight when he felt binding in flight controls. Functional check was performed, but problem could not be duplicated. (USA) ■ Aircraft was in cruise flight when No. 1 engine was brought to ground idle to simulate engine failure. Engine would not return to flight after completion of simulated failure. Suspect actuator failure. (USA) □

FIXED WING

Fatalities: 0 ■ Accidents: 0
Injuries: 0 ■ Estimated Costs: \$0

DIVISION

■ LTC Howard D. Deane, Chief
558-4202

Eighteen precautionary landings were reported.

C-7

1 PRECAUTIONARY LANDING ■ Approximately 5 minutes after takeoff on first flight of the day, pilot noticed No. 2 engine oil temperature was on the rise. Engine was shut down and aircraft returned to home base. Oil regulator (temperature control) had been improperly installed. (USA)

C-47

3 PRECAUTIONARY LANDINGS ■ After takeoff on test flight, No. 1 engine chip detector warning light came on. Small piece of metal was found on magnetic plug. (USA) ■ No. 1 engine chip detector warning light came on. All other instruments remained stable. Magnetic plug was removed, cleaned, and replaced. (USA) ■ No. 2 engine chip detector warning light came on during takeoff, with slight fluctuation of oil pressure. Power settings were 52½ inches manifold pressure and 2800 rpm. Flakes of metal were found on magnetic plug and in strainer. (USA)

C-54

1 PRECAUTIONARY LANDING ■ When gear was extended during approach for landing, green light for right main gear did not illuminate and warning horn sounded when throttles were retarded. Emergency gear

procedures were followed and when gear appeared down to both flight crew and ground personnel, landing was made. Gear pins were installed and aircraft taxied to parking ramp. Microswitch downlock failed, so gear-safe warning system failed to give safe indication when gear was down and locked. (USA)

OV-1

4 PRECAUTIONARY LANDINGS ■ During single-engine procedures training, engine failed to restart. Caused by failure of two igniters. (ARNG) ■ Shortly after takeoff, master caution and No. 2 engine chip detector warning light came on. Metal fuzz was found on magnetic plug. (USA) ■ Aircraft was on test flight and during single-engine shutdown at altitude, No. 2 propeller would not feather and No. 2 engine would not restart. Following single-engine landing, examination could detect no problems and all systems operated normally on the ground. Aircraft is scheduled for a test flight in attempt to duplicate situation. (USA) ■ During initial flare for landing at approximately 50 feet and 105 knots, flock of about 20 birds flew up into path of aircraft. Aircraft struck at least three birds, one of which was ingested down intake of No. 1 engine. Engine was secured to prevent possible overtemperature conditions. No damage was sustained. (USA)

T-41

2 PRECAUTIONARY LANDINGS ■ Engine chip detector warning light came on during takeoff. Carbon deposits were found on magnetic plug. (USA) ■ Engine chip detector warning light came on and engine began running rough. Caused by internal failure of No. 3 cylinder. (USA)

T-42

2 PRECAUTIONARY LANDINGS ■ No. 2 engine chip detector light came on during takeoff. Accumulation of fuzz had built up on magnetic plug from recently installed engine (2.2 hours since overhaul). (USA) ■ When gear was extended for landing, nose gear indicated one-half down. Gear was recycled several times without success and then extended manually. Aircraft was landed with unsafe indication on nose gear. Postlanding check revealed nose gear indicator link had come loose from landing gear position indicator bracket. Gear was down and locked. (USA)

U-3

1 PRECAUTIONARY LANDING ■ Fuel pressure on No. 2 engine dropped to 7 psi. Pressure relief valve was adjusted and aircraft test flown and released for flight. (USAR)

U-8

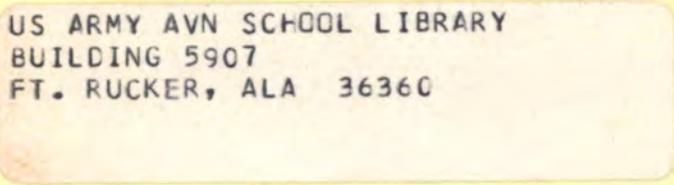
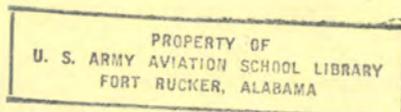
3 PRECAUTIONARY LANDINGS ■ No. 1 engine chip detector warning light came on. Wire from magnetic sump plug to warning light had shorted out, causing light to illuminate. (USA) ■ When landing gear was extended on downwind leg for landing, right main landing gear indicator showed unsafe. Light in landing gear switch handle indicated unsafe. Gear was retracted and indicator showed all gear up and light in gear switch handle went out. Gear was again extended with the same indications as the first time. Gear was reported down by tower personnel during flybys and safe landing was made. Unsafe indications disappeared as aircraft touched down. Down-limit microswitch was out of adjustment. *No reference was made to attempted manual gear extension.* (USA) ■ No. 2 engine was shut down and feathered during test flight. All attempts to restart, including airstart, were unsuccessful. Caused by faulty starter. (USA)

U-21

1 PRECAUTIONARY LANDING ■ Approximately 15 minutes after takeoff, fuel was seen siphoning from right nacelle fuel tank. Engine was secured and aircraft returned and landed. Cotter pin securing castellated tension adjusting nut was missing, allowing release of cap locking tension as nut backed off. (USA) □

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AGENCY FOR AVIATION SAFETY
FORT RUCKER, ALABAMA 36360

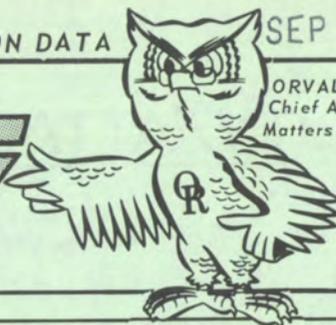
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VOL. 2, NO. 49 ■ 18 SEPTEMBER 1974

Mishaps for the period of 30 AUG-5 SEP 1974

DON'T LET DOWN THE TEARDOWN ANALYSIS PROGRAM

The Army's teardown analysis program is a very important part of an effective aircraft accident prevention program. This analysis program should be used for determining cause factors and failure trends of selected items (items approved for teardown analysis by either USAAVSCOM or USAAVSCOM) for all types of mishaps (accidents, incidents, forced landings, and precautionary landings). Unit maintenance officers and accident investigation boards can use this program to their advantage, particularly in the identification of materiel failures and/or component design faults. If the teardown analysis program is closely followed as stipulated in AR 95-5, corrective action can then be initiated through USAAVSCOM. This will prevent future mishaps and loss of lives.

AR 95-5 outlines the procedures involved in selecting and submitting aircraft components

and parts for teardown and analysis. After determining what items, components, and/or parts are suspected of being contributing factors to a mishap, they must be protected and safeguarded so valuable evidence will not be destroyed. To accomplish this, the following procedures MUST be adhered to:

- Decontaminate part to prevent health hazards.
- Preserve, tag, and package carefully to prevent further damage. Close all openings.
- Submit DA Form 2407 with component/part, stating scope of analysis desired.
- Submit an emergency equipment improvement recommendation (EIR) on part in accordance with TM 38-750.
- Do not disassemble parts/components prior to shipment to teardown analysis facility.
- For more detailed procedures, refer to AR 95-5, change 3, page 11-8, paragraph 11-5.

CORRESPONDENCE COURSES

Many fine correspondence courses are available through the U.S. Army Aviation Center, Fort Rucker, Alabama. This week, attention is directed to "Aviation Shop and Flightline Safety—AVN 34," which is available to commissioned officers, warrant officers, or other personnel of the Active Army or a Reserve component and civilian employees of the Federal Government. Enrollment is for those whose actual or anticipated assignment requires knowledge of the subject area.

Address correspondence to: **Department of Army-Wide Training Support
U. S. Army Aviation Center
P. O. Box J
Fort Rucker, Alabama 36360**

(Enrollment application should be submitted on DA Form 145.)

LOSS OF RESOURCES FROM THIS WEEK'S MISHAPS

FATALITIES: 0
INJURIES: 1
AIRCRAFT LOSSES: 0
ESTIMATED COSTS: \$103,070

UNITED STATES ARMY AGENCY FOR AVIATION SAFETY FORT RUCKER, ALABAMA 36360 AUTOVON NUMBERS

Commander	558-3410/3819
Technical Research and Applications	558-6404/6410
Plans, Operations and Education	558-4812/6510
Aircraft Accident Analysis and Investigation	558-3913/4202
Management Information System	558-4200/2920
Publications & Graphics Division	558-6385/4218
After-duty tape recording of incoming calls to be returned following day (hours: 1615 to 0730)	558-6510
Commercial:	255-XXXX

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UTILITY/ATTACK

Fatalities: 0 ■ Accidents: 1
Injuries: 1 ■ Estimated Costs: \$99,000

DIVISION

■ MAJ Charles E. Toomer, Chief
558-4198

One accident, one forced landing, and seven precautionary landings were reported.

UH-1

6 PRECAUTIONARY LANDINGS ■ Pilot noticed smoke in cockpit during cruise flight. Caused by failure of VOR receiver. (USA) ■ Hydraulic pressure caution light came on in cruise flight. Hydraulic pressure switch failed. (USA) ■ During formation flight, pilot exceeded torque limits when decelerating as formation slowed abruptly. Pillow block bolts replaced. (USA) ■ Crew chief noticed oil leak at 42° input quill. Caused by failure of input quill seal. (USA) ■ Engine chip detector light came on. Caused by normal metal wear. (USA) ■ Pilot terminated test flight. Cause not reported. Seal on 90° gearbox input quill was changed prior to test flight. (USA)

AH-1

1 ACCIDENT ■ Aircraft landed hard during PRACTICE AUTOROTATION. Suspect tail skid struck ground at termination of autorotation. (USA)

1 FORCED LANDING ■ Engine failed during hovering autorotation. Cause unknown. (USA)

1 PRECAUTIONARY LANDING ■ No. 2 hydraulic pressure light came on during landing approach. Suspect failure of No. 2 hydraulic pump. (USA) □

LOH

Fatalities: 0 ■ Accidents: 0
Injuries: 0 ■ Estimated Costs: \$4,070

DIVISION

■ LTC David F. Stoutamire, Chief
558-4202

Three incidents, two forced landings, and eight precautionary landings were reported.

OH-58

3 INCIDENTS ■ Pilot heard noise from aft portion of aircraft during night NOE flight. Aft cowling on engine oil reservoir was missing. Suspect Dzus fitting not fastened on cowling. (USA) ■ Two aircraft were damaged because seat belts were left unsecured in open compartments by passengers exiting aircraft. *In both cases, pilots thought seat belts were secured. This mental lapse continues to be a very expensive problem for the Army.* (USA)

1 FORCED LANDING ■ During cruise flight, aircraft had 20 percent loss of power and significant rise in TOT. Pilot entered autorotation and landed. Compressor failed. (ARNG)

4 PRECAUTIONARY LANDINGS ■ Engine chip detector lights of two aircraft came on. One had a loose wire and the second was caused by internal failure of chip detector. (USA/ARNG) ■ Tail rotor chip detector light came on. Caused by faulty wiring. (USA) ■ Generator failed. Caused by worn brushes. (USA)

OH-6

1 PRECAUTIONARY LANDING ■ Wingman noticed lead aircraft trailing smoke. Seam on engine oil tank failed and oil seeped onto tail pipe. (ARNG)

TH-55

1 FORCED LANDING ■ During training mission, instructor pilot reduced throttle to simulate forced landing and engine quit. Landing was made in corn field. Aircraft was test flown and released. (USA)

3 PRECAUTIONARY LANDINGS ■ Transmission high temperature and low pressure lights illuminated. Transmission oil pressure switch malfunctioned. (USA) ■ During mag check, drop in rpm was noticed.

Left mag malfunctioned. (USA) ■ After completion of autorotation, hover rpm could not be maintained. Inspection revealed arm assembly bushing excessively worn. (USA)



THOUGHT FOR THE WEEK

STOP THAT FLAP! USAAAVS continues to receive reports concerning seat belt buckle damage to the OH-58A. The problem is caused by crews failing to insure that all seat belts are fastened prior to flight. Unfastened seat belts left hanging outside open doors do flap and will cause damage to the sides of aircraft. In the two most recent instances, both crews stated that they "thought" the seat belts were secured. If pilots are going to "think" about them being secured, they might as well take a few seconds more and actually check them. We recommend stencils be made at the unit level and the following caution note be

added in one-inch yellow letters to the backs of both crew seats visible to the passengers:

CAUTION: FASTEN SEAT BELTS AND CLOSE DOORS UPON EXITING

Any penetration of the skin of a honeycomb member must be covered immediately with tape to prevent moisture and fuel entering and causing corrosion. USAAVSCOM Technical Advisory Message for OH-58A Helicopters, No. 010, dated 051748Z July 1973, should be reviewed. □

CARGO/SYSTEMS

Fatalities: 0 ■ Accidents: 0
Injuries: 0 ■ Estimated Costs: \$0

DIVISION

One precautionary landing was reported.

■ CW4 Richard D. Havenstrite, Chief
558-4202

CH-47

1 PRECAUTIONARY LANDING ■ Crew heard high-pitched sound in forward transmission area, accompanied by illumination of transmission chip light and high frequency vibration. After landing, inspection revealed excessive buildup of ferrous type metal flakes in oil filter. Forward transmission was replaced due to internal failure. (USA) □

FIXED WING

Fatalities: 0 ■ Accidents: 0
Injuries: 0 ■ Estimated Costs: \$0

DIVISION

Nine precautionary landings were reported.

■ LTC Howard D. Deane, Chief
558-4202

C-7

2 PRECAUTIONARY LANDINGS ■ Black smoke poured out of No. 2 engine during takeoff. Postlanding check revealed No. 14 exhaust rocker box cover was loose. Gasket was replaced and aircraft released for flight. (USA) ■ Main gear would not retract after takeoff. Caused by microswitch failure. (USA)

C-47

2 PRECAUTIONARY LANDINGS ■ Shortly after takeoff, No. 2 engine chip detector warning light came on. Power settings were 52.5 inches Hg and 2800 rpm, with all gauges in the green. Two small pieces of metal were found on magnetic plug. Engine and oil sump were flushed. Time since overhaul on engine was .5 hour. (USA) ■ No. 2 engine chip detector warning light came on during climb after takeoff. All instruments remained normal while landing was made. Examination revealed fuzz on magnetic plug. (USA)

OV-1

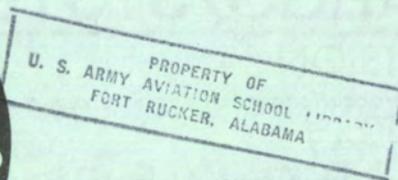
1 PRECAUTIONARY LANDING ■ Chip detector warning light for No. 1 engine came on 10 minutes after takeoff. Flakes were found on magnetic plug and in oil screen. Time on engine was 4 hours since overhaul. (ARNG)

T-42

3 PRECAUTIONARY LANDINGS ■ Following single-engine demonstration at 4,500 feet, No. 2 engine would not start and propeller would not come out of feather. Caused by malfunction of propeller governor. (USA) ■ During night training flight, complete electrical failure occurred immediately after gear was retracted on takeoff. Procedures to reestablish electrical power were unsuccessful. Gear was extended manually and successful lights-out, no-radio landing was made. Examination revealed positive hot wire for main inverter had broken at connecting point to switch, causing short which effectively grounded entire electrical system. Main inverter hot wire and inverter switch were replaced. (USA) ■ No. 2 engine failed and propeller could not be feathered. Aircraft was landed at nearby airport. Suspect internal engine failure. (USA)

U-3

1 PRECAUTIONARY LANDING ■ One engine was shut down for single-engine training and would not restart. Starter cable connector was broken at starter. (ARNG) □



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FORT RUCKER, ALABAMA 36360

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FLIGHTFAX

VOL. 2, NO. 5 ■ 7 NOVEMBER 1973

mishaps for the period of 19-25 OCTOBER 1973

"If the mission commander's capability in men and equipment has been accidentally lost before the battle is joined, the mission is lost."

