ARMY AIRCRAFT MISHAP PREVENTION DATA

FLIGHT FAX

ORVAL RIGHT
Chief Advisor on
Matters of Aviation

A USAAAVS PUBLICATION

VOL. 3, NO. 1 ■ 9 OCTOBER 1974 mishaps for the period of 20-26 SEPTEMBER 1974

C-5 JET BLAST DAMAGE

The following TWX from AFISC, Norton AFB, is quoted here for the information of Army personnel:

"1. Circumstances surrounding a recent ground accident at a non-MAC base indicate a need for more information on C-5 ground handling procedures because of unusual jet blast characteristics. All personnel who may be involved in marshalling C-5 aircraft should be thoroughly briefed on the following: (a) In normal taxi operation a jet blast of 35 mph can be expected at a distance of 440 feet behind the engine; (b) taxi breakaway power on a 3-degree upslope will result in 35 mph winds up to 945 feet behind the engines; (c) breakaway power, when stopped in a turn with gear castered, can result in winds of 35 mph in excess of 1,000 feet behind the aircraft (source: Lockheed test data, 15 Dec 1969); (d) stopping the C-5 aircraft in a turn places undue stress on the landing gear and should not be contemplated except in an emergency.

"2. Marshalling, maintenance, and operations personnel at all air bases into which the C-5 may operate should be made aware of its unusual jet blast characteristics. Preplanning of C-5 taxi routes and parking areas is mandatory to avoid future injury or damage."

PREFLIGHT WITHOUT LIGHT

The purpose of the mission was to ferry four aircraft to a static display with instrument training en route. The flight consisted of two UH-1's, one OH-58, and one AH-1G. All pilots received a briefing from the mission commander the day before the mission. Preparation began immediately following the briefing, and included the cleaning and preflighting of the aircraft. The pilot, without the help of the copilot, supervised all mission preparation for the aircraft. He performed the preflight inspection while the aircraft was being washed and departed the flight line at 1615 hours.

After washing, the engine and transmission cowlings were left open to permit the aircraft to dry. A crew chief, one of the last to leave the

Continued on page 2

Continued from front page

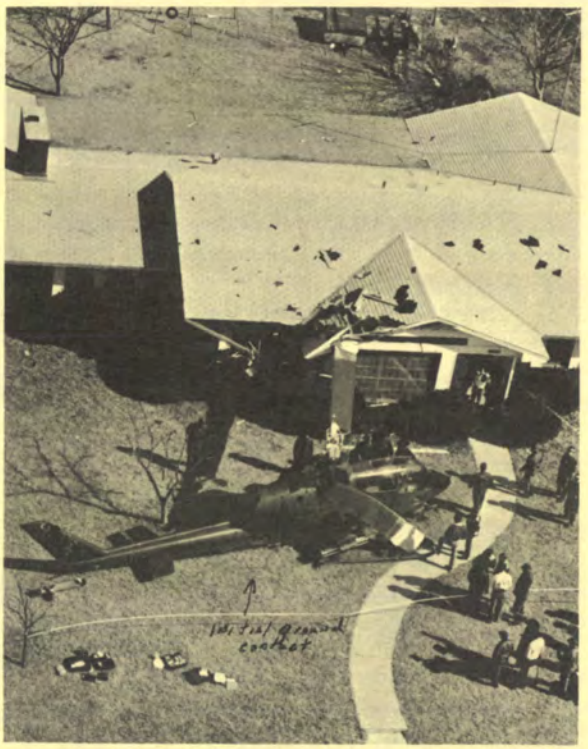
aircraft that evening, closed the cowlings.

The pilot arrived at the flight line at 0545, supervised the installation of weapons and conducted a walk-around inspection without the use of a flashlight or a checklist. The copilot overslept and when he arrived at 0640 he boarded the aircraft after the runup had been completed. The AH-1G was assigned the number three position in a four ship diamond formation.

Takeoff was at 0655 and the formation climbed out to an altitude of 1,900 feet on a heading of 150° and airspeed was 80 knots. At that time, both pilots heard a loud noise and experienced a slight right yaw of the aircraft. This was a result of the left engine cowling being torn free and striking the tail rotor and the 90° gearbox then separated. The copilot informed the lead aircraft that they had a problem. A right turn was started to return to the airfield and during this turn, airspeed dissipated and the aircraft would no longer streamline. The nose pitched down and the aircraft began to spin. The copilot lowered the collective, reduced the throttle to flight idle and transmitted a Mayday call. The aircraft was losing altitude and spinning rapidly. The pilot took the controls and at about 150 feet agl turned on the landing light. Airspeed was very slow at this time and he saw the front of a house and a concrete walkway. He increased the collective to full pitch and the aircraft fell almost vertically for the last twenty feet. One main rotor blade sliced through the front gable of the house and the other main rotor penetrated and remained wedged in the house. The aircraft sustained major damage but no fire occurred. Both pilots sustained back injuries but were able to exit the aircraft unassisted.

This accident once again proves the necessity for thorough preflights. The pilot in command and the copilot failed to perform a proper preflight inspection of the aircraft during the hours of darkness, thus insuring that all cowlings and latches were secured. Reason: The pilot felt that the preflight performed late in the afternoon on the previous day would suffice and that a walk-around inspection—conducted without a flashlight—the next morning was all that was required. The copilot did not assist in the preflight.

An unsafe factor present but not contributing to this accident: The most experienced pilot was not designated as pilot in command. The copilot initiated the emergency actions. Reason: The copilot's reactions were based on his knowledge of emergency procedures and previous aviation experience.



LOSS OF RESOURCES FROM THIS WEEK'S MISHAPS

FATALITIES:	0
INJURIES:	1
AIRCRAFT LOSSES:	0
ESTIMATED COSTS:	$12,450

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

UTILITY/ATTACK DIVISION

Fatalities: 0 ■ *Accidents:* 0
Injuries: 1 ■ *Estimated Costs:* $8,230

■ MAJ Charles E. Toomer, Chief
558-4198

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

UH-1

3 INCIDENTS ■ Aircraft shuddered during takeoff and assumed tail-low attitude. After landing, tail rotor drive shaft cover on vertical fin was found partially separated. Cover fasteners were not secured prior to flight. (USA) ■ During authorized NOE flight, main rotor struck tree, damaging main rotor blades. (USA) ■ Aircraft touched down tail low during PRACTICE AUTOROTATION, damaging tail skid and tail boom. (USA)

1 FORCED LANDING ■ Severe vibration was felt through antitorque pedals in cruise flight. Caused by failure of drive shaft hanger bearing. (USA)

27 PRECAUTIONARY LANDINGS–following are selected briefs ■ Hydraulic system failed during takeoff. Pressure switch replaced. (USA) ■ Crew smelled what was believed to be fuel odor. Clean solvent was found pooled in transmission area. (USA) ■ Technical inspector discovered hydraulic leak at tail rotor servo check valve during MOC. Caused by improperly installed preformed packing. (USA) ■ Tail rotor chip detector light came on. Detector plug was cleaned and oil sample taken. (USA) ■ Crew noticed sparks and electrical fumes in cockpit. Standby compass light wire shorted. (ARNG) ■ Pilot heard pop in transmission area and smelled hot oil fumes. Caused by failure of transmission oil filter gasket due to improper torque on retaining bolts. (USA)

AH-1

1 INCIDENT ■ At completion of range firing, damage was noted to main rotor, pilot's canopy, fuselage, and mini-gun system. Suspect defective ammunition. (USA)

4 PRECAUTIONARY LANDINGS ■ Pilot noticed unusual knocking noise and vibration. Caused by deterioration of forward cross tube cover. (USA) ■ Transmission hot oil light flickered. Caused by loose oil line coupling. (USA) ■ Loud noise was heard from hydraulic pump area during left turn. Tail rotor pressure line seal failed. Seal had been crushed during installation. (USA) ■ Engine chip detector light came on. Small chips were found on detector plug. (USA) □

LOH DIVISION

Fatalities: 0 ■ *Accidents:* 0
Injuries: 0 ■ *Estimated Costs:* $2,048

■ LTC David F. Stoutamire, Chief
558-4202

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

OH-58

1 INCIDENT ■ During takeoff, main rotor blades struck tree while pilot was maneuvering to avoid commo wire. One main rotor blade tip cap and blade were damaged. (USA)

1 FORCED LANDING ■ During cruise flight at 1,500 feet, loud noise was followed by rapid decrease of N1, N2, and torque, indicating engine stoppage. Pilot successfully autorotated to small open area. An unsolicited WELL DONE to CW2 Mitchell Barney, LA ARNG. Engine is being forwarded to ARADMAC for teardown and analysis, with suspected internal malfunction. EIR was submitted. (ARNG)

8 PRECAUTIONARY LANDINGS ■ Engine surged several times during takeoff and subsequent hover. Surges were accompanied by change of engine tone and left yaw. Check valve (FSN 2915-924-7789) was replaced. Engine surges ceased and aircraft was released for flight. EIR was submitted. (USA) ■ Engine chip detector light illuminated. Cause unknown pending investigation. (USA) ■ Engine chip detector light illuminated in same aircraft on two separate occasions. Oil samples were taken, plug cleaned, MOC conducted, and aircraft released for flight. A telephone conversation disclosed that the light came on a third time. Aircraft is grounded pending engine change. EIR submitted. (USA) ■ Engine chip detector light came on. Caused by normal fuzz. (USAR) ■ Faulty plug caused engine chip detector light to come on. (USA) ■ Tail rotor chip detector lights of two aircraft illuminated. One was caused by normal fuzz and the other by moisture shorting circuit. (USA)

OH-6

2 PRECAUTIONARY LANDINGS ■ Loud noise heard in cruise flight resulted from piece of right rear door plexiglass being broken. Later inspection revealed small nick in main rotor blade. Cause of breakage not reported. (ARNG) ■ Generator light in flight resulted from malfunction of voltage regulator. (ARNG)

THOUGHT FOR THE WEEK

Aviation Safety Officers—What do you think of a new twist to the old hat? The next time you run the crash-rescue or fire lads through a practice crash alert, modify the standard on-field smoke grenade popping procedure thusly: Pop the smoke grenade about one-quarter mile OUTSIDE the airfield boundary and oriented to the approach or departure route. The results of this modified exercise may well dictate a serious brainstorming session among those involved to change their ways and means for the real crash rescue response.

LOH 360-DAY MISHAP DATA

	Last 30 Days	Last 90 Days	Last 180 Days	Last 360 Days
Injuries	0	4	8	16
Fatalities	0	0	1	3
Dollar Cost	$58,687	$375,311	$1,182,858	$2,336,549

CARGO/SYSTEMS DIVISION

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

■ CW4 Richard D. Havenstrite, Chief
558-4202

Four precautionary landings were reported.