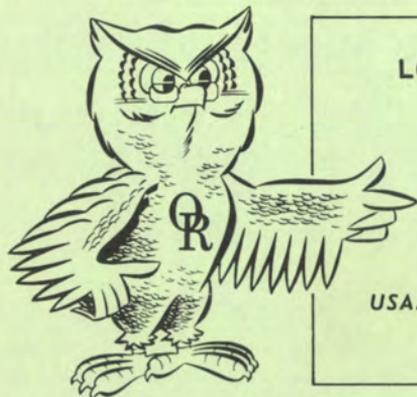
"In reality, the unit mission is the unit safety program."



These statements were taken from DA Pamphlet 358-1, dated March 1973. The pamphlet provides a basic source of information to assist Army personnel at all echelons in carrying out their responsibilities for implementing the Army Safety Program. Primary safety problem areas within the Army are indicated, and listings of references and safety material sources are provided. The pamphlet is distributed to the active Army, ARNG, and USAR in accordance with DA Form 12-9 requirements for administration-A (company level).

CORRECTION

The back page of the Vol. 2, No. 2 *Flightfax* dated 17 October 1973 listed items of information to include in crash facts messages when engines are involved. Number of overhauls and hours since last installation do not have to be included in the crash facts message, but are required when submitting DA Form 2397 series.



LOSS OF COMBAT EFFECTIVENESS FROM THIS WEEK'S MISHAPS

FATALITIES:	0
INJURIES:	0
AIRCRAFT LOSSES:	0
ESTIMATED COSTS:	\$19,606

USAAAVS: AUTOVON 558-6510/4714
Commercial AC 205, 255-6510/4714

U.S. ARMY AGENCY
FOR
AVIATION SAFETY
FORT RUCKER, AL 36360

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UTILITY/ATTACK

Fatalities: 0 ■ Accidents: 0
Injuries: 0 ■ Estimated Costs: \$197

DIVISION

■ MAJ Charles E. Toomer, Chief

One incident and 22 precautionary landings were reported.

UH-1

1 INCIDENT ■ Aircraft was on final approach when small bird was seen to dive in front of aircraft, impacting and coming through left chin bubble.

18 PRECAUTIONARY LANDINGS ■ Crew smelled smoke in cockpit. Main generator failed internally and seized after landing. EIR submitted. ■ Tail rotor pedals became stiff in flight while cyclic and collective remained normal. Suspect malfunction of tail rotor servo (P/N 204-076-053). ■ Crew detected fuel fumes twice in short period of time, followed by loss of engine rpm. Pilot diagnosed rpm loss as underspeeding N2 governor and went to emergency governor. Landing was made with manual throttle control. WELL DONE to CW2 Stacy G. Hawkins. ■ Engine fuel boost lights of two aircraft illuminated. Maintenance personnel were unable to duplicate the malfunction on one aircraft. Fuel control malfunctioned on the other. ■ Fire warning lights of two aircraft illuminated. One aircraft had a faulty fire warning indicator (P/N 204-075-705-17), and connector box (P/N 41806) was found defective on the other. One EIR submitted. ■ Engine chip detector light came on in cruise flight. Normal wear fuzz was found on detector plug. ■ Tail rotor chip detector light illuminated. After landing, moisture was found on 90° detector plug. Plug was cleaned and reinstalled and aircraft was released for flight. ■ Engine egt dropped to 100° in cruise flight. Pilot landed and maintenance inspection revealed temperature indicator (P/N 157800) had failed. EIR submitted. ■ Engine rpm dropped to 5900 and torque dropped to 21 pounds in cruise flight. Landing was made with partial power. Power loss could not be duplicated on test flight and aircraft was released. ■ Pilot smelled electrical burning odor and noticed main generator loadmeter indicated excessive load. Caused by overheated battery. ■ Pilot felt aircraft shudder and heard loud noise coming from engine compartment. Suspect short shaft failure. ■ Main inverter failed during climbout. Caused by excessively worn bearing (P/N 205-075-140-1). ■ Transmission oil pressure was lost on two aircraft. Internal transmission oil filter gasket (P/N 48-431-629-1) failed on one and oil pressure transmitter (P/N 34-401-30A22-1) failed on the other. EIR's submitted. ■ Aircraft was at 5,000 feet msl when irreversible valve (P/N 204-076-055-1) failed. EIR submitted. ■ Pilot smelled hydraulic fluid and landed. Hydraulic filter preformed packing (P/N MS28775-135) was not installed. ■ Hydraulic caution light illuminated, with no pressure loss. Caused by failure of hydraulic pressure switch (P/N 204-076-057).

AH-1

3 PRECAUTIONARY LANDINGS ■ Aircraft developed severe 1:1 vertical vibration in flight. Caused by failure of outboard feather bearing (P/N 540-011-1015). EIR submitted. ■ While hovering to takeoff point, pilot heard loud bang from engine area and performed hovering autorotation. Burning odor was detected during shutdown. Suspect compressor stall. ■ Tail rotor chip detector light came on in cruise flight. Normal metal wear was found on 90° chip detector plug. □

LOH

Fatalities: 0 ■ Accidents: 1
Injuries: 0 ■ Estimated Costs: \$10,937

DIVISION

■ LTC David L. Boivin, Chief

One accident, one incident, one forced landing, and seven precautionary landings were reported.

OH-58

1 INCIDENT ■ Aircraft was performing NOE scout mission to locate targets for gunship when it encountered guidance wire from previous tow missile firing. Wire wrapped around swashplate assembly, cutting grease seal and damaging swashplate assembly.

1 FORCED LANDING ■ IP was demonstrating hovering autorotation when throttle rolled past flight idle detent and engine quit. Test pilot was unable to duplicate malfunction without pressing idle release button.

7 PRECAUTIONARY LANDINGS ■ Aircraft yawed to left and lost power after pilot heard two loud bangs at rear of aircraft. Pilot immediately entered autorotation, then made power-on landing. Suspect compressor failure. ■ Engine oil bypass light came on, with all engine instruments in normal range. *Pilot was a believer and landed aircraft.* Hose fitting loosened from elbow (P/N AN 837-10), allowing oil to seep out. Suspect elbow was not torqued properly during installation. ■ Pilot heard popping noise and smelled smoke in cockpit. Night sighting device was found to be faulty. ■ Pump failure caused loss of hydraulic pressure in flight. EIR submitted. ■ Pressure switch failure caused hydraulic caution light to illuminate. EIR submitted. ■ Engine chip detector light came on during hover. Oil analysis revealed excessive contamination requiring engine change. EIR submitted. ■ Carbon on magnetic plug allowed transmission chip detector light to illuminate.

TH-55

1 ACCIDENT ■ Tail rotor blades struck runway during termination of PRACTICE TOUCHDOWN AUTOROTATION. Aircraft then became airborne as a result of up-collective pitch control application and engine power surge. IP lost directional control and reduced power 20 feet above ground, resulting in hard landing and major damage.

FUEL FOR THOUGHT: OH-58 practice autorotations and rapid engine decelerations can now be performed while using alternate fuel JP5. However, the following caution which is an *approved* change (that will appear in Change 5) by USAAVSCOM (that authorizes units to make "pen and ink" change in the OH-58 dash 10 to delete paragraph 7-17b(2) and insert caution) must be adhered to:

CAUTION

Prior to performing the first practice autorotation or rapid engine deceleration of the day, insure that the requirements of the engine deceleration check (ref TM 55-2840-231-24) are met.

THOUGHT FOR THE WEEK

THREAT OF GETTING SMACKED UNDER THE MISSILE TOW: Pilots, beware when flying NOE missions in the vicinity of tow missile firing areas. A thin gauge guidance wire will be draped over trees and bushes and strung throughout the area. This wire is impossible to see from the cockpit and it could jam the aircraft controls should it become entangled in the mechanical linkage. Removing the wire is difficult because it is strong in tensile strength but breaks easily when bent or kinked. However, sudden contact with a concentration of this wire could sever a component (such as pitch change linkage) or flip the aircraft if snagged on a skid. Commanders should insure NOE courses and tow missile ranges are separate areas of operation. In cases of integrated training between scout and gunship, special consideration must be given to this problem. It appears that the only safeguard against this new self-induced threat may be "altitude." Smack! Smack! Don't get smacked or you may be kissing it goodbye.

SPRING HARNESS: Army aviation has received some adjustable safety shoulder harnesses (P/N 57 D677) without webbing retarder *springs* that are required in the two adjusters. Units should inspect their aircraft shoulder harnesses for missing springs which restrict the use of harnesses until springs are installed. Further details are provided in USAAVSCOM message 121920Z October 1973. □

CARGO

Fatalities: 0 ■ Accidents: 0
Injuries: 0 ■ Estimated Costs: \$8,472

DIVISION

■ CW4 Gerald D. Verbeek,
Acting Chief

One incident and one precautionary landing were reported.

CH-47

1 INCIDENT ■ Aircraft was in IMC at flight level 050 with an OAT of -5° C. and trace ice forming on windshield wipers when forward airspeed began to slowly decrease. Pilot attempted to correct decrease in airspeed by applying forward cyclic and increasing torque 30-40 pounds. Airspeed continued to dissipate and problem was diagnosed as pitot system failure. Aircraft was leveled using attitude indicators, and power was reduced to normal cruise setting. VMC was established and airspeed began normal operation at lower altitude. Aircraft was returned to home station where aft vertical shaft was changed due to suspected overstress. Pilot did not check cyclic speed trim indicators, but it is believed that speed trim retracted with false airspeed indications and airspeed limitation for flight with speed trim retracted was exceeded.

1 PRECAUTIONARY LANDING ■ No. 2 engine chip detector light came on during climbout. Aircraft returned to station and landed. Chip detector plug was cleaned and inspected and aircraft resumed mission. □

FIXED WING

Fatalities: 0 ■ Accidents: 0
Injuries: 0 ■ Estimated Costs: \$0

DIVISION

■ LTC Charles E. Humphries, Chief

One precautionary landing was reported.

OV-1

1 PRECAUTIONARY LANDING ■ Crew detected odor suspected to be from electrical fire. Odor appeared to be coming from nose section of aircraft. Pilot returned to home field and landed. Inspection of aircraft revealed no indication of fire. Source of odor could not be determined, and odor was not detected during MOC. Aircraft was released for flight.

FIXED WING 360-DAY MISHAP DATA

	Last 30 Days	Last 90 Days	Last 180 Days	Last 360 Days
Injuries	0	0	1	4
Fatalities	0	0	2	20
Dollar Cost	\$367,222	\$579,785	\$2,730,126	\$4,117,106

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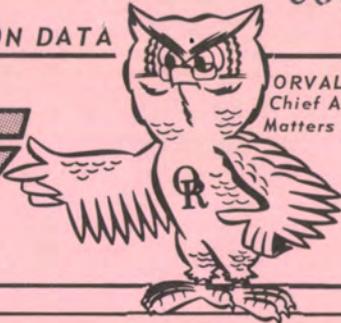
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A USAAAVS PUBLICATION

VOL. 2, NO. 50 ■ 25 SEPTEMBER 1974

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mishaps for the period of 6-12 SEPTEMBER 1974

EROSION OF T53 SERIES GAS TURBINE ENGINES

CLARENCE J. CARTER

Directorate for Aircraft Accident Analysis and Investigation, USAAAVS

Recently, a team from the U.S. Army Aviation Systems Command (AVSCOM) inspected T53 series gas turbine engines at a post in the eastern part of the United States. The following conditions were noted:

"UH-1H aircraft flying 'slick' or troop-carrying missions have been subject to erosion of the compressors and some engine stalls. This is due apparently to flying into unimproved landing zones of fine sand.

"AH-1 and UH-1 gunships fly off of prepared surfaces and consequently do not experience the compressor erosion and subsequent compressor stalls.

"Three engines were examined by the AVSCOM team. The compressor blades were examined and exhibited nearly identical wear patterns. The separators and air particle swirl tubes were clean and well maintained. This cleaning should be a continuing training subject and a special item for inspection at each PMI.

"Other reasons for compressor stalls were discussed along with the compressor erosion. The engine should be closely monitored for proper bleed band function, operation of the variable inlet guide vanes (VIGV) and malfunction of the fuel control, and operation in sand and dust should be kept to a minimum.

"Certain criteria were established as representative of erosion conditions noted in engines subject to compressor stalls and may be used as guidelines in identifying engines which are candidates for compressor stalls. These criteria, shown in figure 1, should not be considered as no-go indicators in authorizing return of engines to depot.

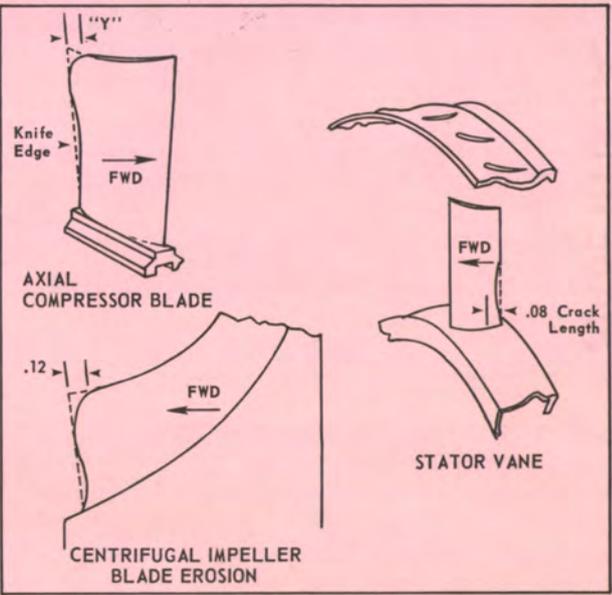


Figure 1

"It may be expected that due to environmental conditions involved and to the inherent efficiency level of the existing separator (65% of all particles separated) engines will be returned for overhaul at less than the normal MTBD, which is currently 730 hours."