CH-47

3 PRECAUTIONARY LANDINGS ■ No. 1 flight boost pressure line cracked between pressure reducer and SAS filter. Investigation revealed that line of aluminum material ruptured at bend. This line was replaced with a line of steel material and aircraft was returned to service. (USA) ■ Flight engineer noted hydraulic leak from aft transmission area during flight. Aircraft was landed and leak was determined to be coming from No. 1 flight boost manifold. O-ring seal in flight boost manifold failed. (USA) ■ Engineer noticed oil leaking from bottom of No. 2 engine during flight and No. 2 engine oil light came on. Engine was secured and single-engine landing made. Maintenance personnel deformed oil filter seal during installation, causing improper seal of filter cap. (USA)

CH-54

1 PRECAUTIONARY LANDING ■ Aircraft was on takeoff when master caution and chip detector lights came on. Small metal sliver was found on main transmission chip detector plug. Special oil sample was taken for analysis. (ARNG) □

FIXED WING DIVISION

Fatalities: 0 ■ *Accidents:* 0
Injuries: 0 ■ *Estimated Costs:* $2,172

■ LTC Howard D. Deane, Chief
558-4202

Three incidents and six precautionary landings were reported.

OV-1

1 INCIDENT ■ Aircraft lurched during climbout from takeoff at approximately 2,000 feet agl and left drop tank light illuminated on annunciator panel. Pilot looked out and saw left drop tank was missing. Aircraft was returned to home base. Drop tank impacted in open field and was demolished. Postlanding examination revealed accumulation of grime and dirt in pylon linkage assembly which apparently prevented gear lever return spring from pulling bellcrank and shackle release assembly into full locked position. Release plunger was still in cocked position and normal release handle had not been pulled nor electric stores release system activated. Aircraft had been recently received in transfer and drop tank release inspection was not due until next PE. (ARNG)

3 PRECAUTIONARY LANDINGS ■ No. 1 engine chip detector warning light came on during takeoff. Flakes were found on magnetic plug and oil screen. Engine was 6 hours since overhaul. Oil sample was submitted. (ARNG) ■ No. 1 engine hydraulic pressure fluctuated during cruise flight. Complete hydraulic failure did not occur. Postlanding check revealed flare in fitting on hydraulic line that extends from hydraulic filter of No. 1 engine to inboard aileron actuator had failed. (ARNG) ■ No. 1 engine was shut down during maintenance test flight. Air restart and battery restart attempts were unsuccessful. Caused by defective fuse. (ARNG)

T-41

1 INCIDENT ■ Deer ran onto runway and under aircraft just as aircraft began to lift off. Deer was struck by aircraft, damaging stabilizer and elevator. Pilot continued takeoff, remained in traffic, and landed. (USA)

1 PRECAUTIONARY LANDING ■ Engine chip detector warning light came on. Examination revealed piece of chrome plating from oil spout on magnetic plug. Oil and filter were changed and MOC performed. (USA)

U-6

1 INCIDENT ■ Aircraft was taxiing onto sod runway in preparation for takeoff when left wing tip struck tree. (USAR)

U-8

2 PRECAUTIONARY LANDINGS ■ During maintenance test flight, No. 2 engine was shut down and could not be restarted. Postlanding check revealed forward avionics compartment door had come open in flight. (ARNG) ■ While simulating single-engine traffic pattern (imaginary) at 4,500 feet agl, and cleaning up aircraft configuration, landing gear would not retract. Cause was not reported. (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	$8,172	$16,834	$55,674	$5,584,019

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UNITED STATES ARMY
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FORT RUCKER, ALABAMA 36360

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ARMY AIRCRAFT MISHAP PREVENTION DATA

FLIGHT FAX

ORVAL RIGHT
Chief Advisor on
Matters of Aviation

A USAAAVS PUBLICATION

VOL. 3, NO. 10 ■ 11 DECEMBER 1974

mishaps for the period of 22-28 NOVEMBER 1974

ICE REMOVAL

Do you have a question on how to remove ice from runways, taxiways, and hardstands?

Ice coatings on runways, taxiways, and hardstands should be sprinkled with urea [$CO(NH_2)_2$], coarse sand, or cinders, spread by hand or by mechanical spreader if available. If practical, such abrasives should be heated before spreading. Accumulated abrasives are removed in the spring by brooming. Ice conditions on airfields used by jet aircraft are a very serious problem since abrasives cannot be used. Sodium chloride (NaCl) and calcium chloride ($CaCl_2$) are not used for ice control without approval. These salts may promote corrosion of metal aircraft parts. For more information see TM 5-330.

Adapted from Safety Management Newsletter No. 9, Air Force Systems Command.

NEAR MIDAIR COLLISIONS

One AFSC installation reported six near midair collisions in a few weeks' time. Nearly all of these involved military and civilian light aircraft. Evidently the civilian pilots flew through control zones without clearance and without any regard for other aircraft. They were too low/too small to be picked up on radar.

Many of us unconsciously develop a tendency to rely on radar controllers to do our clearing for us. Radar controllers and IFR procedures are certainly important and have prevented midair collisions. However, the ultimate responsibility for clearing lies with aircrews.

Practice clearing and be especially alert for other aircraft during takeoff and landing. If you experience a near midair collision, let somebody know about it. That is why we have hazard report forms.

LOSS OF RESOURCES
FROM THIS WEEK'S MISHAPS

FATALITIES:	0
INJURIES:	0
AIRCRAFT LOSSES:	0
ESTIMATED COSTS:	$116,511

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

Commander	558-3410/3819
Technical Research and Applications	558-6404/6410
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Commercial:	255-XXXX

Prepared from information compiled by the Directorate for Aircraft Accident Analysis & Investigation
Colonel Samuel P. Kalagian, Director

UTILITY/ATTACK DIVISION

Fatalities: 0 ■ *Accidents:* 1
Injuries: 0 ■ *Estimated Costs:* $73,890

■ MAJ Charles E. Toomer, Chief
558-4198

One accident, four incidents, and twenty-two precautionary landings were reported.

UH-1

1 ACCIDENT ■ Pilot brought aircraft to hover during takeoff and started left pedal turn. Aircraft tilted, causing main rotor to strike ground. Aircraft then rolled on side. Cause under investigation.

2 INCIDENTS ■ Aircraft was struck by lightning during cruise flight 2 miles off shore, damaging one main rotor blade. ■ Third aircraft in flight of 15 landed hard when pilot lost visual contact with ground in dust.

17 PRECAUTIONARY LANDINGS–following are selected briefs ■ While leveling at 4,000 feet, pilot heard loud noise and N1 rpm dropped to about 60 percent. Suspect malfunction of fuel control. ■ Fire warning light came on during hover. Cause unknown. ■ Battery overheated in cruise flight, causing smoke to enter cockpit. Caused by internal failure of battery. ■ No. 1 hydraulic system failed in flight. Hydraulic valve seal replaced.

AH-1

2 INCIDENTS ■ During low-level firing of 40mm grenades, aircraft flew through shrapnel, damaging fuselage skin. ■ During touchdown from simulated hydraulic failure, crew heard loud snap and aircraft began to roll right. Caused by failure of landing skid cross tube. WELL DONE to CPT Charles A. Holland, USAAVNC, who recovered aircraft from roll, then landed on sandbags.

5 PRECAUTIONARY LANDINGS ■ During landing in unprepared area, with visibility restricted by dust and bright sunlight, main rotor struck trees. No damage. ■ Engine oil pressure light came on. Moisture found on plug. ■ Aircraft was at 1,500 feet msl and 110 knots when cyclic made sharp move to right, putting aircraft in 40° bank. Both pilots tried to center cyclic and SCAS roll channel was disengaged with no results. Spiralling approach to large open field was started. Cyclic became free at 20 feet agl and landing was made. Suspect failure of servo cylinder assembly. ■ During practice ADF approach, aircraft pitched up and rolled right. Pilot disengaged SCAS and landed. Caused by out-of-balance SCAS cards. ■ Engine chip detector light came on. Caused by fuzz on magnetic plug.

CORRECTION: Reference T53 Engine Report dated November 1974, Appendix B, page 21, T53-L-701/701, S/N Suffix A 11. TBO should be 1800 and rear end hours should be 900.□

LOH DIVISION

Fatalities: 0 ■ *Accidents:* 1
Injuries: 0 ■ *Estimated Costs:* $25,512

■ LTC David F. Stoutamire, Chief
558-4202

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

OH-58

1 ACCIDENT ■ During running landing on sod surface after completion of simulated antitorque failure, skids dug into sod, causing aircraft to roll on right side. Damage to all major components. (ARNG)

3 INCIDENTS ■ After completion of reconnaissance mission, aircraft was landed without difficulty. However, during postflight inspection crew chief noticed hole in fuselage under battery compartment door. Crew stated they did not feel anything unusual during flight. ■ Pilot executed hydraulics-off landing during standardization ride, resulting in hard ground contact. Both landing gear cross tubes are being replaced. ■ Main rotor blades struck tree as aircraft was being maneuvered to hover position.

10 PRECAUTIONARY LANDINGS ■ Two tail rotor transmission chip detector warning light illuminations were reported. One chip detector plug was coated with fuzz and the other had a carbon buildup. ■ Main

transmission chip detector warning lights of four aircraft came on in flight. Inspection revealed fuzz on three chip detectors. Two aircraft were released for flight and one is still awaiting further inspection by ARNG maintenance personnel. The fourth light was caused by a broken wire. Engine oil temperature climbed to 140° C. during test flight. After aircraft landed, it was noted that electrical connections on oil temperature gauge were loose. ■ Transmission chip detector caution light came on. Inspection revealed that electrical wire attached to transmission chip detector was improperly secured. ■ IP was demonstrating hovering antitorque failure when tail rotor chip detector light flashed intermittently. Maintenance personnel found small piece of metal on chip detector plug. Piece of metal was identified as the tip of a scribe or similar object. ■ During engine start procedures, engine N1 reached approximately 30 percent and would not go any higher. Pilot aborted start and TOT climbed in excess of 1,000°. Local temperature and weather conditions were OAT 33° F. and a dewpoint of 25, clear with frost. Airflow restrictor, FSN 2915-103-5913, in power turbine governor may have been restricted by frost or freezing of moisture, causing governor to malfunction. Supplemental information indicated that fuel control heater was safetied in open position.

TH-55

1 PRECAUTIONARY LANDING ■ Engine oil pressure dropped below red line during landing approach. Caused by malfunction of oil pressure sending unit. □

CARGO/SYSTEMS DIVISION

Fatalities: 0 ■ *Accidents:* 0
Injuries: 0 ■ *Estimated Costs:* $109

■ MAJ Robert P. Judson, Chief
558-4202

One incident was reported.

CH-47

1 INCIDENT ■ Aircraft was hovering over sling load for hookup when inadvertent aircraft/load contact occurred. Extent of damage unknown. □

FIXED WING DIVISION

Fatalities: 0 ■ *Accidents:* 1
Injuries: 0 ■ *Estimated Costs:* $17,000

■ LTC Howard D. Deane, Chief
558-3901

One accident and five precautionary landings were reported.

T-42

1 ACCIDENT ■ Gear retracted during landing roll, damaging propellers, wings, fuselage, and main gear. Pilot reportedly heard gear motor on rollout. Cause of gear retraction was not reported.

T-41

1 PRECAUTIONARY LANDING ■ Engine chip detector warning light came on. Caused by internal short in chip detector cannon plug.

OV-1

2 PRECAUTIONARY LANDINGS ■ During climbout after missed approach on an IFR training flight, pilot saw airspeed was lower than normal. Right main landing gear clamshell door was found to be closed, with gear still outside of door. Gear was cycled down and pilot received down-and-locked indication. Aircraft returned to home base where it was determined right main landing gear timer check valve had malfunctioned. (ARNG) ■ No. 1 engine chip detector light came on during SLAR training flight. Pilot monitored engine instruments and returned to home base. Magnetic plug was removed and inspected but revealed no significant evidence of engine damage. Special oil sample was taken and submitted for analysis. (ARNG)

U-8

2 PRECAUTIONARY LANDINGS ■ During climb to altitude on IFR service mission, left engine began to run rough and failed as aircraft was passing through 5,000 feet. When throttle was reduced to 40 inches Hg,

engine began to run again. Aircraft was leveled at 5,000 feet and power reduced to cruise setting (2600 rpm/33" Hg). Engine again started to run rough and failed. By reducing throttle, engine again started running, but very rough. Emergency was declared and landing was made at available airport. Engine was not shut down nor was propeller feathered at any time. Suspect possible malfunction of fuel or electrical system. ■ During IFR service mission, No. 1 engine lost power, with accompanying decrease in No. 1 engine manifold pressure indication and slight airframe vibration. Postlanding check revealed part of exhaust valve was ingested into left rear cylinder of No. 1 engine, resulting in internal damage to that cylinder only.

THOUGHT FOR THE WEEK

It is better to look
Than just feel and hear.
For if you don't,
You may retract the gear!

Some SIP's we know have developed a neat technique to prevent the inadvertent retraction of the landing gear after a landing. Just before the SIP calls out "flaps up," he automatically places his hand over the landing gear handle and removes it only after the flaps are up and the pilot has drawn his hand from the flap handle. In fact, the really super SIP's have "cover gear handle with hand" written in their checklist procedure just before the "flaps up" sequence. Have you got a better idea? □

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ARMY AIRCRAFT MISHAP PREVENTION DATA

FLIGHTFAX

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VOL. 3, NO. 11 ■ 18 DECEMBER 1974

mishaps for the period of 29 NOV-5 DEC 1974

Safety-Of-Flight Message

(ADVISORY OPERATIONAL) FOR OV-1B, OV-1C AND RV-1C MOHAWK AIRCRAFT (OV-1-74-2)

1. Summary of Problem. A frequency shift in the inverter PU-544/A can result in an erroneous signal being transmitted to the compass heading reference system which is tracked by the autopilot, and can result in aircraft bank angles in excess of 90° within 10 seconds. This erroneous signal can be recognized by the malfunction flags on the primary attitude indicator and course indicator but will not illuminate the master caution light. The standby attitude indicator will not be affected by the inverter frequency shift.

2. When the conditions cited in paragraph 1 are encountered, the following emergency procedure should be used:

a. Immediately disengage the autopilot.

b. Place the inverter switch in emergency. Caution: Do not reset inverter switch to normal position.

c. Check to assure that the inverter No. 1 circuit breaker is in. Note: Use of autopilot may be resumed at this time if essential.

d. If practical, discontinue flight under IMC.

e. Land as soon as practicable.

3. Due to systems design differences, the OV-1D is not susceptible to this hazard.

4. TM 55-1510-204-10/3, -10/4, -CL/3, and -CL/4 will require a change as a result of this safety-of-flight advisory message. Information contained in this message shall be inserted in chapter 4, section VI, and section E of the above TM's pending receipt of the formal change.

Season's Greetings

Last FLIGHTFAX This Year

This is the last issue of FLIGHTFAX you will receive this year. The next issue will be dated 15 January 1975, and will include all briefs for the period 6 December 1974-3 January 1975. 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 1975 will be a year of accomplishment in your personal and professional lives.

ORVAL

Aircraft Flare Information

The MK 45 MOD O and MK 45 MOD O with adapter, aircraft flares, are authorized for aircraft internal hand launch. Reference TM 9-1370-201-12, July 1974.

All MODs of the MK 24 are restricted to combat emergency use only for internal hand launch from rotary and fixed wing aircraft. This restriction does not apply to external carriage and release. Reference TM 9-1370-202-12, December 1972.

An externally mounted drop flare subsystem is currently being evaluated for Army use. The LUU-2/B flare developed by the Air Force is being modified to decrease burn time and increase light output. The flare is designated as the LUU-2C/B and consists of four major subassemblies: the timer-end cap assembly, the parachute suspension system, the ignition system, and the case assembly with a tamped candle. The flare is designed so that the outer case is almost all consumed during candle burn.

The SUU-25C/A flare dispenser is an externally mounted, reusable, four tube, rearward ejecting, pyrotechnic launching device. The main advantages of the dispenser over related types are: the pyrotechnic munitions can be dispensed one at a time and the safety pin remains installed in the munition until the moment of dispensing. The dispenser may be loaded with eight high-intensity illumination parachute flares or eight colored pyrotechnic target markers. The dispenser may also be preloaded with pyrotechnic munitions and stored in either a designated storage or ready area for immediate use.

This subsystem should greatly enhance the safe delivery of aerial pyrotechnic submunitions. User type tests are programmed for FY 76. The XM 170 aircraft flare program has been cancelled.

T63 Engine Vibration

AVSCOM received a report of a high frequency vibration of the compressor assembly. The tubing was cracked on the anti-icing system. The vibration was felt in the engine mounts, and broke the safety wire on the diffuser cap vent. This allowed the vent to blow out.

AVSCOM referred to TM 55-2840-231-34P, November 72, Figure 18, Item 64, nut, FSN 5310-950-2634. They concluded that this nut did not have 50-55 psi torque. This nut should be retorqued in accordance with TM 55-2840-231-24, C1, paragraph 8-4b.

A new nut and washer may be required. These are field replaceable. It was recommended that this nut be checked the next time engine vibration occurs. AVSCOM also recommended that this nut and washer be ordered so that an extra set is available if retorque is required.

Make Christmas, 1974

and

New Year, 1975

the safest ever...

UTILITY/ATTACK DIVISION

Fatalities: 1 ■ *Accidents:* 1
Injuries: 1 ■ *Estimated Costs:* $103,000

■ MAJ Charles E. Toomer, Chief
558-4198

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

UH-1

1 INCIDENT ■ Internal engine failure in flight. Numerous holes were found in main rotor and tail rotor blades.

15 PRECAUTIONARY LANDINGS–following are selected briefs ■ Aircraft was at 2,000 feet cruise flight when it struck bird. No damage. (ARNG) ■ Engine oil temperature rose to 120° C. Caused by deterioration of inner lining of bleed air line to engine oil cooling fan, which caused cooling fan to become inoperative. (ARNG) ■ During climbing right turn, rotor rpm warning light and audio came on and rotor tachometer decreased to zero. Pilot elected to return to airport. Main transmission oil pressure fluctuated and dropped to zero and oil temperature increased to maximum on final approach. Self-locking electrical connector vibrated loose in flight. ■ Pilot smelled fuel in flight. Caused by rupture of right side fuel manifold. (ARNG) ■ Test pilot momentarily felt severe cyclic feedback during hover. As aircraft was taking off, feedback was felt again. Suspect malfunction of irreversible valve. ■ Aircraft struck and broke two small electrical wires during NOE flight. No damage. ■ Engine fuel pump caution light came on during takeoff. Caused by failure of fuel differential pressure switch. ■ Tail rotor chip detector light came on. Magnetic plug replaced. ■ Battery boiled over during landing. Battery replaced.

AH-1

1 ACCIDENT ■ Main rotor and transmission separated, with total destruction of front cockpit. Investigation is in progress.

1 PRECAUTIONARY LANDING ■ Master caution and engine chip detector lights came on. Terminal lug shorted against engine. Lug repositioned. □

Salt Air Corrosion

USAAAVS has received several requests for information regarding salt air corrosion on Army aircraft. It is suggested that the -34 TM for the specific aircraft be checked for information. If it is not included or is incomplete, check TM 55-1500-204-25/1. If that also fails to answer a particular question, then contact AVSCOM Engineering, autovon 698-6620. If individual aircraft TMs are incomplete, submit a DA Form 2028 with recommended input for future revisions of that TM.

LOSS OF RESOURCES
FROM THIS WEEK'S MISHAPS

FATALITIES:	1
INJURIES:	1
AIRCRAFT LOSSES:	1
ESTIMATED COSTS:	$107,735

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

Prepared from information compiled by the Directorate for Aircraft Accident Analysis & Investigation
Colonel Samuel P. Kalagian, Director

LOH DIVISION

Fatalities: 0 ■ *Accidents:* 0
Injuries: 0 ■ *Estimated Costs:* $4,000

■ LTC David F. Stoutamire, Chief
558-4202

Two incidents and ten precautionary landings were reported.

OH-58

2 INCIDENTS ■ Pilot was performing hovering maneuvers above sod area at airfield. During postflight inspection, dents were noted on tail rotor blades. Suspect blades struck light brush on airfield. ■ Pilot was approaching area surrounded by 20- to 30-foot trees. As pilot entered left turn and began to dissipate airspeed, he noticed another aircraft entering the same area. To avoid a collision, hard left turn was initiated and aircraft struck tree. Incident damage to left nose section area.

10 PRECAUTIONARY LANDINGS ■ Two transmission chip detector warning light illuminations were reported. Fuzz was found on detector plugs and aircraft were inspected and released for flight. One aircraft was assigned to the ARNG. ■ Hydraulic pressure warning lights of two aircraft came on. Inspection of both aircraft revealed each had malfunction of hydraulic pressure switch, P/N 206-076-355-1. ■ Pilot heard metallic banging noise and landed. Inspection revealed that left transmission inspection cover had come loose in flight. (ARNG) ■ Main fuel filter caution light came on. Fuel filter was replaced. ■ Engine oil pressure gauge fluctuated in flight and pilot heard loud noise from engine compartment. Aircraft was landed, inspected, and cleared for one-time flight to home station for further inspection. ■ Binding in flight controls was noted during approach to landing area, followed by hydraulic pressure warning light illumination. Caused by failure of collective servo front seal. ■ Pilot noticed high TOT during takeoff. Compressor bleed air tube had broken just above tee fitting to bleed air valve. Tube assembly was P/N 6871234. ■ Tail rotor chip detector caution light came on. After aircraft was landed, wire was found loose on chip detector. Wire was tightened, oil samples taken, and aircraft released for flight. □

CARGO/SYSTEMS DIVISION

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

■ MAJ Robert P. Judson, Chief
558-4202

Five precautionary landings were reported.