Figures 2 and 3 show an engine taken from an

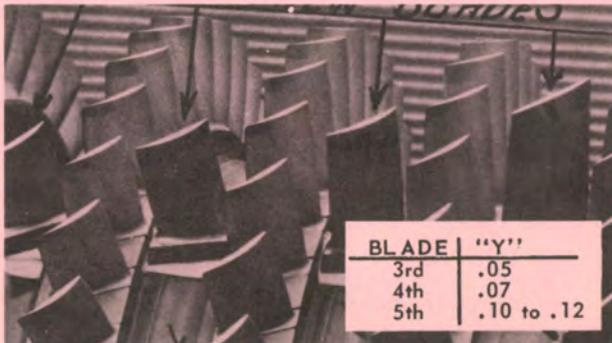


Figure 2

Continued on page 2

Continued from front page

aircraft operating in the middle west. Flight time on this engine was just short of 400 hours when compressor stalls occurred at a hover. It is apparent that extensive erosion is not limited to any one geographical area. The required cure in this case is daily cleaning and inspection of the particle separator or inlet filters and a thorough visual inspection of the compressor after each day's operation in a dusty or contaminated environment.

If you have a powerplant problem, submit a crash facts message to USAAVS. No matter what the problem is, be sure the message contains: (1) engine serial number, (2) number of overhauls, (3) hours since overhaul, (4) hours since new, (5) hours since last installation, and (6) last overhaul facility. This information will enable us to spot mishap trends as they develop. When an engine condition can be pinpointed to a certain hour level, series, etc., USAAVS and AVSCOM



Figure 3

can warn you of what to expect from your aircraft and when.

We are only able to help if you include these six items in every crash facts message concerning powerplants.

UTILITY/ATTACK

DIVISION

Fatalities: 0 ■ Accidents: 1
Injuries: 0 ■ Estimated Costs: \$34,000

■ MAJ Charles E. Toomer, Chief
558-4198

One accident, two forced landings, and twenty-seven precautionary landings were reported.

UH-1

1 FORCED LANDING ■ Engine failed during PRACTICE AUTOROTATION. Caused by failure of flight idle solenoid. (USA)

25 PRECAUTIONARY LANDINGS—following are selected briefs ■ IP noticed low engine oil pressure and suspected fuel governor failure. Engine oil transmitter replaced. (USA) ■ Transmission chip detector light came on. Corrosion and condensation found on plug. (USA) ■ During takeoff from hover, N2 rpm increased to 6800. Suspect overspeeding governor. (USA) ■ Transmission oil pressure light came on and oil pressure gauge indicated zero during landing approach. Caused by failure of transmission internal oil filter gasket. (USA) ■ Aircraft yawed left and loud rumble and popping noises were heard during flight. Inspection revealed FOD to first and second stage turbine blades. (USA) ■ Engine oil pressure fluctuated between 0 and 90 psi. Caused by loose cannon plug on pressure

LOSS OF RESOURCES FROM THIS WEEK'S MISHAPS

FATALITIES: 0
INJURIES: 0
AIRCRAFT LOSSES: 0
ESTIMATED COSTS: \$80,000

UNITED STATES ARMY AGENCY FOR AVIATION SAFETY FORT RUCKER, ALABAMA 36360 AUTOVON NUMBERS

Commander 558-3410/3819
Technical Research and Applications 558-6404/6410
Plans, Operations and Education 558-4812/6510
Aircraft Accident Analysis and Investigation 558-3913/4202
Management Information System 558-4200/2920
Publications & Graphics Division 558-6385/4218
After-duty tape recording of incoming calls to
be returned following day (hours: 1615 to 0730) 558-6510
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gauge which was not safetied. (USA) ■ Pilot felt severe vibration through antitorque pedals. Suspect internal failure of 42° gearbox. (USA) ■ Pilot noticed moisture on windscreen. Caused by thermal runaway of battery. (USA)

AH-1

1 ACCIDENT ■ Aircraft made ground contact with nose slightly left of center during simulated antitorque maneuver. Aircraft bounced, rolled right, and struck ground, damaging tail boom, tail rotor drive shaft, and main rotor system. (USA)

1 FORCED LANDING ■ Antitorque pedals stuck in fixed left position during test flight. Caused by improper assembly of tail rotor pitch change mechanism. (USA)

2 PRECAUTIONARY LANDINGS ■ No. 1 hydraulic system caution light came on during landing approach. Caused by failure of hose which failed due to chafing. (USA) ■ Pilot noted high ammeter reading during NOE training. DC generator light came on after climb to altitude, accompanied by SCAS hardovers in all channels. Cause under investigation. (USA)

UH-1/AH-1G SAFETY-OF-FLIGHT

Safety-of-flight message, R102000Z September 1974, ZFF-6, subject: **Safety-of-Flight One-Time Inspection of Tail Rotor Control Installation Silent Chain on UH-1/AH-1 Series Aircraft.** Two vendors supply the silent chain. One vendor supplies a shiny chain (P/N 204-001-739-3). There have been no problems with the shiny chain breaking. The other vendor supplies two dark chains (P/N 204-001-721-1). Four confirmed in-flight failures of the dark chain have occurred. □

LOH

Fatalities: 0 ■ Accidents: 2
Injuries: 0 ■ Estimated Costs: \$46,000

DIVISION

■ LTC David F. Stoutamire, Chief
558-4202

Two accidents, two incidents, one forced landing, and ten precautionary landings were reported.

OH-58

2 ACCIDENTS ■ During hover to takeoff position, skids became entangled with concertina wire and aircraft rolled on left side. Wire was 6 to 8 inches above the ground and not previously detected. (USA) ■ TOT went to maximum and vibration was felt with power application during cruise flight at 200 feet. Pilot entered autorotation when problem could not be resolved. Damage to cross tubes, tail rotor drive shaft and main rotor blades resulted from hard landing. Engine malfunction is under investigation. (USA)

2 INCIDENTS ■ During NOE flight at 30 feet and 40 knots aircraft flew over opponent force and was struck by projectiles thrown by ground troops. Damage to main rotor blade required replacement. (USA) ■ Main rotor rpm bled off during pinnacle approach and tail rotor control became ineffective. Aircraft landed 45° nose-up, with incident damage. Cause is being investigated. (USA)

1 FORCED LANDING ■ Engine stopped during takeoff at 200 feet. Suspect compressor malfunction. An unsolicited WELL DONE to CW4 Joseph C. Kettles, 245th Engr Bn, Baton Rouge, Louisiana, for a successful autorotation. (USAR)

9 PRECAUTIONARY LANDINGS ■ Pilot heard noise and felt vibration during short final to landing. Tail rotor drive shaft was severed at No. 8 hanger bearing due to bearing seizure. EIR submitted. (USA) ■ Aircraft was landed because of low fuel warning indication. Aircraft was refueled and released for flight. (USA) ■ Fuel boost pump caution light came on and could not be duplicated during inspection. (USA) ■ Hydraulic caution light illuminated during climbout. Maintenance could not duplicate situation. (USA)

■ Engine chip detector light came on. Particles found on plug were sufficient for engine change. EIR submitted. (USA) ■ Transmission chip detector light illuminated. Fuzz was found on plug. (ARNG) ■ Tail rotor chip detector lights of three aircraft came on. One aircraft was grounded pending results of special oil analysis. (USA) Fuzz was found on plug of one aircraft. (USA) Small sliver was found on plug of third aircraft. (ARNG)

TH-55

1 PRECAUTIONARY LANDING ■ Engine oil pressure dropped below red line and was fluctuating during landing from hover. Suspect gauge malfunction. (USA)

THOUGHT FOR THE WEEK

"RIGHT-ON"—During the investigation of an autorotation accident in which the tail boom was severed, the investigator asked the pilot, "Do you think you got good response out of the rotor system?" Answer: "If it had been into the wind, the response would have been good. You have a definite feel when you know you've got it. When you pull it, you feel it in your seat. Under this condition, downwind, you don't feel anything. It just felt kind of mushy." □

CARGO/SYSTEMS

Fatalities: 0 ■ Accidents: 0
Injuries: 0 ■ Estimated Costs: \$0

DIVISION

■ CW4 Richard D. Havenstrite, Chief
558-4202

Five precautionary landings were reported.

CH-47

5 PRECAUTIONARY LANDINGS ■ No. 2 engine chip detector light came on during takeoff. Inspection revealed normal wear on magnetic plug. (USA) ■ No. 2 engine oil pressure went to 140 psi during cruise flight. All other instruments remained normal. Suspect oil pressure transmitter. (USA) ■ No. 2 engine chip detector light illuminated. Inspection revealed normal wear on magnetic plug. (USA) ■ Aircraft was in traffic pattern when loud noise was heard. Utility hydraulic system pressure gauge dropped to zero. Utility hydraulic fan disintegrated and motor pump seals failed simultaneously. (USA) ■ No. 2 engine chip detector light came on. Inspection revealed normal wear on plug. (USA) □

FIXED WING

Fatalities: 0 ■ Accidents: 0
Injuries: 0 ■ Estimated Costs: \$0

DIVISION

■ LTC Howard D. Deane, Chief
558-3901

Eight precautionary landings were reported.

C-7

2 PRECAUTIONARY LANDINGS ■ Approximately 5 miles from destination airfield, No. 2 engine started to run rough and manifold pressure was fluctuating. Engine was secured and single-engine landing was made. No. 3 cylinder head was cracked from exhaust port to spark plug boss. (USA) ■ Immediately after takeoff, tower advised pilot his nose gear had not fully retracted. All indications in aircraft were normal. Pilot extended gear, returned, and landed. Inspection of components, retraction tests, check of hydraulic pump output, and test flight were all satisfactory. Aircraft was released for flight. (USA)

C-47

1 PRECAUTIONARY LANDING ■ Approximately 15 minutes after takeoff, No. 2 engine chip detector warning light came on. Climb power setting was 2300 rpm/34 inches Hg. Small piece of metal was found on magnetic plug. Time on engine since overhaul was 1 hour. (USA)

T-42

1 PRECAUTIONARY LANDING ■ Left main gear strut collapsed during landing roll. Cause undetermined. Gear was replaced. (USA)

U-8

3 PRECAUTIONARY LANDINGS ■ No. 1 engine was shut down and propeller feathered during test flight. Engine would not restart. Aircraft is not equipped with an accumulator. Single-engine landing was made. (USA) ■ During takeoff for training flight with fuel selector in auxiliary fuel position (*checklist?*) No. 2 engine fuel pressure dropped to zero and cylinder head temperature climbed to 250°. Fuel selector was switched immediately to main tank position and fuel pressure and cylinder head temperature returned to normal. Cause undetermined. Aircraft was test flown on auxiliary tank and problem could not be duplicated. (USA) ■ No. 1 engine failed during climbout at 6,300 feet approximately 11 minutes after takeoff. Power setting was 42 inches Hg/3200 rpm. Engine vibrated and failed immediately. Engine chip detector warning light came on simultaneously with the first vibration. All events occurred within 10 seconds. Examination revealed upper rear engine case was broken open, exposing camshaft and other internal parts. (USA)

U-21

1 PRECAUTIONARY LANDING ■ Copilot noticed oil leaking from No. 2 engine during takeoff. Oil filter cap had not been secured. (USA)

FIXED WING 360-DAY MISHAP DATA

	Last 30 Days	Last 90 Days	Last 180 Days	Last 360 Days
Injuries	0	0	0	2
Fatalities	0	0	0	2
Dollar Costs	\$4,621	\$10,247	\$191,095	\$5,758,369



CORRESPONDENCE COURSES

Many fine correspondence courses are available through the U. S. Army Aviation Center, Fort Rucker, Alabama.

This week, attention is directed to "Aircraft Structures—Avn 35," which is available to commissioned officers, warrant officers, or other personnel of the Active Army or a Reserve component and civilian employees of the Federal Government. Enrollment is for those whose actual or anticipated assignment requires knowledge of the subject area.

Address correspondence to: Department of Army-Wide Training Support
U. S. Army Aviation Center
P. O. Box J
Fort Rucker, Alabama 36360

(Enrollment application should be submitted on DA Form 145.)

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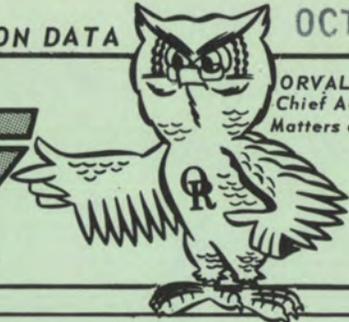
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VOL. 2, NO. 51 ■ 2 OCTOBER 1974 Fort Rucker, Alabama 36360 mishaps for the period of 13-19 SEPTEMBER 1974

ICING INFORMATION NEEDED

Information is needed to continue research dealing with the operation of Army helicopters in icing conditions. If you experience icing effects during any helicopter flight, please fill out this questionnaire and mail it to USAAAVS. The information will be used strictly for accident prevention purposes. This questionnaire replaces the one sent out in November 1973 by USAAAVS. Please destroy any copies you may have of the previous questionnaire. If you need additional copies of this questionnaire, write or call Commander, USAAAVS, ATTN: IGAR-AU, Ft. Rucker, AL 36360; telephone Autovon 558-4198.

Cut along dotted line, fold, staple, and mail.

1. Type/Model/Series Helicopter: _____
2. Date/Time of Occurrence: _____
3. Place of Occurrence (Geographical Location): _____
4. Type Mission (Training, Admin, Service, Medevac, etc.): _____
5. Flight Plan: VFR IFR
6. Army National Guard Reserve
7. Organization/Location Aircraft Assigned: _____
8. Forecasted Weather (Temperature/Dewpoint/Precipitation) (Answer specifically): _____
9. Actual Weather (Temperature/Dewpoint/Precipitation) (Answer specifically): _____
10. Other Weather Forecast (Icing, Freezing Rain, Blowing Snow, etc.) _____
11. Was this mission aborted after encountering unforecast ice? Yes No
If yes, describe how, i.e., climb, descent, landing, etc.: _____
12. Phase of flight when icing first encountered: Takeoff Climb Cruise Landing Hover
13. Altitude (agl) when icing was first encountered: _____
14. Indicated Airspeed (Knots): _____
15. Suspected Type Icing: Clear Rime Glime (mixed-clear & rime) Frost Other
Describe: _____
16. Suspected Severity: Trace Light Moderate Heavy Variable (TM 1-300)
17. Rate of Buildup: Slow Moderate Rapid
18. Degree of Buildup (1/4-inch, 1/2-inch, in 10 minutes, etc.): _____
19. Problems Encountered in Flight: (Elaborate on items checked Yes)

Visibility	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Power Increase	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Vibration	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Navigation/Communication	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Other	<input type="checkbox"/> Yes	<input type="checkbox"/> No
20. Duration of Exposure: _____
21. Where was ice first noticed? Windshield (wipers) Rotor head Blades Engine inlet
 Landing gear Other Describe: _____
22. Was anti-ice/deice equipment used? Yes No Equipment used and how effective? _____
23. Did postflight inspection reveal damage to: Rotor blades Engine(s) Airframe Antenna(s)
 Other Describe: _____
24. Other pertinent remarks: _____

fold

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Commander
USAAVS
ATTN: IGAR-AU
Fort Rucker, AL 36360

fold

UTILITY/ATTACK

DIVISION

Fatalities: 0 ■ Accidents: 0
Injuries: 0 ■ Estimated Costs: \$3,557

■ MAJ Charles E. Toomer, Chief
558-4198

Two incidents, one forced landing, and twenty-four precautionary landings were reported.