CH-47

5 PRECAUTIONARY LANDINGS ■ No. 2 engine chip detector light came on. Inspection revealed engine wear (fuzz) on chip detector plug. ■ No. 1 hydraulic boost caution light and No. 1 SAS "off" light illuminated. Caused by fractured tube assembly between hydraulic regulator valve and No. 1 SAS filter assembly. Aircraft was repaired on site and returned to service. ■ All transmission oil pressures went to 100 psi. Caused by failure of rotary oil pressure switch. ■ Odor of hydraulic fluid was detected during climbout. Caused by leaking fluid at manifold on lower dual boost roll actuator. Fluid leak was caused by corrosion of manifold. ■ Crew noted decrease of No. 2 engine N_1 to zero. Torque was 68 percent, PTIT was 600°, and N_1 was 91 percent. Engine oil temperature and pressure were normal. Inspection revealed damage had occurred to IGVS and first-stage compressor blades. Engine was T55-L-11A.□

THOUGHT FOR THE WEEK

From time to time, we all tend to let ourselves become so tied down to the physical day-to-day requirements of our jobs that we fail to allot some of our time to maintaining familiarity with the contents of manuals which pertain to our jobs. Changes are published, received, and posted without insuring that all responsible individuals are aware of the contents of the change.

For example, while AR 95-1 refers to aircraft ground operations, and changes receive fairly widespread dissemination, TM 55-1500-328-25 (Aeronautical Equipment Maintenance Management Policies and Procedures) gives the specifics of maintenance test flights and maintenance operational checks and this publication and attendant changes do not receive such widespread dissemination. Although it is primarily a maintenance-oriented manual, it contains much vital information and merits our close attention.

AN OUNCE OF PREVENTION . . .

FIXED WING DIVISION

Fatalities: 0 ■ *Accidents:* 0
Injuries: 0 ■ *Estimated Costs:* $735

■ LTC Howard D. Deane, Chief
558-3901

One incident and six precautionary landings were reported.

T-42

1 INCIDENT ■ Afternoon preflight revealed one-fourth inch sheared off both blades of No. 1 propeller. Suspect damage occurred during morning flight while practicing short field landings.

1 PRECAUTIONARY LANDING ■ During en route descent, No. 1 engine surged and began trailing smoke and oil. Engine was shut down, propeller feathered, and landing made. Examination revealed engine failed internally, cause undetermined.

OV-1

2 PRECAUTIONARY LANDINGS ■ No. 1 engine chip detector warning light came on 15 minutes after takeoff. Fuzz was found on magnetic plug. ■ While practicing steep turns during training flight, pilot noticed vibration for 1 minute and heard unusual noise from aft of cockpit. No. 1 inverter light then came on and pilot switched to "emergency" inverter position, then back to "normal." The "aft camera high temperature" warning light came on after approximately 5 minutes. No. 2 inverter light then came on and pilot turned inverters off and returned to home base. Examination revealed No. 1 inverter failed internally and No. 2 inverter overheated due to close proximity of failed No. 1 inverter.

U-21

3 PRECAUTIONARY LANDINGS ■ During climbout after takeoff at approximately 250-300 feet agl, No. 2 engine failed prior to power reduction. There were no fluctuations in any instruments prior to engine failure. The auto-feathered engine was secured and landing was made. Cause of engine failure unknown. ■ When gear switch handle was placed in "up" position after takeoff, circuit breaker popped. Gear was cycled down and assured locked, and aircraft was landed. Switch on gear motor was replaced. ■ The same aircraft as above was on a training flight the next day and the gear would not retract properly when actuated. Pilot cycled gear down, got safe indication, and landed. Gear motor was replaced. □

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

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DOD-314

ARMY AIRCRAFT MISHAP PREVENTION DATA

FLIGHT FAX

ORVAL RIGHT
Chief Advisor on
Matters of Aviation

A USAAAVS PUBLICATION

VOL. 3, NO. 12 ■ 15 JANUARY 1975 mishaps for the period of 6 DEC 1974-2 JAN 1975

(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)	JET B	JET A	JET A-1/NATO F-34
AMERICAN OIL CO.	AMERICAN JP-4	AMERICAN TYPE A	
ATLANTIC RICHFIELD	ARCOJET B	ARCOJET A	ARCOJET A-1
RICHFIELD DIV.		RICHFIELD A	RICHFIELD A-1
B.P. TRADING	B.P.A.T.G.		B.P.A.T.K.
CALTEX PETROLEUM CORP.	CALTEX JET B		CALTEX JET A-1
CITIES SERVICE CO.		CITGO A	
CONTINENTAL OIL CO.	CONOCO JP-4	CONOCO JET-50	CONOCO JET-60
GULF OIL	GULF JET B	GULF JET A	GULF JET A-1
EXXON CO. USA	EXXON TURBO FUEL B	EXXON A	EXXON A-1
MOBIL OIL	MOBIL JET B	MOBIL JET A	MOBIL JET A-1
PHILLIPS PETROLEUM	PHILJET JP-4	PHILJET A-50	
SHELL OIL	AEROSHELL JP-4	AEROSHELL 640	AEROSHELL 650
SINCLAIR		SUPERJET A	SUPERJET A-1
STANDARD OIL CO.		JET A KEROSINE	JET A-1 KEROSINE
CHEVRON	CHEVRON B	CHEVRON A-50	CHEVRON A-1
TEXACO	TEXACO AVJET B	AVJET A	AVJET A-1
UNION OIL	UNION JP-4	76 TURBINE FUEL	
FOREIGN FUEL	NATO F-40	NATO F-44	
BELGIUM	BA-PF-2B		
CANADA	3GP-22F	3-6P-24e	
DENMARK	JP-4 MIL-T-5624		
FRANCE	AIR 3407A		
GERMANY (WEST)	VTL-9130-006	UTL-9130-007/UTL 9130-010	
GREECE	JP-4 MIL-T-5624		
ITALY	AA-M-C-1421	AMC-143	
NETHERLANDS	JP-4 MIL-T-5624	D. ENG RD 2493	
NORWAY	JP-4 MIL-T-5624		
PORTUGAL	JP-4 MIL-T-5624		
TURKEY	JP-4 MIL-T-5624		
UNITED KINGDOM (BRITAIN)	D. ENG RD 2454	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 THE PRIMARY FUEL IS NOT AVAILABLE?

Engine manufacturers recommend the primary fuel for use in a particular engine for maximum efficiency and longest engine life. But which fuel should you use if the primary fuel is not available? Your safest bet is to follow the recommendations in your dash 10 Operators Manual. Also, additional information may be found in TB 55-9150-200-25. *Continued on page 2*

Continued from front page

Turbine engine fuels with military symbols JP-4 and JP-5 are covered in specification MIL-T-5624. Some of the basic differences in JP-4 and JP-5 are as follows:

- JP-4 turbine fuel consists of approximately 65 percent AVGAS and 35 percent light petroleum distillate (kerosene) with rigidly specified properties.
- JP-5 turbine fuel is a specially refined kerosene having a minimum flash point of 140° F. and a freezing point of –55° F.
- JP-4 has a wider boiling range with an initial boiling point considerably below that of kerosene (JP-5).
- JP-4 has a reid vapor pressure of 2-3 pounds and flash point below room temperature.
- JP-5 has a reid vapor pressure of less than 0.5 pounds and a higher flash point.

When JP-4 is designated as the primary fuel for your aircraft and it is not available, JP-5 is not necessarily the next best fuel. You should try to obtain commercial fuel designated as Jet B. Jet B is equivalent to JP-4 in all respects except that Jet B has a freezing point of –60° F. instead of –76° F. The same rule applies to JP-5 and commercial fuels, Jet A and Jet A-1. Both of these are equivalent to JP-5 and both are kerosene type fuels. The freezing point for Jet A is –40° F.; the freezing point for Jet A-1 is –58° F.

The chart (page 1) lists brand name fuels that may be obtained in the USA and at overseas commercial airfields.

The use of kerosene fuel JP-5 or commercial equivalent Jet A or Jet A-1 in specific turbine engines requires that special precautions be observed. Both engine ground starts and air restarts at low temperatures may be more difficult due to negligible vapor pressure.

JP-4 and JP-5 already contain an icing inhibitor, but if Jet B, Jet A, or Jet A-1 is used, crewmen should ask if the fuel contains an icing inhibitor. If not, a commercial anti-icing additive called "Prist" should be mixed in the fuel, according to the instructions contained on the aerosol spray can, during refueling operation.

Again, reference should be made to your dash 10 Operator's Manual. The aircrafts' dash 10 Operating Manuals contain the primary, alternate, and emergency fuels and restrictions for their use.

For example, the OH-6A and OH-58 dash 10 manuals state the following fuel operation limitations:

a. The primary (standard) fuel for both aircraft is JP-4 (MIL-T-5624). No restrictions are imposed on engines or aircraft when operating with this fuel.

b. The alternate fuel for both aircraft is JP-5 (MIL-T-5624) with an ambient temperature range of 0° F. to +125° F. and with the following restrictions:

(1) Engine starting difficulties may be encountered at ambient temperatures below +5° C. (+40° F.).

(2) Prior to performing the first practice autorotation or in-flight rapid engine deceleration of the day, insure that requirements of the engine deceleration check (TM 55-2840-231-24) are met.

c. Jet A and Jet A-1 (ASTM-D-1655) are restricted to the same limits as JP-5.

d. The emergency fuel for both aircraft is aviation gasoline (MIL-G-5572) without tricresyl phosphate (TCP) with the following restrictions:

(1) Electric fuel pump must be on during all operations.

(2) Use is limited to 6 hours total engine operating time between overhaul. An entry on DA Form 2408-13 is required.

LOSS OF RESOURCES
FROM THIS WEEK'S MISHAPS

FATALITIES:	0
INJURIES:	3
AIRCRAFT LOSSES:	2
ESTIMATED COSTS:	$1,184,295

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

Commander	558-3410/3819
Technical Research and Applications	558-6404/6410
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After-duty tape recording of incoming calls to be returned following day (hours: 1615 to 0730)	558-6510
Commercial:	255-XXXX

Prepared from information compiled by the Directorate for Aircraft Accident Analysis & Investigation
Colonel Samuel P. Kalagian, Director

UTILITY/ATTACK DIVISION

Fatalities: 0 ■ *Accidents:* 1
Injuries: 0 ■ *Estimated Costs:* $14,542

■ MAJ Charles E. Toomer, Chief
558-4198

One accident, two incidents, one forced landing, and thirty-seven precautionary landings were reported.

UH-1

1 ACCIDENT ■ IP demonstrated practice hovering autorotation, and cross tube broke during touchdown. Suspect improper control technique allowed aircraft to touch down hard.

1 INCIDENT ■ Aircraft was being started, and rotor blade began to turn when crew chief noticed rotor tiedown was still on blade. Start was aborted. On second revolution, tiedown caught tail rotor hub and blade stopped.

1 FORCED LANDING ■ Engine failed during practice autorotation to runway. Cause unknown.

28 PRECAUTIONARY LANDINGS–following are selected briefs ■ Aircraft was on final radar approach when tail rotor chip detector light came on. Suspect internal deterioration of 90° gearbox. ■ Crew heard high-pitched noise from area of transmission. All instruments indicated normal. Caused by failure of transmission input quill. ■ IP heard loud screeching noise from rear of aircraft. Suspect hydraulic pump failure. ■ Master caution and engine chip detector lights illuminated after 15 minutes of flight. After landing was made, maintenance personnel pulled engine chip detector plug and could find no evidence of metal particles, metal fuzz, or loose wiring. Suspect illumination of lights was caused by condensation. ■ Pilot noticed engine oil pressure dropping and engine oil temperature rising. Caused by failure of engine oil cooler bearings. ■ While increasing power to regain altitude for hydraulic check, pilot checked torque and noticed it increasing without further collective application. Pilot then noticed the high rpm light and noticed that rpm was at 6800. Pilot determined he had a high-side governor failure and executed appropriate emergency procedures. Caused by failure of overspeed governor. ■ Master caution light came on and controls became stiff during hover. Hydraulic light also came on. Caused by malfunction of hydraulic irreversible valve. ■ While aircraft was flying in formation at approximately 1,000 feet and 90 knots, engine oil temperature rose to 100°. All other instruments were normal. Suspect failure of oil cooler fan bearing. ■ Transmission oil pressure gauge fluctuated between 35 and 50 psi and crew chief saw oil spraying in transmission well. Main transmission oil return line from cooler to transmission was chafing against forward bulkhead. ■ Crew heard grinding noise, followed by feedback in cyclic. Noise and feedback continued until hydraulic switch was turned off. Hydraulic pressure caution light did not illuminate until after switch was turned off. Suspect failure or malfunction of hydraulic irreversible valve.

AH-1

1 INCIDENT ■ After completing low-level autorotation at stagefield, student was lowering collective prior to adding power when cross tube failed. Aircraft lurched forward and to right. IP added power and pulled aircraft into air. IP then flew aircraft back to airfield where aircraft was landed on sand bags with no further damage. WELL DONE to CW2 Charles N. Gibson, IP.

9 PRECAUTIONARY LANDINGS–following are selected briefs ■ Oil bypass light came on after standard autorotation was completed. Caused by failure of oil bypass switch. ■ Transmission oil pressure fluctuated after takeoff. Pressure dropped to 19 psi on downwind, with illumination of transmission oil bypass and transmission oil pressure caution lights. Transmission oil line had become disconnected from transmission. ■ Aircraft was in level flight at 1,000 feet agl when N_2 rpm began to drop slowly. Prior to touchdown, rpm had dropped to 5,700. Suspect failure of overspeed governor. ■ Master caution and fuel filter lights came on. O-ring on fuel filter was broken. ■ Pilot felt feedback in cyclic, fore and aft, and landing was made. Aircraft was inspected and flown back to plant with SCAS system disengaged.

Cause of SCAS failure unknown. ■ Severe medium frequency vibrations were noted during cruise flight at 1,300 feet, with high frequency vibrations in pedals. Pilot reduced pitch and vibrations continued. During deceleration maneuver, vibrations momentarily decreased, then recurred again. Vibrations continued until aircraft had been shut down. Hanger bearings had frozen and disintegrated. □

LOH

Fatalities: 0 ■ *Accidents:* 1
Injuries: 0 ■ *Estimated Costs:* $31,339

DIVISION

■ LTC David F. Stoutamire, Chief
558-4202

One accident, five incidents, one forced landing, and thirty-eight precautionary landings were reported.

OH-58

1 ACCIDENT ■ Aircraft touched down hard during autorotation training. Skids were spread and fuselage sustained structural damage. (ARNG)

4 INCIDENTS ■ During authorized NOE flight, aircraft struck tree limbs approximately 1½ inches in diameter. ■ While pilot was maneuvering into parking area, main rotor blades struck tree. Aircraft landed without further incident. ■ Aircraft struck tree limb during low-level flight, causing ¾-inch tear in main rotor blade. ■ During NOE flight, main rotor blades struck tree. Both blade tips were damaged.

31 PRECAUTIONARY LANDINGS—following are selected briefs ■ Fuel filter caution light came on. Filter contained grass and dirt particles. ■ Hydraulic pressure light came on. Caused by failure of hydraulic pressure switch. ■ Pilot experienced binding while applying aft cyclic. Inspection revealed metal part of pencil wedged in cyclic centering hole. ■ Fuel filter light came on. Suspect possible icing. (USAR) ■ Transmission chip detector light came on. Caused by failure of chip detector. (ARNG) ■ During climb-out, pilot noted unusual aircraft vibration. Inspection revealed frozen moisture on tail rotor drive shaft coupling. (ARNG) ■ During termination of approach, passenger entangled rifle sling in antitorque pedals. Aircraft encountered mast bumping. ■ Pilot heard loud bang and experienced jolt during takeoff. Suspect compressor failure. ■ Tail rotor chip detector light came on. Metal chips were found on detector plug and gearbox was changed. (ARNG) ■ Shortly after takeoff, pilot noted high frequency vibration. Caused by frozen moisture inside of tail rotor blades. (USAR)

OH-6

3 PRECAUTIONARY LANDINGS ■ Transmission chip detector light came on. Metal was found on plug and transmission was replaced. (ARNG) ■ Pilot noted oil collecting on inside of windshield during cruise flight. Caused by failure of torquemeter pressure line. (ARNG) ■ Transmission chip detector light came on. Inspection revealed small metal chip on plug. (ARNG)

TH-55

1 INCIDENT ■ Student pilot lowered collective pitch during hovering autorotation, resulting in hard landing. Maintenance inspection revealed bent aft cross beam.

4 PRECAUTIONARY LANDINGS ■ Airspeed indicator became inoperative during flight. Airspeed indicator replaced. ■ Engine oil pressure fluctuated during hovering flight. Oil pressure sending unit failed. ■ Engine ran rough during hover. Maintenance inspection revealed four holddown studs on No. 3 cylinder were stripped. ■ Engine began to run rough during termination of approach to hover. Inspection revealed failure of left magneto. □

CARGO/SYSTEMS DIVISION

Fatalities: 0 ■ *Accidents:* 0
Injuries: 0 ■ *Estimated Costs:* $18,000

■ MAJ Robert P. Judson, Chief
558-4202

One incident and fourteen precautionary landings were reported.

CH-47

1 INCIDENT ■ Forward green blade of aircraft struck ground during engine start. Blade tiedown had not been removed before engine start.

14 PRECAUTIONARY LANDINGS ■ Loose hose to auxiliary fuel tank was discovered during takeoff. Suspect improper securing of hose connections by crew chief. ■ Crew chief discovered fuel leak in heater supply at station 502 during flight. In order to minimize fuel leakage, pilot turned off No. 1 engine boost pumps, and 30 seconds later, No. 1 engine failed due to fuel starvation. Caused by leaking "tee" tube in heater fuel supply line. (ARNG) ■ Transmission "low" oil warning light came on during approach. Caused by failure of combining box pressure transducer. (USAR) ■ Crew heard loud bang from rear area of aircraft. All engine and transmission instruments remained normal. As thrust was lowered, pilot received indications that aircraft was experiencing No. 1 engine "beep" failure. Emergency procedures were initiated for "beep" failure without effect. Just prior to touchdown, No. 1 engine chip detector light came on. Engine was secured and landing made. Caused by N_2 turbine wheel failure. Engine type was L7C. ■ No. 2 engine oil pressure dropped to zero during landing. Caused by failure of oil pressure transmitter. ■ No. 2 engine chip detector light came on. Chip detector plug was removed, cleaned, and reinstalled. ■ No. 2 generator "off" light came on, with simultaneous illumination of No. 2 engine fire light. Generator switch was recycled and placed back on line, and landing was made. Caused by failure of electrical connectors at station 95, WL 36, BL.R 16. (USAR) ■ Flight engineer discovered hydraulic leak in No. 1 flight boost system during flight. No. 2 flight boost system switch was engaged and landing was made. Caused by failure of O-ring seal in No. 1 flight boost system. ■ Crew noticed fuel odor in cockpit and cabin and crew chief saw fuel around heater compartment and tiedown rings. Caused by cross-threaded fuel line fitting at heater connection. ■ During runup, crew saw hydraulic fluid leaking from area around hydraulic cooling fan assembly. Aircraft was shut down. Fluid was attributed to leaking plumbing in cooler fan area. ■ No. 1 engine transmission oil pressure dropped to zero. Caused by failure of transmission pressure selector switch. ■ No. 2 engine chip detector light came on. Chip detector was removed and inspected. Engine wear was determined to be within limits and plug was cleaned and reinstalled. ■ Crew heard noise in aft transmission during cruise. Crew chief found aft transmission filter button popped and pilot landed. Transmission chip detector light illuminated during shutdown. Transmission filter was clogged with brass metal particles. Transmission changed due to internal failure. (ARNG) ■ Low oil light came on. Caused by electrical short in system. □

FIXED WING DIVISION

Fatalities: 0 ■ *Accidents:* 3
Injuries: 3 ■ *Estimated Costs:* $1,120,414

■ LTC Howard D. Deane, Chief
558-3901

Three accidents, one incident, and seventeen precautionary landings were reported.

T-41

1 ACCIDENT ■ Aircraft was flown 2 hours on first leg of night local training flight. Engine quit after approximately 1.6-hour flight on second leg. Aircraft was landed in grass field in left crab, nose gear first. Nose gear broke off on initial impact, nose gear strut dug into ground, and aircraft flipped over, coming to rest inverted. Both wings, vertical stabilizer, and elevators were damaged. Suspect fuel starvation.

1 INCIDENT ■ During engine start, pilot placed fuel pump in high position for about 15 seconds, hit starter switch, and noticed smoke under cowling. Fuel pump was cut off and fuel valve secured. Pilot continued to motor the starter in an attempt to eliminate fire. Attempt was unsuccessful so pilot exited the aircraft with an extinguisher and put out the fire. Nose wheel and engine cowling were damaged.

1 PRECAUTIONARY LANDING ■ Chip detector light came on. Magnetic chip detector was changed.

OV-1

1 ACCIDENT ■ After taking off on IFR flight, pilot experienced buffeting three separate times and ejected. Accident is under investigation. (ARNG)

4 PRECAUTIONARY LANDINGS ■ Pilot detected JP-4 odor and proceeded to airfield. Cause unknown. (ARNG) ■ Crew noted loss of hydraulic pressure. Visual check revealed no abnormalities. Caused by malfunction of hydraulic tape gauge. ■ Aircraft was being test flown for replacement of left main gear actuator. When landing gear was cycled down for landing, left main gear indicated in transit. Pilot recycled gear several times and each time he could not get a down-and-locked indication. Pilot declared a precautionary landing with airfield tower, activated pneumatic emergency gear extension and gear indicator showed gear down and locked. Aircraft was landed and placed on jacks. Actuator was inspected and retraction test performed. Aircraft was released for test flight. During second test flight, left main gear again would not indicate down and locked. Pilot recycled gear several times but gear continued to indicate in transit. Pilot activated emergency gear extension but gear still indicated in transit. Pilot stated he could see from cockpit that gear was not locked in place. Visual inspection during flyby of tower confirmed gear was not down and locked. Pilot made touch-and-go landing, which jarred gear into down-and-locked position. This was confirmed by gear indicator and visual inspection. Aircraft was landed without further mishap. Suspect maintenance inspection factor. ■ Landing gear required approximately 3 minutes to retract after activation. Pilot attempted to lower gear but numerous recyclings, as well as sideslipping the aircraft, proved unsuccessful. Pilot blew gear down with emergency pneumatic system. Examination revealed gear selector valve had failed internally and nose gear actuator was leaking internally.