UH-1

1 INCIDENT ■ Aircraft struck tree while hovering during authorized NOE training. Main rotor blades were damaged. (USA)

1 FORCED LANDING ■ As aircraft was brought to hover for takeoff, loud noise was heard from engine and egt rose to 1,000°. Suspect compressor stall. (USA)

22 PRECAUTIONARY LANDINGS—following are selected briefs ■ Tail rotor chip detector light came on. Cause not reported. (USA) ■ Hydraulic caution light came on. Cause not reported. (USA) ■ Left fuel boost caution light came on during landing approach, followed by odor of burning electrical insulation. Left fuel boost pump motor failed. (USA) ■ Engine rpm increased twice. It was controlled by increase/decrease switch the first time, and the second time by pitch application and throttle reduction. Caused by fuel governor failure. (USA) ■ Hydraulic system failed at hover. Aircraft pitched and yawed so violently that landing could not be made from hover. Takeoff and running landing successfully performed. Caused by ruptured hydraulic line. An unsolicited WELL DONE to CW2 Frederick C. Sheppard, USAAVNC. (USA) ■ Sparks were seen by copilot during night takeoff. Cockpit lights went out and burning odor was noticed. Caused by electrical wire bundle rubbing against instrument air line. (USA)

AH-1

1 INCIDENT ■ Forward battery compartment door came off in cruise flight. Door latch was not secured prior to flight. (USA)

2 PRECAUTIONARY LANDINGS ■ Forward fuel boost light came on. Postlanding inspection revealed fuel seeping at boost pump pressure switch. (USA) ■ Master caution light came on during approach. Hydraulic filter indicator was found extended after shutdown. Indicator was reset and filters changed. (USA)

SAFETY OF FLIGHT

Reference safety-of-flight message, R181600Z Sep 74, ZFF-6, subject: **One-Time Inspection for UH-1B/C/D/H/M Helicopters Equipped With Cargo Suspension Assembly, FSN 1560-921-8559, Bell Helicopter Company, P/N 204-072-024-1.** The purpose of the safety-of-flight message is to remove from further service defective external cargo suspension shaft assemblies that have not been heat-treated to produce the necessary hardness required of 170-200 KSI. □

UNITED STATES ARMY AGENCY FOR AVIATION SAFETY FORT RUCKER, ALABAMA 36360 AUTOVON NUMBERS

LOSS OF RESOURCES FROM THIS WEEK'S MISHAPS

FATALITIES: 0
INJURIES: 0
AIRCRAFT LOSSES: 0
ESTIMATED COSTS: \$32,196

Commander 558-3410/3819
Technical Research and Applications 558-6404/6410
Plans, Operations and Education 558-4812/6510
Aircraft Accident Analysis and Investigation 558-3913/4202
Management Information System 558-4200/2920
Publications & Graphics Division 558-6385/4218
After-duty tape recording of incoming calls to
be returned following day (hours: 1615 to 0730) 558-6510
Commercial: 255-XXXX

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LOH

DIVISION

Fatalities: 0 ■ Accidents: 0
Injuries: 0 ■ Estimated Costs: \$8,639

■ LTC David F. Stoutamire, Chief
558-4202

One incident and nine precautionary landings were reported.

OH-58

6 PRECAUTIONARY LANDINGS ■ Engine chip detector light came on. Plugs were cleaned and reinstalled, and aircraft was ground-run about 7 minutes when chip detector light came on again. Disposition is pending results of oil sample analysis. (USA) ■ Transmission oil pressure light came on. Pressure sensing unit malfunctioned. EIR submitted. (USA) ■ Transmission chip detector light came on. Metal flakes were found on magnetic plugs and in oil filter. Plugs were cleaned and filter changed, and chip detector light came on after 15 minutes of ground runup. EIR was submitted and transmission forwarded to ARADMAC for teardown analysis. (ARNG) ■ Transmission oil hot lights of three aircraft illuminated. One was caused by loose wire and one by faulty sensing plug. The third case also involved a transmission oil pressure light with a large metal chip found on the magnetic plug. Aircraft is grounded pending results of oil sample analysis. Suspect internal failure. (USA)

TH-55

1 INCIDENT ■ Instructor pilot allowed student pilot to decelerate excessively at too low an altitude during practice straight-in autorotation. Tail skid and tail rotor blades struck runway. Tail rotor blades struck tail boom and tail skid, and broke away. (USA)

3 PRECAUTIONARY LANDINGS ■ Engine tachometer fluctuated excessively during hover. Inspection revealed malfunction of tachometer. EIR was submitted. (USA) ■ Engine oil pressure dropped below red line during hover. Caused by malfunction of sending unit. EIR was submitted. (USA) ■ Unusual noise was heard during landing. Caused by failure of aft bearing of lower pulley assembly. EIR was submitted. (USA)

THOUGHT FOR THE WEEK

The icy winds of winter doth cometh. Getteth thy head screwed on properly so that thou considereth the perils of ice, wind, and turbulence. Thy fronts do closeth in and restricteth thy capabilities to reacheth thy alternate with safety. Planneth ahead or thy pot runneth over! □

CARGO/SYSTEMS

Fatalities: 0 ■ Accidents: 0
Injuries: 0 ■ Estimated Costs: \$14,000

DIVISION

■ CW4 Richard D. Havenstrite, Chief
558-4202

Ten precautionary landings were reported.

CH-47

8 PRECAUTIONARY LANDINGS ■ During coordinated left turn at 65 knots indicated airspeed, copilot's left jettisonable door came off. This is a second occurrence for this aircraft. Aircraft has been grounded pending technical evaluation. (USA) ■ As aircraft lifted to hover, No. 1 engine would not increase above 72 percent N1 nor respond to emergency or normal beep. Investigation revealed defective N2 actuator. (USA) ■ Forward transmission chip detector light came on. Cause to be determined. (USA) ■ Pilots detected fuel fumes in cockpit during flight. Flight engineer reported fuel venting from general area of left main fuel tank filler cap. Emergency was declared, No. 1 engine shut down, and running landing made. Deteriorated filler cap seal allowed fuel to escape around filler cap. (USA) ■ Copilot said he

smelled strong odor like hydraulic fumes and burning wire during takeoff. Aircraft was released for flight after extensive postlanding inspection did not reveal any problem areas. (USA) ■ No. 2 engine chip detector light came on. Light remained on for approximately 3 minutes and then went out. Landing was made with both engines operating normally. Caused by loose wire to No. 2 engine transmission chip detector unit. (USA) ■ Transmission chip detector light illuminated. Aircraft was flown for 10 miles to coastline and landing was made. Numerous small steel chips and flakes were found on combining transmission chip detector plug. System was drained and flushed, and serviceability check was performed. En route to home station, chip detector light came on intermittently. After reinspection of aircraft at home station, many small steel and brass chips and flakes were found on chip plug and in filter screens. Intermediate transmission was changed. (USA) ■ Aircraft was on final when tower advised pilot of oil leaking from aircraft. Pilot landed and confirmed oil leak. Lubrication line fitting was replaced to stop oil leak on No. 2 engine transmission. (USA)

CH-54

2 PRECAUTIONARY LANDINGS ■ Aircraft was on practice GCA when landing gear kneeled and caution light illuminated. Copilot attempted to recycle landing gear jacking switch and inadvertently turned generator switches off, resulting in total electrical failure. Generator switches were recycled, but generators would not pick up the load. Aircraft was landed and all electrical equipment turned off. Generators reset. Aircraft was checked by maintenance and released for flight. (USA) ■ Vertical jolt occurred several times during flight, accompanied by fluctuation in both 1st and 2nd stage servo pressure gauges. Landing was made. Maintenance officer determined that improper electrical impulses from No. 1 AFCS caused the problem. Aircraft was returned to home base with No. 1 AFCS disengaged. (USA) □

FIXED WING

Fatalities: 0 ■ Accidents: 1
Injuries: 0 ■ Estimated Costs: \$6,000

DIVISION

■ LTC Howard D. Deane, Chief
558-3901

One accident, one incident, and seven precautionary landings were reported.

T-41

1 ACCIDENT ■ Right wing tip was damaged and two panels of upper inboard portion of wing were buckled. This damage is considered to be the result of flight but was not reported or written up by anyone until discovered during a scheduled inspection. The mishap is presently under investigation to determine the cause. (USA)

2 PRECAUTIONARY LANDINGS ■ Aircraft was at 7,500 feet msl when engine began missing. All engine instruments remained stable. Landing was made at nearby airport. No. 3 cylinder was blown. (USA)

■ Engine chip detector warning light came on. Caused by loose magnetic plug. (USA)

U-21

1 INCIDENT ■ Pilot was checking heater operation during taxi-runup procedures. Inoperative vent blower combined with failure of vent differential pressure switch caused excessive amount of heat within heater combustion chamber. Combustion chamber of heater unit split at seams and burned remainder of heater compartment, destroying all heater components and adjacent wiring. Vent blower was known to be inoperative and was written up on form 2408-14. (USA)

1 PRECAUTIONARY LANDING ■ During maintenance test flight, when flaps were lowered to approach position, aircraft began slow right turn. Flaps were raised and aircraft returned to straight and level flight. When flaps were lowered again, right inboard flap remained up while all the others went down 100 percent. Attempts to raise flaps were unsuccessful and landing was made at home base. Caused by

failure of flexible shaft assembly. Cable separated from swedge retainer, allowing flap cable to disengage from flap actuator. (USA)

C-7

1 PRECAUTIONARY LANDING ■ Propeller rpm fluctuated during takeoff. Propeller lever was pulled back, propeller rpm kept within limits, and aircraft landed. Integral oil control (control and brush pad assembly), FSN 1610-902-3455, was replaced. (USA)

OV-1

1 PRECAUTIONARY LANDING ■ Immediately after takeoff on IFR SLAR mission, No. 1 engine chip detector caution light came on. Pilot remained under VMC, cancelled IFR with ATC, and landed. Examination of magnetic plug and oil could determine nothing unusual. Engine was serviced and run up without another light illumination. Aircraft was released for flight and has not had a recurrence. (USA)

U-8

2 PRECAUTIONARY LANDINGS ■ When traffic pattern altitude was reached after takeoff, and power was being reduced to slow cruise, No. 1 engine rpm dropped from 3200 to approximately 2700 and then returned to 3200. IP climbed to 4,500 feet and duplicated the conditions, resulting in the same momentary rpm loss. Postlanding examination of the magneto was conducted and "P" leads cleaned. Aircraft was test flown without a recurrence of rpm loss. (USA) ■ While practicing VOR approach, during normal power reduction, sudden power loss was noted on No. 2 engine. IP took control and, by manipulating the throttle, power was brought back up to 32 inches Hg. Aircraft was returned to home base but during downwind leg power could not be reduced below 30 inches Hg. Normal landing was made and No. 2 engine was shut down during rollout to aid in directional control. Right throttle control separated at engine side where rod end fits into cable housing sleeve. (USA)

T-42 OPERATORS

The following was extracted from letter No. 11, USAAVSCOM, Subject: T-42A Aircraft Problems and Recommended Action, dated 7 August 1974, and is provided for the benefit of those T-42 operators who do not have access to publications of this nature.

"Emergency Procedure for Alternator Failure. The operators manual does not contain emergency procedures for alternator failure. Action is in process to include these procedures; however, in the interim period, activities are advised to perform the following:

"If both alternators become inoperative, determine if failure is due to a faulty voltage regulator. Turn both alternators to the off position. Switch to the auxiliary voltage regulator, and turn the alternators back on. If the alternators remain inoperative, shut off all nonessential electrical equipment to minimize battery drain. Land aircraft as soon as practicable. If one alternator fails, shut off all nonessential electrical equipment. The remaining alternator should keep the battery charged, but landing the aircraft as soon as practicable is still recommended." □

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FLIGHT FAX

VOL. 2, NO. 6 ■ 14 NOVEMBER 1973

mishaps for the period of 26 OCT-1 NOV 1973

Icing Information Needed

Information is needed to continue research dealing with the operations of Army helicopters in icing conditions. If you experience icing effects during any helicopter flight, please fill out this questionnaire and mail to USAAAVS. The information will be used strictly for accident prevention purposes. Help us help you!

1. Aircraft: LOH UH AH CH
2. Time: Winter Spring Summer Fall Time of day: _____
3. Type of mission: _____ Location: _____
4. Flight Plan: VFR IFR
5. Weight: At max gross Slightly below gross Far below gross
6. Forecasted weather (temperature/dewpoint/precipitation): _____
7. Actual weather (temperature/dewpoint/precipitation): _____
8. Phase of flight icing encountered (mark each appropriate block):
 Takeoff Climb Cruise Landing Hover
9. Altitude: AGL _____
10. Indicated airspeed: _____ knots _____
11. Type icing: Clear Rime Frost
12. Intensity: Trace Light Moderate Heavy (TM 1-300)
13. Rate of buildup: _____
14. Problems encountered:

	Yes	No
Navigation	<input type="checkbox"/>	<input type="checkbox"/>
Communication	<input type="checkbox"/>	<input type="checkbox"/>
Control	<input type="checkbox"/>	<input type="checkbox"/>
Visibility	<input type="checkbox"/>	<input type="checkbox"/>
15. Where was ice first noticed? Rotor head Blades Intakes Windshield
 Landing gear Other (specify) _____
16. Was anti-ice equipment used? Yes No What and how effective? _____
17. Vibrations encountered? (Describe) _____
18. Effects on power? _____
19. Pilot experience: Hood or weather last 30 days _____ Last 60 days _____ Last 90 days _____
20. Other pertinent remarks: _____

Cut along dotted line, fold, staple, and mail.

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UTILITY/ATTACK

Fatalities: 2 ■ Accidents: 1
Injuries: 0 ■ Estimated Costs: \$511,362

DIVISION

■ MAJ Charles E. Toomer, Chief

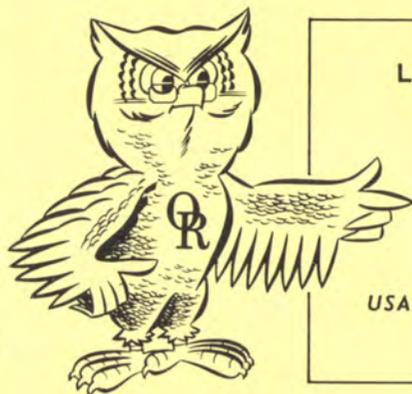
One accident, three incidents, four forced landings, and 29 precautionary landings were reported.

UH-1

2 INCIDENTS ■ Left chin bubble was broken when aircraft struck one wire of four-wire electrical powerline. ■ Crew chief on ground saw aircraft take off with loose cowling and advised tower. Tower recalled aircraft. Left engine cowling was damaged.