U-10

1 ACCIDENT ■ While making bundle drop pilot looked back to observe and permitted aircraft to descend below tree line. While pilot was attempting to pull up, tail section struck tree, pitching nose down. Aircraft crashed into trees and burned. Pilot received minor bruises and both passengers sustained multiple lacerations of the head and face. One had a possible fractured rib.

C-7

1 PRECAUTIONARY LANDING ■ Aircraft was approximately 5 minutes out of home base on night service flight when No. 2 engine backfired and lost power. Pilot shut engine down and returned to home base where it was determined No. 11 cylinder exhaust rocker arm had failed.

T-42

1 PRECAUTIONARY LANDING ■ During gear retraction after takeoff, aircraft had complete electrical failure, resulting in partial gear retraction. Pilot continued climb to 1,000 feet agl, leveled aircraft, and circled airport while emergency procedures were completed for electrical failure. Electrical power could not be restored. Pilot completed emergency gear extension and made flyby of tower for gear check. Airport tower personnel had observed partial gear retraction and subsequent loss of communications and were aware of emergency. Tower personnel visually checked gear during flyby and concluded main gear was not fully extended. During climbout after flyby, electrical power momentarily came on, allowing pilot to electrically extend gear. Landing was completed and battery relay was found to be defective.

U-1

1 PRECAUTIONARY LANDING ■ Considerable amount of oil covered windshield during flight. Engine breather line had frozen shut, causing buildup of pressure in engine which forced oil out through breather gasket. (ARNG)

U-3

2 PRECAUTIONARY LANDINGS ■ IP was demonstrating emergency descent from 7,000 feet at 140 knots IAS. Aircraft began rapid roll to left, and IP recovered, using aileron and rudder. Flaps were retracted and landing was made. Left flap push-pull tube failed at point where rod end is welded to push-pull tube, causing left wing portion of flaps to fully retract. (USAR) ■ Right and left auxiliary fuel cells began siphoning large amounts of fuel overboard during climb. No explanation was reported. (ARNG)

U-8

4 PRECAUTIONARY LANDINGS ■ Aircraft was returning to home station from night training flight. Gear was extended for landing but right main gear did not indicate down and locked. Pilot made go-around and retracted gear. Right main gear remained down. Pilot extended gear manually and still did not have down-and-locked indication for right gear. Low pass was made and gear was visually checked. Gear appeared to be fully extended and aircraft was landed. Caused by internal failure of screwjack. ■ During test flight, No. 2 engine would not restart after being shut down and feathered. Caused by inoperative accumulator. ■ During test flight, No. 2 engine was shut down and feathered, and would not restart. Accumulator was not installed. ■ No. 2 engine chip detector light came on during takeoff. Steel rivet head was found on No. 2 chip detector. (ARNG)

U-21

3 PRECAUTIONARY LANDINGS ■ IP noted fuel siphoning from right wing tank. Pilot reduced airspeed to 120 knots on return flight to airfield. Inspection revealed slight bend in filler hole lip, allowing airflow under filler cap. Sheet metal was reshaped and aircraft released for flight. ■ After accomplishing DER check at 6,000 feet, pilot initiated climb to cruise altitude of 9,000 feet. As aircraft was passing through 7,000 feet, No. 1 engine torque dropped suddenly to 1,050 pounds from climb setting of 1,100 pounds. At 8,000 feet, with torque set at 1,000 pounds for both engines, aircraft started yawing due to constant surging of left engine. Torque and fuel flow fluctuated rapidly between 350 and 1,000 pounds, and 210 and 270 respectively. Fluctuating instruments and aircraft yawing persisted after leveling off at FL 090. Pilot declared emergency and returned to home base. At 3,000 feet and 10 NM from airfield, pilot secured No. 1 engine and made single-engine landing. Maintenance inspection revealed fuel control unit for left engine had failed. Shaft and bearings for unit were found to be excessively worn. ■ During test flight at completion of PMP No. 7, fuel was seen streaming from inspection panel at rear of No. 1 engine nacelle tank immediately after engine shutdown. Aircraft was returned to home base where it was determined mechanic had left gasket off because it was not shown in TM 55-1510-209-20P, figure 150, item 157. Quality control personnel overlooked the absence of the gasket when the work was inspected and signed off.

FIXED WING 360-DAY MISHAP DATA

	Last 30 Days	Last 90 Days	Last 180 Days	Last 360 Days
Injuries	5	5	5	7
Fatalities	0	0	0	0
Dollar Cost	$1,114,414	$1,182,729	$1,204,688	$3,648,806

DID YOU KNOW?

During past safety assistance visits, USAAAVS maintenance personnel have found that field personnel are not aware of TB 43-0142, subject: Safety Inspection and Testing of Lifting Devices (8 Feb 74). This technical bulletin prescribes responsibilities, procedures, and guidance for implementing the requirements of the Occupational Safety and Health Act (OSHA) Standards of 1970 to be used in accomplishment of safety inspections and testing of lifting devices. The TB applies to Headquarters, Department of the Army, major commands to include their subordinate commands, installations and activities, and separate installations and activities reporting directly to Headquarters, Department of the Army.

The TB covers the type and frequency of inspection for forklift trucks including loader, scoop type with forklift and/or crane attachments; cranes including mobile, gantry, and overhead shop types; chains; wire ropes; cables; hooks; and many other lifting devices.

The TB was distributed in accordance with DA Form 12-34, Block #68, requirements for TB 750 series (Troop Support Command). Personnel should review their requirements on this DA form to insure that the correct block is filled out. Also, a DA Form 17 should be submitted to requisition the required number of the referenced TB.

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

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ARMY AIRCRAFT MISHAP PREVENTION DATA

FLIGHT FAX

ORVAL RIGHT
Chief Advisor on
Matters of Aviation

A USAAAVS PUBLICATION

VOL. 3, NO. 13 ■ 22 JANUARY 1975

mishaps for the period of 3-9 JANUARY 1975

Broken-Wing or Ding-A-Ling

CPT Walter R. Mueller, Maryland Army NG

After two long weeks we were heading north. The trip home had finally begun. As the pilot of the number two bird in a formation of five, I settled back and let the copilot play follow the leader as our loose trail formation cruised homeward at 2,000 feet and 90 knots.

As the events of the now past annual training period raced through my head, I remember thinking how proud everyone in the troop was that we had trained, inserted, and extracted over 1,200 troops without even an incident. The newly equipped troop, augmented daily by two CH-47s, had proved that we could function as a unit and accomplish our mission.

About 20 minutes into the flight I took the controls and continued to lock on the lead. The moderately loaded aircraft (nine on board) responded well and felt good in my hands. As the troop operations officer, I hadn't flown much during the exercises and felt bad about not getting more time toward my minimums.

I don't know who saw it first but the crew responded simultaneously to report the flicker of the master caution light. A quick check of the panel showed "hyd press." As the copilot went into the recycling sequence, I notified flight lead of the potential problem. Within seconds the problem was confirmed. Here we were, one UH-1D, nine people on board, straight and level at 2,000 feet with full hydraulic failure. I confirmed the problem to flight lead and stated my intentions to make a slow 180° to return to an airport we had flown past about 5 minutes before.

At this point we knew what had to be done and we briefed the crew chief who, in turn, briefed the troops. Knowing we had about a 4-minute flight we took out the checklist and insured we'd done everything we could and refreshed our memories on the running landing we knew was 3 minutes away.

At this point I made the decision to allow the copilot to make the initial approach with me monitoring the controls. I did this for two

Continued on back page

CREDIT GIVEN FOR ACCIDENT PREVENTION COURSE

USAAAVS now awards credit for completion of its Aviation Accident Prevention Course to all aviation warrant officers who graduate from the Aviation Warrant Officer Advance Course. This is due to the similarity of the safety subjects taught in both courses of instruction.

AAPC Certificates of Completion were awarded to AWOAC Class No. 75-1 and their personnel records annotated to indicate credit for the USAAAVS course. Procedures have also been taken by Chief, Aviation Warrant Officer Branch, to annotate all personnel records of the graduates of AWOAC No. 74-1 and 74-2, indicating credit for the AAPC.

This action was initiated to reduce the repetitious training encountered by some warrant officers who had recently graduated from the AWOAC and subsequently found themselves attending the USAAAVS AAPC. It also maintains better management and use of the limited allocations to the AAPC.

This policy establishes a minimum of one year between graduation from the AWOAC and attendance at the AAPC.

UTILITY/ATTACK DIVISION

Fatalities: 0 ■ *Accidents:* 0
Injuries: 0 ■ *Estimated Costs:* $4,950

■ MAJ Charles E. Toomer, Chief
558-4198

Two incidents and eleven precautionary landings were reported.

UH-1

2 INCIDENTS ■ While executing simulated antitorque failure in right fixed pitch condition, pilot slowed aircraft below translational lift and rolled throttle off to align nose of aircraft with runway. Pilot allowed high sink rate to develop and aircraft touched down hard before IP could recover. ■ Pilot was hovering over uninhabited island when he misjudged distance from a sand hill. Tail rotor struck ground, causing sudden stoppage of tail rotor drive train. Aircraft was landed without further incident.

10 PRECAUTIONARY LANDINGS–following are selected briefs ■ Oil pressure gauge dropped to zero without any caution panel indications or rise in oil temperature. Caused by failure of oil pressure gauge. ■ Flashes and fumes originated from forward battery compartment and pilot suspected thermal runaway condition. After landing, maintenance determined that standby compass light plug had come loose and was arcing on instrument panel. (USAR) ■ During IFR training flight, rpm warning light came on and engine tachometer dropped to zero, with accompanying audio sound. Caused by failure of tachometer generator. ■ Fire warning light flickered on and off, then came on steady. Inspection revealed water in cannon plug caused short. ■ While hovering over preset ground fire to practice use of fire suppression kit, pilot swung boom to right and then attempted to retract it to dump mode. Boom would not retract and pilot attempted to move boom left and into stowed position. At this time, hoist located in left cargo compartment struck inside of closed door and smoke emitted from hoist actuator. Upon landing and shutdown, pilot saw that smoke ceased to emit from actuator when the system was turned off. Mode selector switch was in fire suppression mode. Fire suppression and hoist control box had shorted out. Cause unknown.