3 FORCED LANDINGS ■ Engines of two aircraft failed, one on takeoff and one during landing. Causes unknown, pending investigation. EIR's submitted. ■ Compressor stall occurred when IP took manual control of throttle while demonstrating emergency procedure for antitorque failure. Cause of compressor stall is unknown. Inspection is in progress.

24 PRECAUTIONARY LANDINGS ■ Engine oil temperature increased to 150° during takeoff. Thermal oil bypass valve (FSN 1560-731-8038) failed. EIR submitted. ■ Two transmission oil light illuminations were reported. One was caused by failure of transmission temperature thermostatic switch (P/N 124-112-230) and the other was caused by loose cannon plug on panel control box. One EIR submitted. ■ Two aircraft had hydraulic caution lights to illuminate in cruise flight with no pressure loss. Both were caused by malfunction of pressure switch (P/N 204-076-507-1). EIR's submitted. ■ Crew smelled hydraulic fluid during takeoff. Inspection revealed failure of filter bypass indicator preformed packing (P/N MS28775-014). ■ Batteries of two aircraft overheated. EIR's submitted. ■ Engine chip detector light came on in flight. Small amount of metal was found on detector plug. Plug was cleaned and re-installed, and aircraft released for flight. ■ Engine-driven fuel pump caution light illuminated. Pressure switch (P/N 204-060-008-1) failed. ■ Tail rotor chip detector light came on in cruise flight. Normal wear fuzz was found on plug. ■ Pilot felt high frequency vibration and tail rotor pedals became stiff during climb. Suspect internal failure of tail rotor servo (P/N 204-076-053-11). EIR submitted. ■ Egt gauge fluctuated between 300° and 400° and pedals became stiff at termination of precautionary landing. Inspection revealed egt fluctuation was caused by loose cannon plug and stiff pedals were caused by tail rotor chain chafing against cover. ■ Collective pitch control lever became excessively stiff in cruise flight. Cause unknown, pending inspection. ■ Fire warning lights of two aircraft illuminated. Water was found in cannon plug, causing one illumination, and no cause could be found for the second. ■ Master caution light flashed on and off intermittently. Master caution control panel (P/N 80-0099-11) was found defective and replaced. EIR submitted. ■ During DER check, egt increased to 590°. Power was reduced to approximately 15 pounds torque and descent was initiated. When power was reduced, loud bang was heard and aircraft yawed to right. Engine anti-ice valve (P/N 263-300-53) was stuck in



LOSS OF COMBAT EFFECTIVENESS FROM THIS WEEK'S MISHAPS

FATALITIES:	2
INJURIES:	0
AIRCRAFT LOSSES:	1
ESTIMATED COSTS:	\$539,399

USAAAVS: AUTOVON 558-6510/4714
Commercial AC 205, 255-6510/4714

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open position. EIR submitted. ■ Aircraft struck electrical wires during night landing. No damage was sustained. ■ Engine oil temperature rose to 100° and egt rose to 650° in flight. Caused by failure of anti-ice solenoid (P/N 263-300-53). ■ Two aircraft had transmission oil pressure caution lights to illuminate. Transmission primary internal oil filter gasket failed, causing one illumination, and frayed wire at oil pressure sending unit caused the other. ■ Pilot smelled hydraulic fluid in cruise flight and 5 minutes later lost hydraulic pressure. Caused by leaking irreversible valve. EIR submitted.

AH-1

1 ACCIDENT ■ Aircraft struck two 5/8-inch powerlines 35 feet above ground at about 130 knots. Tail rotor assembly and vertical fin separated and aircraft disintegrated after impact. There were two fatalities.

1 INCIDENT ■ During postflight inspection after NOE flight, both tail rotor blades were found cracked and rippled from probable tail rotor strike.

1 FORCED LANDING ■ Gas producer dropped to 55% during autorotation. IP took controls and made power-off landing. Caused by improper adjustment of flight idle stop.

5 PRECAUTIONARY LANDINGS ■ Two tail rotor chip detector light illuminations were reported. Normal wear fuzz was found on one detector plug and electrical wire separated from detector plug causing second illumination. ■ Transmission oil pressure was lost in flight. Caused by failure of transmission primary internal oil filter gasket (P/N 205-040-187-3). *Inspection indicated gasket had been reused.* ■ Pilot felt binding in cyclic during approach. Caused by malfunction of servo cylinder assembly (P/N 204-076-005-11). ■ Engine oil bypass light and master caution light illuminated, followed by rise in engine oil temperature to 130°. Temperature rise was caused by failure of oil bypass valve (FSN 1560-076-9876). EIR submitted.

TRANSMISSION PRIMARY INTERNAL OIL FILTER GASKET

Failure of the transmission primary internal oil filter gasket continues to cause precautionary landings, forced landings, incidents, and accidents. So far this year, USAAAVS has recorded 30 precautionary landings attributed to failure of this gasket.

During calendar year 1972, USAAAVS recorded one minor accident and 31 precautionary landings and forced landings attributed to failure of the filter gasket. The minor accident resulted from a hard landing at termination of an emergency autorotation because of engine failure. The engine failed from ingestion of transmission oil which leaked from the internal filter. The accident investigation board determined the gasket was reused during the last intermediate inspection.

This gasket must be replaced each time the filter is removed, as stated in paragraph 7-9, TM 55-1520-210-20, Change 8. Also, the self-locking nuts will be replaced in accordance with paragraph 2-54, TM 55-1500-204-25/1, Change 11, which states: "All metal self-locking nuts shall not be reused in critical applications where failure could cause loss of the aircraft or endanger life." □

LOH

Fatalities: 0 ■ Accidents: 1
Injuries: 0 ■ Estimated Costs: \$21,707

DIVISION

■ LTC David L. Boivin, Chief

One accident, two incidents, two forced landings, and 12 precautionary landings were reported.

OH-58

1 ACCIDENT ■ IP was demonstrating right fixed pitch tail rotor failure to hover when toe of right skid grazed ground upon termination of maneuver. Aircraft rolled right, allowing main rotor blades to strike

ground. Aircraft came to rest on right side 10 feet from point of initial impact, sustaining major damage. Precipitation on windshield from light rainshowers on final approach may have clouded IP's vision and judgment.

2 INCIDENTS ■ Aircraft was taking off from field site when it struck a double strand of WD-1 commo wire strung (40 feet agl) across takeoff path. OAT gauge was torn from windshield, leaving 4-inch hole. *Pilots, be wary of the string-a-lings who insure wire is strung between two poles or trees that are reasonably close together.* ■ IP pulled pitch too high while demonstrating hovering autorotation. Tail-low hard landing resulted.

2 FORCED LANDINGS ■ Pilot reset signal light and initiated precautionary landing after engine relight came on in cruise flight at night. However, engine relight came on a second time and engine quit 10 feet above ground, requiring pilot to perform autorotational landing. Maintenance was unable to duplicate malfunction. Suspect double check valve was sticking, which contributed to malfunction. ■ Aircraft was on GCA approach (with little or no loading on engine) when N2 rpm soared to 115 percent plus. Engine then failed. EIR not reported. A WELL DONE for the above power-off emergency landings goes to CW2 Gary L. Sterling, Idaho National Guard, and CW2 Eric H. Young, 130th Eng Bn, Germany.

9 PRECAUTIONARY LANDINGS ■ Pilot experienced intermittent feedback in cyclic as hydraulic caution light came on, and turned off hydraulic control switch and made running landing. During touchdown, pilot was unable to move cyclic forward. EIR submitted on failure of tube assembly in flange which allowed for loss of fluid. ■ Running landing was made when pressure transmitter seal failed, allowing loss of hydraulic pressure. EIR not reported. A WELL DONE for successfully completing the above respective emergency running landings goes to CW2 Ande J. Albert, 3/4 Cav, Hawaii, and CPT John H. Christensen, Ft. Belvoir, VA. ■ Two aircraft had hydraulic switch failures. EIR's submitted. ■ Transmission chip detector lights of two aircraft came on because of metal fuzz on magnetic plugs. Oil samples submitted. ■ Two engine chip detector light illuminations were reported. Oil sample was submitted on one engine after small metal particle was found on magnetic plug. The other engine is being changed due to metal chips on magnetic plug after engine was flushed four times. ■ Tail rotor chip detector light came on. Caused by metal particles from normal wear on magnetic plug.

OH-6

3 PRECAUTIONARY LANDINGS ■ Loud humming noise was heard and high frequency vibration was encountered during cruise flight. Tail rotor tape (installed in open atmosphere with temperature of 8° C.) separated from tail rotor. ■ Engine-out light and audio flashed, with instruments remaining in normal range. Pilot initiated descent when smoke was detected in cockpit. Engine-out and audio flashed again. Fire was suspected when white glow reflected in left side of chin bubble prior to landing. Battery wire harness had grounded out. A WELL DONE for keeping his cool during a hot situation goes to CPT Lawrence W. Shannon, Mississippi National Guard. ■ Transmission oil low pressure warning light came on. Oil filter and pressure sending unit were contaminated with bits of carbon. Transmission was flushed and new oil filter and sending unit installed.

THOUGHT FOR THE WEEK

HORSE PLAY FOR WHAT IT'S WORTH! (A "sad but true" story.) Army copter pilot goes for ride in Air Force jet. WOW! Now, he owes his buddy a ride in a helicopter—his first ride. Pilot and buddy meet after dinner for the flight. However, no flight plan is filed as the exact destination and route of flight is not known (can't file if you don't have a mission and know where you are going—right?). Pilot scrapes up a flight suit and helmet for his buddy. (Doesn't fit—so what, not expecting to have an accident—just going for a joy ride. Don't need gloves or boots either.) Once airborne, the route of flight is changed because buddy forgets his camera, so it is decided to view the river today and take pictures of the mountains tomorrow. After 30 minutes of flying, the river appears in sight from the pilot's flight level of 300 feet.

It is decided to overfly the boats, rafts, and canoes to get a better look. Altitude is now 200 feet. Buddy comments that this low level flying is "hot stuff" and he wished he could drive his jet this low. Altitude is then 20 feet. Pilot tells buddy that he knows there are lots of wires in the area and the setting sun on the dirty windshield is blinding—so watch out. Upon finishing their cigarettes, both men scream "wires!" Pilot initiates an abrupt climb as the aircraft strikes and severs four 1/8-inch-diameter wires. Pilot thinks he still has "control;" however, when the aircraft starts a left turn—pilot realizes he didn't initiate it. The controls are ineffective (pitch change link severed by the wires). Nose of the aircraft pitches down into a dive and crashes onto the river bank. Passenger, who is the pilot's brother-in-law, doesn't live to take pictures the following day and the pilot doesn't feel up to it. After impact, witnesses hear the pilot muttering, "I can't believe it" several times. Neither could the accident board. Nor can we and we ask . . . is it worth it? □

CARGO

Fatalities: 0 ■ Accidents: 0
Injuries: 0 ■ Estimated Costs: \$5,830

DIVISION

■ CW4 Gerald D. Verbeek,
Acting Chief

One incident and four precautionary landings were reported.

CH-47

4 PRECAUTIONARY LANDINGS ■ No. 1 engine chip detector light came on in flight. Normal wear was found on magnetic plug. Plug was cleaned and reinstalled, and mission continued. ■ Aircraft was in cruise flight when flight engineer detected utility pressure filter leaking and smoking. Pilot landed aircraft without mishap. Caused by deterioration of filter seal. New seal and filter were replaced, and aircraft returned to service. ■ No. 1 engine chip detector light came on during climbout. Investigation revealed normal wear on chip detector plug. Plug was cleaned and reinstalled, and aircraft returned to service. ■ Forward transmission chip detector light came on in flight. Caused by normal metal wear. Plug was cleaned and reinstalled, and aircraft released for flight.

1 INCIDENT ■ Right aft gear struck rock during deceleration for touchdown to landing pad. Landing gear separated from aircraft and landing was aborted. Aircraft was returned to home station for maintenance assist in shutdown and damage assessment.

Correction to FLIGHTFAX for week of 12–18 October 1973:

CH-47

3 PRECAUTIONARY LANDINGS should have read **2 PRECAUTIONARY LANDINGS**. The following CH-54 precautionary landing was reported as a CH-47: Aircraft was flying in IMC when auxiliary powerplant (APP) fire warning light illuminated. Crew obtained clearance to descend to VMC. Fire light went out before landing was made. APP and fire warning system was checked, but cause for illumination could not be determined. □

FIXED WING

Fatalities: 0 ■ Accidents: 0
Injuries: 0 ■ Estimated Costs: \$500

DIVISION

■ LTC Charles E. Humphries, Chief

One incident and four precautionary landings were reported.

U-21

1 INCIDENT ■ Aircraft vibrated for approximately 3 seconds during IFR training flight. Pilot reduced power, felt bump in controls, and discovered right horizontal stub VHF dipole antenna was gone. Suspect fatigue failure of bolts.

U-8

4 PRECAUTIONARY LANDINGS ■ Pilot was preparing to land when left main gear would not indicate down and gear handle light indicated in-transit when gear was extended normally. Pilot applied emergency procedures, manually extended gear to stop, confirmed position of gear by flyby of tower because he still did not have safe indication in cockpit, and landed. Postlanding check revealed dirty microswitch (FSN 5930-636-4345, P/N MS 25011-1). ■ Sudden vibration was felt during cruise flight, with loss of 20 knots airspeed and loss of power on No. 1 engine. Caused by failure of cylinder and piston assembly (FSN 2810-954-3965, P/N 73191-3). Engine history: 2,923 total time, 1,590 since overhaul. Power settings were 2600 rpm and 30 inches Hg. All engine indications were normal. ■ No. 1 engine lost power to 25 inches Hg. during takeoff. Emergency was declared and, during approach for landing, pilot could not reduce power on No. 1 engine below 25 inches Hg. Engine was secured, propeller feathered, and landing made. Crash facts message reported possible disconnection of main fuel line to supercharger during takeoff. ■ During takeoff roll at approximately 85 knots, crew felt aircraft sink and noted light bump. Crew had not placed gear handle in up position but had gear-up indication in cockpit. Considering this unusual, crew decided to land and investigate. When gear was cycled down for landing, pilot got unsafe indication. Flyby of tower confirmed left main gear was not fully down. Pilot completely recycled gear six times and always got gear-up indication, but could not get safe gear-down indication. He then manually extended gear, got safe down indication, and landed. Caused by loose wire at toggle switch in gear handle. Entire gear handle assembly was replaced, retraction tests and test flight satisfactorily accomplished, and aircraft released for flight. Suspect someone had cycled gear handle on ground, leaving it in down position but activating gear system so that main gear weight limit switch was all that kept gear down prior to first takeoff, resulting in premature retraction of gear during takeoff. □

NATIONAL GUARD

Fatalities: 3 ■ Accidents: 1
Injuries: 0 ■ Estimated Costs: \$293,140

BRIEFS for Month of October

■ LTC Charles E. Humphries
Chief, Fixed Wing Division

One accident, one incident, one forced landing, and 24 precautionary landings were reported.