AH-1

1 PRECAUTIONARY LANDING ■ During test flight, the 90° gearbox chip detector light came on. Fuzz was found on plug. Plug was cleaned and reinstalled. □

LOSS OF RESOURCES
FROM THIS WEEK'S MISHAPS

FATALITIES:	0
INJURIES:	0
AIRCRAFT LOSSES:	0
ESTIMATED COSTS:	$4,950

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

Prepared from information compiled by the Directorate for Aircraft Accident Analysis & Investigation
Colonel Samuel P. Kalagian, Director

LOH DIVISION

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

■ LTC David F. Stoutamire, Chief
558-4202

Two precautionary landings were reported.

OH-58

1 PRECAUTIONARY LANDING ■ Engine chip detector light came on. Normal wear was found on chip plug. Special oil sample was taken and engine oil was changed.

OH-6

1 PRECAUTIONARY LANDING ■ Transmission chip detector light came on. Inspection of chip detector revealed fuzz.

This is the best week LOH aircraft have had in six months. WELL DONE to all pilots and maintenance personnel! □

CARGO/SYSTEMS DIVISION

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

■ MAJ Robert P. Judson, Chief
558-4202

Two precautionary landings were reported.

CH-47

2 PRECAUTIONARY LANDINGS ■ Transmission chip detector light came on during approach. Fuzz was found on chip detector plug of aft vertical shaft. ■ Engine torque check was being performed at hover when No. 2 engine AC beep trim failed to the high side. Aircraft was landed and affected engine was brought to ground idle. At this time, chip detector light illuminated and No. 2 engine was shut down. Maintenance personnel found fuzz on No. 2 engine chip plug but could not duplicate beep failure. □

FIXED WING DIVISION

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

■ LTC Howard D. Deane, Chief
558-3901

Two precautionary landings were reported.

C-54

1 PRECAUTIONARY LANDING ■ While conducting training en route to begin a service mission, crew executed emergency descent from 10,000 feet. At approximately 1,000 feet, gear was lowered and flaps selector switch placed in full down position. At this point, crew noted hydraulic pressure was lost. Gear was down and locked and flaps indicated 15°. Attempt was made to transfer fluid to main (lower) reservoir. Emergency (manual) hydraulic system did not produce sufficient pressure to operate hydraulic system. Aircraft was landed at home base. Examination revealed landing gear selector valve seals had failed, causing loss of hydraulic fluid.

OV-1

1 PRECAUTIONARY LANDING ■ During service mission, pilot noted loss of hydraulic pressure on gauges. Windshield wipers were activated with negative results, confirming loss of hydraulics. Landing gear was blown down with emergency pneumatic system and aircraft landed. Examination revealed large hydraulic line going to hydraulic filter in left wing was leaking at fitting. □

Continued from front page

reasons. First, my copilot had over 1,500 hours in the UH-1 and 40 in the last 2 weeks versus my 3 hours in the last 2 weeks. Second, I have always maintained that the extra applied pressure, if needed, during a hydraulic-out emergency must be right the first time and I had the confidence mine would be. With me calling out vitals, encouragements, and corrections, we greased our not-so-reliable bird down for a perfect touchdown and runout. The troops departed on signal and cleared the area. The rest of the flight pulled up on the grass next to the runway we were on. A representative from the base arrived about the same time I finished congratulating the copilot on a professional job and he told us we'd have to move off the runway so some expected fixed wing traffic could land.

Decision number two coming up! As the senior man on the scene, I elected to have an SIP get in the left seat so we would have more experience at the controls in case something else went wrong. At this time I informed my 6'2" copilot to pack up his gear and move out. The first team would handle it from here on!

The 5'9" SIP arrived at the left door and climbed in. He adjusted his seat (we did not use a checklist) and we then discussed what and how we were going to move our now not-so-reliable aircraft off the active. We agreed not to get airborne but just light enough on the skids to ground taxi off to the left about 50 feet. All was going well as we both applied left pedal after pulling in a little power. Then it happened. The SIP seat was not locked into position and the pressure we were exerting on the left pedal gave. The seat slid backwards abruptly with the SIP's right hand on the cyclic and we found ourselves at a 12- to 15-foot hover without hydraulic and without ideas. (Somehow during our rapid departure from the ground one of us pulled enough collective to keep the tail rotor from hitting the runway.) At this point the SIP relinquished all control of the aircraft until he could readjust and lock his seat. From here on it was a simple case of aim it at the ground about 150 feet to our left front and shut it down. Luckily this was accomplished with no damage or injury.

The next day we were all home safe and sound. A lesson learned? I think so since to this day no matter who "jumps" in to fly around the pattern I have them check the seat lock. Now I ask you—an SIP and IP with over 4,000 hours experience on a ground taxi mission—broken wing or ding-a-lings?

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

OFFICIAL BUSINESS

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ARMY AIRCRAFT MISHAP PREVENTION DATA

FLIGHT FAX

ORVAL RIGHT
Chief Advisor on
Matters of Aviation

A USAAAVS PUBLICATION

VOL. 3, NO. 14 ■ 29 JANUARY 1975 mishaps for the period of 10-16 JANUARY 1975

NIGHT GUNNERY TRAINING

An AH-1G with an IP and pilot aboard was cleared for takeoff at 2030 hours for gunnery training. The aircraft was armed with 250 rounds of 40mm and 52 10-pound rockets. The pilot made a normal takeoff downrange, followed by a gentle climb to establish right-hand traffic at 1,200 feet mean sea level (msl) while a UH-1H with sealed beam lights orbited in left-hand traffic at 1,500 feet. A combat setting was established during the first run by firing four pairs of rockets. The pilot climbed out to 900 feet and initiated a second rocket pass from 700-800 feet, in which he fired the remainder of his inboard stores (15 pairs). Continuing in right-hand traffic, he returned to 900 feet on downwind, followed by a descent to 700 feet in order for the IP to fire the 40mm grenade launcher. This third pass was made in straight and level flight with the pilot at the controls and the IP operating the turret, firing all available 40mm rounds.

The UH-1 crew attempted to illuminate targets throughout this exercise but the quality of light was degraded by smoke and dust and difficulties with the sealed beam lights. In an effort to improve illumination, the crew descended to 1,000 feet while the crew chief and light operator directed his beam on the most apparent target, a pond and tank hull approximately 2,500 feet downrange.

The unit commander, observing the firing from the air, made a low pass over the range to check earlier complaints by aircrews concerning poor visibility. His report indicated no restriction to visibility on the range and he encouraged aircrews to make maximum use of the low-level night gunnery opportunity. Landing at the range, the unit commander directed that a floodlight mounted on the tower be shut off since it was adversely affecting the vision of personnel located at the base of the tower. He then climbed the tower and observed events from a position immediately below the range OIC and radio operator.

The IP took control of the AH-1 as it entered

Continued on back page

LOSS OF RESOURCES
FROM THIS WEEK'S MISHAPS

FATALITIES:	3
INJURIES:	0
AIRCRAFT LOSSES:	1
ESTIMATED COSTS:	$366,070

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

Commander	558-3410/3819
Technical Research and Applications	558-6404/6410
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Commercial:	255-XXXX

Prepared from information compiled by the Directorate for Aircraft Accident Analysis & Investigation
Colonel Samuel P. Kalagian, Director

UTILITY/ATTACK DIVISION

Fatalities: 3 ■ *Accidents:* 2
Injuries: 0 ■ *Estimated Costs:* $362,070

■ MAJ Charles E. Toomer, Chief
558-4198

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

UH-1

2 ACCIDENTS ■ Crew smelled fuel odor during climb, followed by explosion in engine area. Engine failed and aircraft was autorotated to water. Aircraft sank and crew was rescued. Cause of engine failure unknown. ■ Aircraft crashed during night training flight. Cause under investigation.

1 FORCED LANDING ■ Engine failed during PRACTICE AUTOROTATION. Flight idle solenoid replaced.

9 PRECAUTIONARY LANDINGS–following are selected briefs ■ Fire warning light illuminated during final approach. Fire warning control box replaced. ■ Hydraulic caution light came on. Hole in hydraulic line was caused by chafing. (ARNG) ■ Engine power decreased during cruise flight. Autorotation was initiated and governor failure procedures executed. Aircraft landed with power. (ARNG) ■ Copilot noticed smoke from top battery vent at termination of autorotation. Cause not reported. Battery inspection overdue. ■ Engine rpm decreased to 5920 in cruise flight. Suspect failure of linear actuator.

AH-1

1 INCIDENT ■ As throttle was being applied after touchdown autorotation, aircraft dropped nose down and left. IP brought aircraft to hover, then landed on supporting material. Suspect materiel failure of forward cross tube assembly.

6 PRECAUTIONARY LANDINGS ■ Aircraft shuddered during descent. Pilot applied collective to slow increase in rpm. Rpm decayed and pilot lowered collective, regained rotor rpm, and placed governor in emergency. ■ Crew heard noise and noticed hydraulic caution light. No feedback was felt in controls. Fitting on No. 1 hydraulic system fore and aft cyclic servo was loose. ■ Oil bypass light came on after hover check and engine oil pressure fluctuated. Oil temperature rose, egt went to 1,000°, and pressure dropped to zero. Suspect failure of No. 2 engine bearing. ■ D.C. generator light came on. Generator replaced. ■ Engine chip detector light came on. Suspect deterioration of engine. ■ Transmission oil pressure light came on and transmission oil dropped to zero. Suspect gasket failure. □

LOH DIVISION

Fatalities: 0 ■ *Accidents:* 0
Injuries: 0 ■ *Estimated Costs:* $4,000

■ LTC David F. Stoutamire, Chief
558-4202

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

OH-58

2 INCIDENTS ■ Both incidents happened during authorized NOE flight. Both aircraft struck yucca plants, sustaining skin damage to main rotor blades.

1 FORCED LANDING ■ Power turbine tachometer indicated loss of rpm during climbout. Pilot lowered collective and still was unable to maintain rpm. Pilot then executed running landing. Caused by short in wire on linear actuator.

9 PRECAUTIONARY LANDINGS ■ Tail rotor chip detector lights of two aircraft came on in flight. One aircraft had a loose chip detector wire and one had fuzz on chip plug. ■ During cruise flight, TOT dropped to zero. Inspection revealed loose wire on TOT gauge. ■ Fuel filter caution light came on. Filter was replaced. (ARNG) ■ Tail rotor chip detector light came on. Inspection revealed metal particles on detector plug. Gearbox was replaced. ■ Master caution and inverter segment lights illuminated. Pilot smelled smoke in cockpit and turned inverter switch off. Caused by internal failure of inverter. (ARNG) ■ Fuel filter caution light came on. Cause unknown. (ARNG) ■ Transmission hot light came on during approach. Inspection revealed oil switch failure. ■ Pilot could not maintain rpm during cruise flight. Pilot lowered

collective and rpm returned to green. Pilot increased collective but rpm again decreased. Power-on autorotation was made to plowed field. Suspect double check valve malfunction.