UH-1

1 ACCIDENT ■ Aircraft crashed during night VFR service mission, resulting in fatal injuries to the three crewmembers and major damage to aircraft. Investigation continues.

1 INCIDENT ■ During IFR service mission, while cruising in ragged cloud deck at 3,000 feet msl, loud noise was heard, followed by airframe noise and vibrations. Pilot made precautionary landing. Examination revealed upper left vent air scoop had incident metal damage due to bird strike.

16 PRECAUTIONARY LANDINGS ■ Crew noticed smoke from battery vent and heat in chin bubble. Battery switch was turned off. Postlanding check revealed starter relay had stuck, causing continuous drain on battery. Battery overheated and starter relay melted. ■ Aircraft developed severe 1:1 vertical vibration during maintenance test flight. Suspect failure of 540 rotor system. Rotor head had 11 hours since overhaul. ■ Engine oil pressure increased to 85 psi during cruise. Caused by faulty engine oil pressure transmitter. ■ Engine chip detector warning light came on after approximately .8 hour of maintenance test flight. Minor amount of fuzz was found on magnetic plug. No metal was found on oil screen. Special oil sample was submitted for analysis. ■ Hydraulic power was lost during cruise. Hydraulic irreversible valve (FSN 1650-911-7349, P/N 42550-2) failed internally and allowed hydraulic fluid to leak out. ■ Crew detected fuel fumes twice in brief period of time, followed by loss of engine rpm. They diagnosed loss of power as low side governor failure and went to emergency mode with manual throttle control. Landing was made, using manual control. No further information was provided. ■ Tail rotor control pedals became stiff during cruise flight. Cyclic and collective controls remained normal. Tail rotor control

pedals felt like servos-off operation. Suspect tail rotor servo malfunction. ■ Tail rotor chip detector warning light came on. Moisture caused 90° gearbox magnetic plug to short out. Plug was removed, cleaned, and reinstalled. ■ IP noticed master caution and transmission oil pressure and temperature segment lights come on. Caused by malfunction of cannon plug (FSN 5935-729-8735, P/N 26-OPS) on panel control box. ■ Copilot saw clear fluid discharge onto copilot's windshield from upper battery vent tube. Postlanding check revealed battery had sustained thermal runaway, cause undetermined. Voltage regulator and battery vent system were checked OK. ■ Aircraft was landing during emergency night medical transfer mission when it struck three temporary wires strung between series of light poles. Two small gauge wires separated from poles, but aircraft was not damaged. Landing area had been selected by three state patrolmen who indicated they had not noticed the wires when choosing the landing site in a well-lighted 20-acre parking lot. Landing area was marked by three police cruisers with flashing lights and emergency flares. Police ground guide was also using flares. Weather was clear and visibility unrestricted. ■ Fire detection warning light came on during cruise flight. Examination following power-on landing in open field revealed moisture in cannon plug. Cannon plug was cleaned, dried, and reinstalled. ■ Hydraulic caution light came on intermittently and light feedback was felt in controls. Suspect malfunction of hydraulic pump (FSN 1650-516-2183, P/N AA60321-R2A). ■ Tail rotor chip detector warning light came on. Caused by fuzz on magnetic plug. Plug was cleaned and reinstalled, special oil sample submitted, and aircraft grounded, pending analysis of oil sample. ■ Pilot was on final for landing when he noticed burning odor in cockpit. Electrical failure occurred at 2-foot hover. Battery failed from internal cell resistance, causing thermal runaway. Main generator also failed. Battery was destroyed from overheating and other electrical fixtures sustained slight damage. ■ Transmission chip detector warning light came on. Caused by moisture on magnetic plug. Plug was cleaned, dried, and reinstalled.

OH-58

1 FORCED LANDING ■ Pilot noticed TOT and gas producer readings were abnormal during climbout. As he started to lower collective pitch control to reduce power, loud grinding noise was heard. Pilot established autorotative glide and engine failed during final phase. No additional information was reported.

3 PRECAUTIONARY LANDINGS ■ Fuel boost caution light came on after takeoff. Fuel boost circuit breaker was extended. Attempts to reset circuit breaker were unsuccessful. Nothing further was reported. ■ Hydraulics caution light came on during cruise, but hydraulics did not fail. Caused by failure of hydraulic pressure switch (FSN 5930-135-4282, P/N 206-076-365-1). ■ Engine chip detector warning light came on. Small metal particle was found on magnetic plug. Plug was cleaned and engine run with no further illumination of caution light. Special oil sample was submitted for analysis.

OH-6

3 PRECAUTIONARY LANDINGS ■ Main transmission chip detector warning light came on in level flight. Aircraft was returned approximately 15 miles to home base for landing. Suspect faulty magnetic plug connection. ■ Transmission oil low pressure warning light came on. Postlanding check revealed transmission oil filter element and pressure sender were contaminated with bits of carbon. Transmission oil filter element and pressure sender were replaced, transmission flushed and reserviced, MOC completed, and aircraft released for flight. ■ Loud humming noise was heard and high frequency vibration felt throughout the aircraft during cruise flight. Pilot landed to investigate and discovered protective tape had come off one tail rotor blade in flight. Further inquiry determined tape had been installed out-of-doors in temperature of 8° C. and did not properly adhere to blade.

OV-1

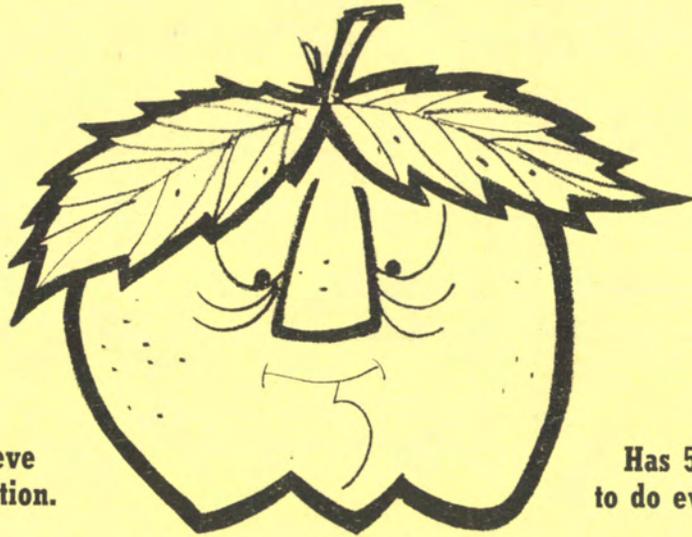
1 PRECAUTIONARY LANDING ■ Landing gear was lowered during approach and nose gear gave unsafe condition. After several unsuccessful recycles, emergency system was used and aircraft landed. Micro-switch was out of adjustment, giving unsafe indication even when gear was down and locked.

U-6

1 PRECAUTIONARY LANDING ■ Electrical insulation smoke and fumes began emitting from under instrument console during cruise flight. Master switches were shut off and smoke stopped. Suspect frayed wire and/or internal electrical failure of circuit breaker caused short. UHF emergency standby circuit breaker also popped out. □

WANTED

FOR CORRECTION



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in standardization.

Has 57 ways
to do everything.

"Heinz" MURPHY

REWARD

BETTER MAINTENANCE AND SAFER FLYING

MURPHY'S LAW

"If an aircraft part can be installed improperly — someone will install it that way."

HOURS FLOWN AND ACCIDENT AND INCIDENT RATES BY COMMAND

COMMAND	ALL AIRCRAFT			ROTARY WING			FIXED WING		
	FIRST QUARTER FY 74			FIRST QUARTER FY 74			FIRST QUARTER FY 74		
	FLYING HOURS IN 1,000's	RATE		FLYING HOURS IN 1,000's	RATE		FLYING HOURS IN 1,000's	RATE	
	ACCIDENT	INCIDENT		ACCIDENT	INCIDENT		ACCIDENT	INCIDENT	
WORLDWIDE	372	6.45	15.59	317	5.99	15.14	55	9.08	18.15
TRADOC	119	5.04	12.59	104	4.79	12.45	15	6.77	13.54
FORSCOM	117	4.28	26.51	106	2.82	28.24	11	18.66	9.33
8th ARMY	18	22.82		17	18.25		1	91.41	
USARAL	8	12.65		7	13.83		1		
USAREUR/7th	52	9.66	3.86	48	8.38	4.19	4	25.00	
USARSO	3	35.91		2	44.09		1		
USARPAC	12	16.42	16.42	10	20.63	20.63	2		
USAMC	25		15.82	16		6.34	9		31.59
ARADCOM	3			2			1		
HQ DA	3			1			2		
MDW	6		17.16	2			4		27.87
* USAAVNS	61	3.27	19.60	56	1.78	19.53	5	20.37	20.37
* USAPHS	31	9.81	3.27	31	9.81	3.27			
** RESERVE	24	4.16	8.33	21	4.75	9.50	3		
** NAT'L GUARD	97	11.34	11.34	91	12.10	8.80	6		49.57

* Included in TRADOC

** Not included in Worldwide

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FLIGHT FAX

VOL. 2, NO. 7 ■ 21 NOVEMBER 1973

mishaps for the period of 2-8 NOVEMBER 1973

SPAGHETTI AND MEATBALLS

LOH DIVISION THOUGHT FOR THE WEEK, APPLICABLE TO ALL AIRCRAFT

Two more aircraft were victims of the guided missile command link wires this week. These wires become potential hazards when the tow missiles are fired over wooded or bushy areas. The wires may be suspended off the ground while strung and laced between the bushes and trees like spaghetti. Due to the minute diameter (0.0063 inch) of the wire, it is more difficult to detect than spaghetti. Also, it is much stronger with a nominal tensile strength of 490,000 psi, which allows it to stretch prior to breaking. While the breaking strength of this wire is only 14 pounds, its thin gauge poses a

serious cutting threat to personnel and equipment. Personnel riding motorcycles, bicycles, or in open jeeps may get their day cut short upon contact with this wire. Getting all wrapped up in your work is another threat as this wire has the tendency to wrap and stretch around whirling components. Helicopter tail rotor and main rotor systems are particularly vulnerable. The wire ensnares the control linkage and cuts seals to the point that loss of aircraft control is possible. Gunship and scout pilots who fly in simulated war games should beware of this invisible enemy or they could become a meatball entangled in the spaghetti.

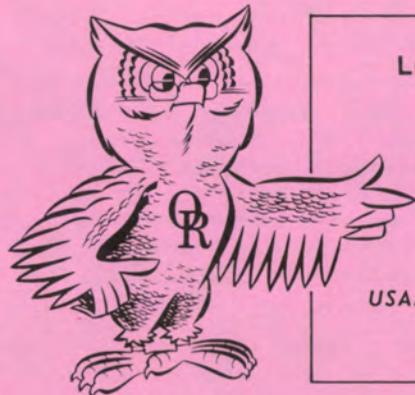
MORE FUEL FOR THOUGHT

OH-6 and OH-58 practice autorotations and rapid engine decelerations can now be performed while using alternate fuel JP-5, Jet A, and A1. However, the following caution (which is an approved change that will appear in the forthcoming revised OH-6 dash 10 and OH-58 Change 5) must be adhered to:

CAUTION

Prior to performing the first practice autorotation or rapid engine deceleration of the day, insure that the requirements of the engine deceleration check (reference TM 55-2840-231-24) are met.

USAAVSCOM authorizes units to make the above "pen and ink" change to the OH-6 dash 10 by deleting paragraph 7-8b(2) and to the OH-58 dash 10 by deleting 7-17b(2) and inserting the above caution in both manuals (with present published NOTE remaining). Change approved by W. J. Fisk, USAAVSCOM engineer, autovon 698-5356.



LOSS OF COMBAT EFFECTIVENESS FROM THIS WEEK'S MISHAPS

FATALITIES:	0
INJURIES:	0
AIRCRAFT LOSSES:	0
ESTIMATED COSTS:	\$43,292

USAAAVS: AUTOVON 558-6510/4714
Commercial AC 205, 255-6510/4714

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UTILITY/ATTACK

Fatalities: 0 ■ Accidents: 1
Injuries: 0 ■ Estimated Costs: \$37,300

DIVISION

■ MAJ Charles E. Toomer, Chief

One accident, one incident, one forced landing, and 20 precautionary landings were reported.

UH-1

1 INCIDENT ■ One main rotor blade was damaged when jeep with antenna drove under turning blades.

1 FORCED LANDING ■ Pilot heard loud grinding noise followed by illumination of master caution and engine chip detector lights. Engine lost power and autorotation was made to open field. Suspect failure of No. 2 bearing pack.

13 PRECAUTIONARY LANDINGS ■ Aircraft developed severe vibration in cruise flight. Postflight inspection revealed lower skin aft of main rotor blade spar had 3-inch separation cordwise. EIR submitted. ■ Engine fuel pump light illuminated during takeoff. Caused by malfunction of fuel control (P/N 84-20085). EIR submitted. ■ Fire warning lights of two aircraft illuminated. Internal failure of control alarm (FSN 6340-627-9180) caused one illumination and fire detector system of second aircraft was inspected and tested, but malfunction could not be duplicated. ■ While demonstrating emergency governor operations, IP failed to retard throttle prior to placing governor in emergency position and engine rpm increased to 7000. ■ No. 2 hydraulic caution light came on during takeoff. Inspection revealed broken hydraulic tube (P/N 204-076-37401). ■ Engine chip detector light came on in cruise flight. Normal wear fuzz was found on detector plug. ■ Tail rotor chip detector lights of three aircraft illuminated. Two illuminations were caused by normal wear fuzz on detector plug. Special oil sample has been submitted for analysis from the other aircraft. ■ Transmission chip detector illuminated in cruise flight. Caused by short in electrical wiring. ■ Battery overheated due to improper servicing. ■ Transmission oil pressure gauge fluctuated during landing. Cause unknown, pending investigation.

AH-1

1 ACCIDENT ■ Tail rotor struck ground during PRACTICE TOUCHDOWN AUTOROTATION. Tail boom, tail rotor blades, and drive shaft covers were damaged.

7 PRECAUTIONARY LANDINGS ■ Two aircraft lost oil pressure in cruise flight. Transmission oil cooler drain valve fitting (P/N 465C62NSW) failed on both aircraft, causing transmission oil to be lost. EIR's submitted. ■ Fuel filter caution lights of two aircraft illuminated. Filters were removed and cleaned and both aircraft were released for flight. ■ Pilot smelled smoke in flight. After landing, short was found in ICS relay (P/N 209-075-323-1). EIR submitted. ■ Master caution light came on in flight, followed by failure of No. 1 hydraulic system. Caused by internal failure of servo (P/N 204-076-00511). EIR submitted. ■ N2 rpm fluctuated several times during cruise flight. MOC and test flight were accomplished and problem could not be duplicated. Aircraft was released for flight.

NOTICE: Reference TM 55-1520-221-30, page 3-11, Change 13, "Special Inspection." The note under the 300-hour inspection is in error. This should read: The portion of this inspection applicable to the trunnion bearing need not be performed if elastomeric type trunnion bearings are installed. Teflon lined feathering bearings must be inspected. □

LOH

Fatalities: 0 ■ Accidents: 0
Injuries: 0 ■ Estimated Costs: \$5,886

DIVISION

■ LTC David L. Boivin, Chief

Four incidents, one forced landing, and eight precautionary landings were reported.

OH-58

4 INCIDENTS ■ Two aircraft were being used on separate NOE scout missions to locate targets for gunship when they encountered guidance wires from previous tow missile firings. Wire wrapped around swashplate assemblies, cutting grease seals, with damage to swashplates. ■ Pilot lost visual reference with outside when cabin windows fogged over during hover. Aircraft landed hard, resulting in bent cross tubes. Relative humidity was 86 percent (temperature-dewpoint spread of 48°-44° F.). *The OH-58 defroster system affords minimal efficiency (especially in the removal of frost). Therefore, it is recommended that additional ground time be utilized for wamup (with defrosters on) when relative humidity is high to avoid fogged-over windshields. A PIP to correct this deficiency was disapproved by AMC due to funding. Submit EIR's if your*

OH-58 defrosters frost you. ■ During approach to confined area, main rotor blade struck tree limb, causing damage 3 inches in from tip.

1 FORCED LANDING ■ Student lowered collective after IP rolled throttle off to idle detent. SP noticed N2 fluctuating and began power recovery at 250 feet agl. However, engine did not respond so IP took controls and completed autorotation. Test flight could not duplicate the situation. Aircraft had recently been returned to active flying status after being on float status for many months. Statistical guess says fuel control malfunctioned. A WELL DONE for a successful emergency power-off landing goes to CW2 Ronald E. Manning, Fort Lee, VA.

5 PRECAUTIONARY LANDINGS ■ Main rotor blades struck tree branch during hover in confined area. ■ EIR was submitted on hydraulic pressure switch failure during hover. ■ Pilot was a believer and initiated precautionary landing when engine oil bypass light came on in cruise flight. Engine oil pressure began to fluctuate on short final. Oil line fitting was improperly installed. ■ Loose wire on magnetic plug caused transmission chip detector light to illuminate during NOE. ■ Transmission oil pressure warning light came on during climb. High side oil pressure switch was defective. *Unit had yet to comply with MWO 55-1520-228-30-18 for the removal of the OH-58 main transmission oil high pressure switch.*

OH-6

2 PRECAUTIONARY LANDINGS ■ Oil was noted on inside of pilot's door. Pilot then saw oil spraying out right front of transmission area. After landing, pilot noted oil on back of helmet and flight jacket. Transmission oil filler cap was not secured properly and retaining spring on cap had to be replaced. ■ Transmission was changed when large metal sliver and numerous metal filings were found on magnetic plug after chip detector light illuminated.

TH-55

1 PRECAUTIONARY LANDING ■ Sliver of metal on magnetic plug caused transmission chip detector light to illuminate. Special oil sample was submitted. □

CARGO

Fatalities: 0 ■ Accidents: 0
Injuries: 0 ■ Estimated Costs: \$0

DIVISION

■ CW4 Gerald D. Verbeek, Acting Chief

Three precautionary landings were reported.

CH-47

2 PRECAUTIONARY LANDINGS ■ Aircraft was at 10-foot hover when No. 2 SAS and flight boost warning lights illuminated. No. 2 flight boost hydraulic pressure went to zero and aircraft was landed. No. 2 boost hydraulic line (P/N 114H-2100-87) was chafed through by support assembly, P/N 114H-2200-17, page 692, fig. 116, items 36, 39 (TM 55-1520-209-34P1). Hydraulic tubing was wrapped with antichafe tape at support assembly. Aircraft was repaired on site and returned to service. ■ No. 1 engine static beep failed at 82 percent N1. Engine would not respond to normal AC beep and could be decreased only when using emergency DC beep. Running landing was made and aircraft was thoroughly checked out and test flown by maintenance. Failure could not be duplicated and aircraft was released for flight.

CH-54

1 PRECAUTIONARY LANDING ■ Aircraft was at hover with cargo hook in retract mode. Cargo hook continued to retract after switch was released, and hook became lodged in hook well, breaking utility hydraulic line. Cause unknown. Aircraft status unknown. □

FIXED WING

Fatalities: 0 ■ Accidents: 0
Injuries: 0 ■ Estimated Costs: \$106

DIVISION

■ LTC Charles E. Humphries, Chief

Two incidents, one forced landing, and six precautionary landings were reported.

OV-1

1 INCIDENT ■ Right hatch blew open during climbout, resulting in damage to door hinges and surrounding skin. Hatch was not properly secured after crew entry.

2 PRECAUTIONARY LANDINGS ■ Pilot was preparing to land during VFR maintenance flight when landing gear indicator indicated right main gear was not locked when extended for landing. Visual inspection by

mirror from cockpit confirmed gear was not locked. Gear was recycled and right main gear still indicated not locked. Pneumatic gear extension system was then activated, resulting in down-and-locked indication. Nothing further was reported. ■ Pilot was on test flight for auto-pilot when No. 1 engine chip detector light came on during cruise. Pilot returned to home base where AOAP Laboratory recommended engine change. Engine history: 463 hours since new, negative overhaul.

U-21

1 INCIDENT ■ Postflight inspection revealed damaged left horizontal stabilizer approximately 1½ feet outboard. Dent was approximately 10 inches wide and 4 inches deep. Caused by bird strike. Time or phase of flight could not be determined.

T-41

1 FORCED LANDING ■ Engine began to fail approximately 50 feet after takeoff. Throttle was closed and aircraft landed straight ahead on runway. Postlanding examination revealed fuel was contaminated by water which was traced to tanker truck.

T-42

1 PRECAUTIONARY LANDING ■ When landing gear was retracted after takeoff, nose gear failed to show up indication. Gear was cycled down, tower verified gear position, and aircraft landed. Nut (P/N A872-012) had come off position indicator link (P/N 95-324006-35).

U-8

3 PRECAUTIONARY LANDINGS ■ Manifold pressure on No. 2 engine fluctuated during descent, and engine ran rough for approximately 15 seconds and quit. Fuel pressure was normal, induction air system was in filter position, and alternate air on. Engine restart in the air was unsuccessful. Postlanding inspection revealed failure of induction valve assembly (FSN 1560-769-6297) caused engine to remain in ram air position when pilot selected filtered air. Suspect inlet icing resulted from visible moisture/4° C. condition that existed. ■ Engine chip detector warning light came on immediately after takeoff. Small metal particles on magnetic plug were caused by normal wear. ■ No. 2 engine cylinder head temperature rose from 170° to 190° and engine oil pressure dropped from 60 psi to 10 psi. Engine oil temperature remained constant at 70°. During shutdown of No. 2 engine when power was reduced to 10 inches Hg., loss of oil pressure caused propeller to feather. Postlanding check revealed only 1 quart of oil was remaining in engine. □

CORRECTION

DA PAMPHLET 358-1, referenced on the front page of the Vol. 2, No. 5 *Flightfax*, dated 7 November 1973, should have read DA PAMPHLET 385-1. Orval regrets this mistake.

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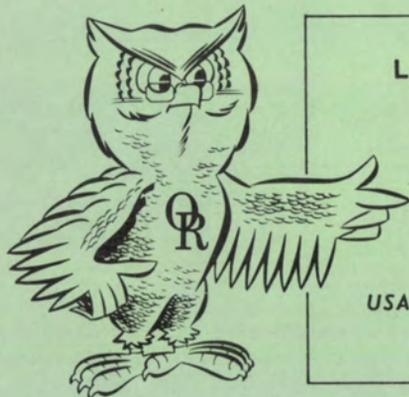
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LOSS OF COMBAT EFFECTIVENESS FROM THIS WEEK'S MISHAPS

FATALITIES:	0
INJURIES:	3
AIRCRAFT LOSSES:	0
ESTIMATED COSTS:	\$178,304

USAAAVS: AUTOVON 558-6510/4714
Commercial AC 205, 255-6510/4714

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UTILITY/ATTACK

Fatalities: 0 ■ Accidents: 1
Injuries: 3 ■ Estimated Costs: \$78,000

DIVISION

■ MAJ Charles E. Toomer, Chief

One accident, one incident, and 14 precautionary landings were reported.

UH-1

1 ACCIDENT ■ Aircraft hovered rearward into parked aircraft. Tail rotor and main rotor separated from aircraft, and aircraft landed upright. Three minor injuries were sustained. Investigation is in progress.

1 INCIDENT ■ Marker panel blew up and through main rotor system, damaging both blades.

13 PRECAUTIONARY LANDINGS ■ Master caution illuminated in cruise flight. Left and right fuel boost and engine fuel pump caution lights illuminated during approach. Master caution panel (P/N 4408-100-45) was replaced and aircraft was released after test flight. EIR submitted. ■ Hydraulic pressure was lost during takeoff. Hose assembly (P/N MS 87028KO3600) was installed incorrectly and chafing caused rupture. ■ Engine chip detector lights of two aircraft illuminated. Carbon deposit was found on one detector. Engine oil of second aircraft contained excessive metal and inspection is in progress. One EIR submitted. ■ Bird and aircraft collided in midair. Both were in STRAIGHT AND LEVEL CRUISE FLIGHT AND BOTH WERE VFR. Aircraft was not damaged. ■ IP noticed smoke in cockpit while hovering to takeoff pad. Windshield wiper motor shorted, causing smoke. EIR submitted. ■ Engine oil pressure was lost in flight. Caused by crack in weld of adapter assembly (P/N 1-680-560-01). Crack was probably caused by improper maintenance procedures during installation or removal of adapter assembly. EIR submitted. ■ Transmission oil pressure dropped to 30 psi on final approach. Hose assembly (P/N 87028KO360C) was improperly routed, which allowed chafing and partial loss of transmission fluid. EIR submitted. ■ Transmission oil pressure dropped to zero. After landing, short in electrical wiring was found which caused false pressure indication. ■ Transmission chip detector illuminated in cruise flight. Moisture was found on detector plug. ■ Tail rotor chip detector light came on in flight. Excessive metal particles were found on 90° gearbox detector plug. Gearbox was replaced. EIR submitted. ■ Engine fuel pump caution light illuminated. Caused by defective pressure switch (P/N 204-060-008). EIR submitted. ■ During practice instrument approach, loud "bang" was heard and aircraft yawed violently to right 30°. Aircraft was inspected and test flown but test pilot was unable to duplicate situation. Aircraft was released for flight.

AH-1

1 PRECAUTIONARY LANDING ■ Engine chip detector light came on in cruise flight. Metallic chips were found on detector plug and aircraft is grounded, pending results of oil analysis. □

LOH

Fatalities: 0 ■ Accidents: 0
Injuries: 0 ■ Estimated Costs: \$1,021

DIVISION

■ LTC David L. Boivin, Chief

Two incidents, two forced landings, and nine precautionary landings were reported.

OH-58

1 INCIDENT ■ Postflight inspection revealed left horizontal stabilizer was dented with portions of bird stuck to it. Pilot was unaware of bird strike during flight.

1 FORCED LANDING ■ Engine failed when pilot rolled throttle back to idle stop during transition training in hovering autorotations. Linkage was found loose on fuel control by maintenance. However, Jet A fuel had been used recently in the aircraft (estimate one-fourth tank remaining). Engine had quit on previous (ferry) flight (using Jet A) when throttle was rolled off to flight idle for engine shutdown.

7 PRECAUTIONARY LANDINGS ■ Engine oil bypass light came on due to loss of oil from oil tank. Pilot had failed to secure oil tank filler cap on preflight. ■ During cruise flight, pilot heard loud bang in rear of aircraft as engine surged. MOC could not duplicate problem. ■ Running landing was made when hydraulic pressure was lost intermittently during test flight. Hydraulic filter was clogged. System was flushed. ■ Fuel filter light came on. Caused by dirty filter. ■ Faulty temperature switch caused transmission oil hot light to illuminate. EIR not reported. ■ Engine chip detector light came on due to metal particles from normal wear. ■ Tail rotor chip detector light came on. Caused by metal fuzz on magnetic plug. Oil sample submitted for analysis.

OH-6

1 INCIDENT ■ Bird struck aircraft in traffic pattern, punching 6-inch hole in lower left windshield.

1 FORCED LANDING ■ Engine failed during power recovery from simulated forced landing. Insufficient torque on fuel pump tube assembly retaining nut allowed tube to come loose. A WELL DONE for a successful power-off emergency landing goes to CPT Wade H. Berry, Mississippi National Guard.

1 PRECAUTIONARY LANDING ■ Metal chips on magnetic plug caused oil chip detector light to illuminate. Transmission was flushed and oil sample submitted for analysis.

TH-55

1 PRECAUTIONARY LANDING ■ Fuel boost pump failed during cruise flight. EIR submitted.

THOUGHT FOR THE WEEK

FIRE MISSION IMPOSSIBLE: Many OH-58 and OH-6 pilots have the mistaken impression that the mission of the auto-relight system is to be the panacea for any and all engine ailments. This lack of knowledge can lead to a complacent attitude which then goes on to "bigger and badder" things such as forced landings . . . with no place to go. The sole purpose of the engine relight system is to reignite the engine when flameout occurs due to water, ice, or snow ingestion into the engine inlet plenum chamber. It is not designed to reignite the engine due to other causes of flameouts such as excessive amounts of water in the fuel or mechanical malfunctions. It may "light your fire" under these conditions but you shouldn't gamble on it. USAAAVS has received not one reported instance where the auto-relight system has reignited an engine once it has failed. It stands to reason that an engine with a mechanical malfunction cannot be cured solely by reignition. Nor can a flame be lit or remain lit that has a contaminated fuel source. Snow ingestion is a temporary state where the flame is extinguished by the sudden exposure to moisture, yet it can be started again because a mechanically sound engine is being fed a tidy amount of fuel. The system is great for its designed job; however, it is no "match" for contaminated fuel or mechanical malfunctions. A good preflight is the only "sure-fire" remedy for contaminated fuel. Remember, auto-relight is not an automatic cure-all that can perform the impossible. It may only light your engine-out warning bulb. □

CARGO

Fatalities: 0 ■ Accidents: 0
Injuries: 0 ■ Estimated Costs: \$0

DIVISION

■ CW4 Gerald D. Verbeek, Acting Chief

Three precautionary landings were reported.

CH-34

1 PRECAUTIONARY LANDING ■ Engine coughed or backfired in flight. Landing was made without damage. Caused by water in fuel system.

CH-47

2 PRECAUTIONARY LANDINGS ■ Aircraft was on approach to LZ when No. 2 engine chip detector light illuminated. Inspection revealed fuzz from normal wear. Chip detector was cleaned and aircraft returned

to service. ■ No. 2 engine chip detector light began to flicker during cruise flight. Aircraft returned to airfield and landed without mishap. No. 2 engine transmission chip detector lead wire was frayed. Wire was repaired, MOC performed, and aircraft released for flight. □

FIXED WING

Fatalities: 0 ■ Accidents: 3
Injuries: 0 ■ Estimated Costs: \$99,283

DIVISION

■ LTC Charles E. Humphries, Chief

Three accidents and four precautionary landings were reported.

OV-1

1 ACCIDENT ■ While taxiing for takeoff, pilot performed reverse propeller check. No. 1 propeller reversed but No. 2 did not. Aircraft turned left and skidded off runway into snowbank, shearing right main landing gear and nose gear. No. 2 engine and propeller had sudden stoppage and No. 2 propeller was bent. Temperature was -29° F. Suspect No. 2 propeller seal failure.

U-8

1 ACCIDENT ■ During simulated single engine operation, aircraft was landed with gear up, damaging right and left inbound flaps, No. 1 and No. 2 engine propeller tips, radio antennas, and skid bumper.

T-41

1 ACCIDENT ■ Aircraft struck wire while on road reconnaissance at 50 feet agl during training flight. Leading edge of right wing, right aileron, left elevator, vertical stabilizer, and rudder were damaged.

C-47

2 PRECAUTIONARY LANDINGS ■ Aircraft was in cruise flight at 14,000 feet on IFR service mission when No. 1 engine chip detector warning light came on. Landing was made to available intermediate airfield. During descent and landing, engine continued to operate and engine instruments indicated normal readings. Postlanding inspection of magnetic plug and oil screen revealed excessive amount of metal particles. Compression check of cylinders indicated all cylinders were good. Internal failure of engine was suspected and aircraft was grounded for engine change. Engine history: 5,495 hours total, 645 hours since overhaul. Power settings: 2350 rpm/27.2 inches Hg. ■ After level-off and establishing cruise power at 8,000 feet on IFR service mission, No. 2 engine chip detector warning light came on. Aircraft was returned to home base with both engines operating. Caused by fuzz on magnetic plug.

T-42

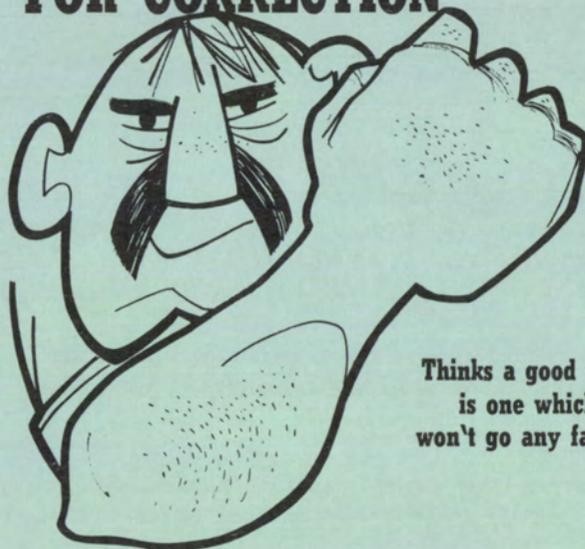
2 PRECAUTIONARY LANDINGS ■ Pilot was preparing to land at home base during transition training. When gear handle was placed in down position, gear failed to extend. After recycling gear handle several times, gear finally extended but nose gear did not indicate full down. Fly-by of the tower confirmed nose gear down, and landing was made. No cause of gear malfunction was identified. ■ Seagulls located around airfield flew into path of aircraft taking off on training flight. Aircraft was returned and postlanding inspection revealed no damage.

FIXED WING 360-DAY MISHAP DATA

	Last 30 Days	Last 90 Days	Last 180 Days	Last 360 Days
Injuries	0	0	0	4
Fatalities	0	0	2	17
Dollar Costs	\$99,889	\$326,879	\$2,472,075	\$3,646,570

WANTED

FOR CORRECTION



Disregards
torque limits

Thinks a good turn
is one which
won't go any farther

"Big Fist" MURPHY REWARD BETTER MAINTENANCE AND SAFER FLYING

MURPHY'S LAW

"If an aircraft part can be installed improperly - someone will install it that way."

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PRELIMINARY ARMY AIRCRAFT MISHAP DATA

FLIGHT FAX

VOL. 2, NO. 9 ■ 5 DECEMBER 1973

mishaps for the period of 16-22 NOVEMBER 1973

ATTENTION UH-1 and AH-1 PILOTS IS THE MAIN ROTOR BLADE SPAR ON YOUR BIRD ABOUT TO FAIL??

Do you know the daily inspection procedure to detect this new phenomenon being experienced in UH-1D, H, C, M and AH-1G main rotor blades? Read and comply with these USAAVSCOM Technical Advisory Messages:

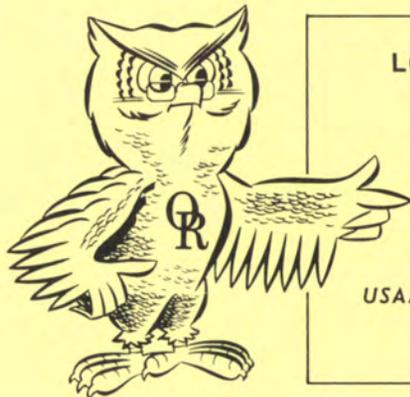
- For UH-1D's and UH-1H's-121901Z September 1973
- For AH-1G's and UH-1C/M's-190705Z November 1973

For copies of these messages contact USAAAVS, Autovon 558-6510.

Old habits never die, they just
fade away . . .

AND THE SOONER THE BETTER!

A CW3 who was in the habit of slowing down an OH-23 rotor blade by grabbing the tail rotor drive shaft tried it on an OH-58, with predictable results. X-rays showed the thumb was not broken, just painfully dislocated. Luckily the glove gave away before it strained him between the torque tube and the tail boom. Are you ever in so much of a hurry you can gamble a hand?



LOSS OF COMBAT EFFECTIVENESS FROM THIS WEEK'S MISHAPS

FATALITIES:	0
INJURIES:	0
AIRCRAFT LOSSES:	0
ESTIMATED COSTS:	\$15,766

USAAAVS: AUTOVON 558-6510/4714
Commercial AC 205, 255-6510/4714

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UTILITY/ATTACK

Fatalities: 0 ■ Accidents: 1
Injuries: 0 ■ Estimated Costs: \$13,733

DIVISION

■ MAJ Charles E. Toomer, Chief

One accident, two incidents, and 17 precautionary landings were reported.

UH-1

1 ACCIDENT ■ Tail rotor struck tree during clearing turn prior to takeoff. Light drizzle was falling and may have obstructed pilot's vision. Both tail rotor blades, 90° gearbox, and tail boom were damaged.

2 INCIDENTS ■ Main rotor blades struck small tree during tactical NOE training, damaging both blades. ■ Aircraft struck bird during climbout. Tail rotor and vertical fin drive shaft cover were damaged.

15 PRECAUTIONARY LANDINGS ■ Aircraft struck and severed two powerlines. Postflight inspection revealed no damage to aircraft. ■ Bird flew into main rotor system while aircraft was hovering. Aircraft was not damaged. ■ Fire detector warning light illuminated in cruise flight. Suspect fire detector control unit (P/N 227-02851). EIR submitted. ■ Two aircraft had tail rotor chip detector illuminations. Both were caused by normal wear fuzz. ■ Two engine chip detector illuminations were reported. Normal wear fuzz caused one illumination and the second aircraft is grounded, pending results of special oil sample. ■ Transmission oil pressure was lost during cruise flight. Caused by failure of primary internal transmission oil filter gasket (P/N 484-31-629-1). ■ Engine fuel pump caution light and master caution light came on in flight. Caused by fuel control malfunction. EIR submitted. ■ Pilot felt tail rotor pedals stick intermittently in flight and made running landing. Caused by failure of tail rotor servo (P/N 204-076-053-11). EIR submitted. ■ During takeoff, transmission oil hot light illuminated while temperature gauge indicated normal. After landing, maintenance personnel found short in electrical wiring. ■ Irreversible valves (P/N 204-076-055-1 and 205-040-176-1) of three aircraft failed in flight. EIR's submitted. ■ No. 1 hydraulic system failed on short final. Servo cylinder was replaced after landing and aircraft was released for flight.

AH-1

2 PRECAUTIONARY LANDINGS ■ Transmission oil pressure fluctuated between 43 and 58 psi in cruise flight. Pilot turned back to airport as pressure dropped to 25 psi. After landing, pressure dropped to 10 psi. Inspection revealed drain valve (P/N 465C62NSW) failed, allowing oil to be lost. ■ Engine oil temperature rose to 140° during hover to takeoff point. Postflight inspection revealed loss of 2 quarts of engine oil. Suspect internal failure of engine. EIR submitted. □

LOH

Fatalities: 0 ■ Accidents: 0
Injuries: 0 ■ Estimated Costs: \$2,033

DIVISION

■ LTC David L. Boivin, Chief

Two incidents and nine precautionary landings were reported.

OH-58

6 PRECAUTIONARY LANDINGS ■ Engine oil pressure dropped to an indicated 90 psi in cruise flight due to faulty oil pressure gauge. EIR submitted. ■ Unusual vibration was experienced during autorotation. Suspect loose uniball on swashplate. ■ Rotor tachometer indicator failed, causing large fluctuations in rotor tachometer readings during flight. EIR not reported! ■ Loose blade weights caused banging noise during approach in gusty winds with light turbulence. ■ Cause unknown for slight vibration in antitorque pedals during cruise. Aircraft was released for flight. ■ Oil sample was submitted for analysis after fuzz found on magnetic plug had caused tail rotor chip detector light to illuminate.

TH-55

2 INCIDENTS ■ SP made rotor engagement with main rotor blade tied down. *Orval says, "To break embarrassing engagements, pilots should engage train of thought before engaging main rotor."* ■ Hard landing resulted during termination of PRACTICE TOUCHDOWN AUTOROTATION when IP was unable

to adequately cushion landing after SP had made an excessive and abrupt collective pitch application, causing aircraft to balloon 15 feet into air with low rotor rpm. (See Thought for the Week.)

3 PRECAUTIONARY LANDINGS ■ SP noted low fuel pressure during hover. Alternator had failed, with resultant electrical failure. EIR submitted. ■ Pilot saw tail rotor drive shaft oscillating during flight. Drive shaft was bent. ■ Broken magnetic plug wire caused engine chip detector light to illuminate.

ORVAL SAYS, "PILOT WHO FLY WITH SPLIT CONE UPSIDE DOWN MAY ALSO HAVE CRACK UP."

Pilots should pay particular attention to OH-58A main rotor split cones during preflight to insure the beveled edge is up (not visible). If the split cones have been installed upside down, the beveled edge will be visible upon examination. This is *not* believed (by USAAVSCOM) to be a safety-of-flight; however, long-term effects of this abnormal installation are not yet known and could crack you up. In the one case discovered, the aircraft had operated 15 flight hours without any apparent problems. Reference USAAVSCOM OH-58A tech advisory message dated 192030Z Nov 73.

TRANS ACTION: For your information, we are providing synopses of ARADMAC's teardown analyses on seven OH-58 transmissions recently removed from service for various causes. Trans one through four made ratcheting or clicking sounds when rotated by hand at low rpm. It was determined that the noise was caused by friction between the input pinion seal and the seal flange on the input pinion adapter. The intermittent sticking and slipping of the seal resulted in backlash noises which could be heard in the fuselage. This condition is not considered detrimental and requires no corrective action. Trans five had a chipped tooth on one of the planetary gears (done prior to installation) which was discovered through spectrometric oil analysis. *See, the oil analysis program can mean the difference between a successful mission and a long walk home.* On trans six, abnormal loading (caused by improper shimming of housing) caused spalling on the teeth of the input pinion gear with resultant illumination of chip detector light. *Pilots, believe your most cautious friend—the chip light.* Trans seven had excessive backlash between the input pinion gear and the bevel gear. To avoid that geared-down feeling, get to know your trans!

THOUGHT FOR THE WEEK

WHO'S GOT IT? (PRO-found guidance . . . from the IP)

When I say, "I have it," I have it.

When I say, "You got it," we have it.

When I say, "I've had it, you've had it!" □

CARGO

Fatalities: 0 ■ Accidents: 0
Injuries: 0 ■ Estimated Costs: \$0

DIVISION

■ CW4 Gerald D. Verbeek,
Acting Chief

One precautionary landing was reported.

CH-54

1 PRECAUTIONARY LANDING ■ Aircraft was at hover when master caution and chip detector lights illuminated. Problem was isolated to main transmission. Special oil sample results indicated high metal content. Aircraft is grounded until serviceability check can be performed. □

FIXED WING

Fatalities: 0 ■ Accidents: 0
Injuries: 0 ■ Estimated Costs: \$0

DIVISION

■ LTC Charles E. Humphries, Chief

Nine precautionary landings were reported.

OV-1

2 PRECAUTIONARY LANDINGS ■ No. 2 engine chip detector warning light came on. Suspect failure of generator gearbox. ■ IP received unsafe right main gear indication on base leg for landing. He executed go-around, recycled gear, and activated pneumatic emergency system. Postlanding examination revealed down-lock sensitive switch had failed.

T-41

2 PRECAUTIONARY LANDINGS ■ Two engine chip detector warning light illuminations were reported. One was caused by broken wire from magnetic plug and the other was caused by fuzz on magnetic plug. Plug was cleaned, oil system flushed, oil replaced, MOC performed, and aircraft released for flight.

U-6

1 PRECAUTIONARY LANDING ■ Fuel warning light came on. Pilot switched tanks but engine began running rough. Wobble pump was used to maintain fuel pressure until landing could be made at nearby intermediate airfield. Caused by failure of engine-driven fuel pump.

U-8

3 PRECAUTIONARY LANDINGS ■ No. 1 engine surged and lost power at cruise power setting. Engine would not produce over 20 inches Hg. Aircraft was landed at available field with power on both engines. Cause of power loss was not reported. ■ At slow cruise on radar vector to ILS approach for landing, No. 2 engine missed, then surged 200 rpm and finally lost power. Engine was shut down and propeller feathered. Suspect intake valve failed, causing twisted push rod and requiring engine change. Engine history: 6031.8 hours total time, 349 hours since overhaul. Power settings: 2600 rpm/28 inches Hg. ■ When gear handle was placed down during descent for landing, right main gear indicator remained in transit and light in gear handle remained on. Gear was recycled three times and on third attempt all down-lock indicators indicated down and locked. Postlanding check revealed landing gear lock hook (FSN 1560-125-5141, P/N 50-810156) was not within the .010-.020 tolerance required. Adjustment was made to .010, gear was tested successfully on jacks, and aircraft was test flown and released for flight.

U-21

1 PRECAUTIONARY LANDING ■ When power on No. 1 engine was reduced in preparation for landing, torque remained at 500 psi. No. 1 engine was shut down and single-engine landing was made. Caused by failure of fuel control unit on No. 1 engine. □

CORRECTION

Reference the item entitled "Wheels Watch—What Is It?" appearing on the front of FLIGHTFAX, Vol. 2, No. 4, 31 October 1973. This item explained the Navy's wheels watch procedures. We stated that if the landing gear was up, the wheels watch would turn on waveoff lights—a row of white lights in a bar shape. USAASO has informed us that these lights are *red*, as described in DOD Flip Planning Section II, page 127, and IFR Supplement, page 450.

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