OH-6

1 PRECAUTIONARY LANDING ■ Oil pressure warning light came on during takeoff. Suspect clogged filter element. (ARNG) □

CARGO/SYSTEMS

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

DIVISION

■ MAJ Robert P. Judson, Chief
558-4202

Four precautionary landings were reported.

CH-47

4 PRECAUTIONARY LANDINGS ■ Aircraft was in cruise when loud squeal was heard in control closet. Crew chief's investigation revealed rupture in No. 2 flight boost hydraulic line in closet area. Aircraft was landed and line was replaced. (ARNG) ■ Second mishap was identical to first. (ARNG) ■ Aircraft was on short final when pilot felt jolt in flight controls. No. 1 flight boost and SAS warning lights illuminated, with system pressure indicating 500-600 pounds. No. 2 flight boost system was selected by pilot and landing was made. After engines were shut down, flight boost selector switch was returned to the "both" position and No. 1 hydraulic boost system came back on line. Aircraft status unknown as no fault has been found to date. ■ Flight engineer detected severe hydraulic leak in vicinity of aft transmission accessory gearbox area and aircraft was landed. Inspection revealed no visible hydraulic fluid in No. 2 flight boost reservoir sight gauge. Inspection is continuing at this time as no fault has been detected. □

FIXED WING

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

DIVISION

■ LTC Howard D. Deane, Chief
558-3901

One forced landing and five precautionary landings were reported.

T-41

1 FORCED LANDING ■ During climbout after takeoff on VFR training flight, IP detected strong fuel odor in cabin. Fuel flow indicator was fluctuating between 6 and 12 gph. Because of fumes IP elected not to turn on auxiliary fuel pump and declared an emergency. As IP was turning crosswind, engine failed. IP landed dead stick back on runway but opposite his direction of takeoff. Fuel lines were removed and pressure checked. Firewall was removed but no fuel leaks could be found. During an extensive MOC and test flight, fuel flow indications remained normal so aircraft was released for flight.

C-7

2 PRECAUTIONARY LANDINGS ■ Crew noticed severe vibration in nose wheel section during takeoff roll. Pilot aborted takeoff. Nose wheels and tires were replaced, steering collar adjusted, high speed taxi check performed, and aircraft released for flight. ■ Shortly after takeoff, pilot placed gear switch handle in up position and gear began to retract. Loud noise was heard by crew and both hydraulic pressure lights came on. Main gear free-fell to down-and-locked position and nose gear was blown down. Emergency procedures were completed and aircraft landed at home base. Examination revealed top mount bolt of main landing gear retract bracket had failed, causing top hydraulic line of retract cylinder to rupture, allowing hydraulic fluid to escape.

OV-1

1 PRECAUTIONARY LANDING ■ Aircraft was straight and level on training flight when crew noticed hydraulic gauges were indicating no pressure. They functionally confirmed a complete loss of hydraulic pressure, returned to home base, extended gear pneumatically, and landed. Examination revealed hydraulic line to nose gear actuator (FSN 4720-817-1861) had not been properly tightened during maintenance the previous day and came loose in flight, allowing all hydraulic fluid to leak out.

U-21

2 PRECAUTIONARY LANDINGS ■ Following takeoff on IFR service mission, landing gear stopped in the

transient position when gear switch handle was moved to up position. Gear was extended manually and aircraft landed. Caused by broken wire on landing gear power circuit breaker. ■ When pilot placed gear switch in down position on downwind leg for landing, in transit light came on but green, safe indicator lights did not. Gear was retracted successfully and second attempt to extend gear produced neither lights nor wheels down. Landing gear motor circuit breaker was recycled and landing gear successfully extended. Caused by failure of switch assembly (NSN 5930-00-832-9845). □

Continued from front page

downwind on its fourth and final pass and requested permission for a "500-foot running pass." The request was approved by the range OIC. The aircraft was cleared to fire as it crossed the firing line at what nearly all witnesses said was an extremely low altitude. The pilot selected ARM on the master arm control switch while the IP eased the aircraft over to a shallow dive angle, acquired the illuminated pond as his target, and salvoed his outboard stores (seven rocket pairs). The aircraft continued to descend, following its last pair of rockets into the ground in spite of an apparent last-second attempt to recover. The IP was killed, the pilot received major injuries, and the aircraft was destroyed.

This accident offers some valuable lessons for aviators and supervisory personnel alike.

Aviators must avoid descending below altitudes at which safe recovery cannot be achieved. Communication between aircrewmembers is imperative. Warn the man on the controls if you think his descent is too low. Guard against overattention to tasks. Don't let complacency develop through an overriding trust in a crewmember's ability.

Range officers must not permit aerial gunnery training on ranges that are not properly prepared for night operations. Range lighting must meet minimum safety standards required by chapter 14, AR 385-63. Range officers must not authorize special low-level rocket attacks beyond established operational parameters. Commanders must not direct low-level night gunnery operations prior to developing adequate skills and techniques. Approved doctrine or unit SOP must be developed prior to night employment of AH-1G aircraft at low altitude.

Supervisors must be aware of the limitations and abilities of aircrews and give full consideration to this in mission assignments.

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

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ARMY AIRCRAFT MISHAP PREVENTION DATA

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Chief Advisor on
Matters of Aviation

A USAAAVS PUBLICATION

VOL. 3, NO 15 ■ 5 FEBRUARY 1975

mishaps for the period of 17-23 JANUARY 1975

Daily UH-1/AH-1 Blade Inspection

During a recent visual inspection of an AH-1 rotor blade an abnormality was detected. The blade was removed and forwarded to the laboratory for analysis. Findings were:

a. A 4½" fatigue crack in the spar.

b. The blade total time was 607 hours and had been ultrasonically inspected for debond in accordance with TB 55-1500-206-50-1 at 547 hours. The blade had not been reinspected in accordance with TB 55-1500-206-20-21.

c. Pilot reported that he performed a daily inspection at his RON stop on cross-country and aircraft was flown 6 hours subsequently.

The importance of the daily blade inspection (PMD) was emphasized by AVSCOM in their "UH-1, 1973-3 Technical Advisory Message on UH-1 M/R blades, P/N 204-011-250-5," dated 121901Z Sep 73, and reemphasized in their "AH-1, 1973-2 Maintenance Advisory Message pertaining to main rotor blade, P/N 540-011-250-1," dated 191708Z Nov 73. In December, AVSCOM again reiterated the importance of a close daily inspection by requiring a one-time visual inspection of all AH-1/UH-1 main rotor blades in their "SOF message, Technical Maintenance on all AH-1G, YH-1Q, TH-1G, and UH-1 aircraft, dated 070004Z Dec 73." Daily inspection procedures are:

"a. Wipe the top and bottom surfaces on blades with a clean cloth.

"b. Visually inspect both surfaces directing particular attention to the area 0-12 inches aft of and parallel to the blade leading edge from approximately blade station 90 to station 210.

"c. Closely scrutinize the blades for corrosion where the abrasion strip laps the blade skin. Check for a lifting or pinching of the abrasion strip where it laps the blade skin, a crack in the abrasion strip, or a crack in the blade skin running aft from the abrasion strip. Suspicious areas exhibiting paint cracks, bubbles, or buckling should be stripped of paint finish to facilitate inspection.

"d. Recurring daily inspection of the blades must be performed."

The importance of the daily blade inspection has been repeated in numerous messages pertaining to the blade problem. Consequently, there should be no need to again reemphasize, reiterate, or repeat its importance. However, the blade visual inspection cited above, which saved a life or lives and an aircraft, is ample evidence to do so. So get yourself a maintenance stand, ladder, truck and get up there, wipe those blades down and scrutinize, inspect, and examine their condition *daily*. The inspection *cannot*, repeat *cannot*, be performed standing on the ground and/or on the transmission deck looking at the blade.

LEAVE IT DOWN

A review of recent mishap reports shows that aviators are flying potentially unsafe aircraft after performing a safe landing following an in-flight emergency.

In our opinion, such actions produce unnecessary risks. Once the aircraft is safely down, leave it down.

We urge all commanders and supervisors to take a hard look at their SOP's, policies, and aviator education programs and insure that aviators fully understand what can and cannot be done with an aircraft after an in-flight emergency.

UTILITY/ATTACK

Fatalities: 0 ■ *Accidents:* 0
Injuries: 0 ■ *Estimated Costs:* $10,284

DIVISION

■ MAJ Charles E. Toomer, Chief
558-4198

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

UH-1

3 INCIDENTS ■ Main rotors of two aircraft struck trees during authorized NOE training. ■ Broken front cross tube was discovered during postflight inspection. Cause unknown.

2 FORCED LANDINGS ■ Engine failed during maintenance test flight. Caused by short circuit in fuel shutoff solenoid. ■ During simulated instrument takeoff at approximately 50 feet agl and 30 knots, aircraft yawed left and right and emitted loud squeal. Pilot initiated right turn to return to field and land. At 150 feet and 50 knots, engine made two loud bangs and failed. Aircraft was autorotated to open field. N1 was zero and egt was 900° C. at touchdown. WELL DONE to CW2 Bobby G. Cormack.

10 PRECAUTIONARY LANDINGS–following are selected briefs ■ Tail rotor chip detector light activated. Replaced 90° gearbox. ■ Oil was seen coming from exhaust stack during formation flight. Caused by deteriorated oil seal in engine. ■ Transmission oil pressure fluctuated, then dropped to 15 psi. Caused by failure of oil drain valve. ■ Overtorque of 64 psi was experienced during recovery from simulated antitorque failure. ■ Engine chip detector light came on. Caused by loose wire. ■ Engine tachometer reading dropped to zero. Caused by failure of engine tachometer generator.

AH-1

4 PRECAUTIONARY LANDINGS ■ Tail rotor pedals locked while aircraft was at 50-foot hover. Pilot recovered and flew to Army airfield for run-on landing. Tail rotor servo failed. ■ Engine chip detector light came on. Chips found on magnetic plug. ■ Engine fuel pump caution light illuminated. Caused by loose wire on pressure switch. ■ No. 2 hydraulic caution light came on. Hole chafed in pressure line. □

LOH

Fatalities: 0 ■ *Accidents:* 0
Injuries: 0 ■ *Estimated Costs:* $428

DIVISION

■ LTC David F. Stoutamire, Chief
558-4202

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

OH-58

1 INCIDENT ■ During approach to unlighted landing site, tail rotor blades struck bush. Incident damage to tail rotor blades.

8 PRECAUTIONARY LANDINGS ■ Transmission chip detector lights of three aircraft illuminated. Metal fuzz was found on all three chip detector plugs. (USA/ARNG) ■ Hydraulic pressure light came on, with no change in control response. Inspection revealed hydraulic switch failure. ■ Engine chip detector lights of two aircraft came on. Inspection revealed metal fuzz. ■ Fuel boost pump caution light illuminated. Maintenance inspection revealed fuel boost pump failure. (ARNG) ■ Pilot noted binding in tail rotor pedals during flight. Caused by uninstalled cannon plug wedged between fuselage and tail rotor push-pull tubes. *Units, get the word to your avionics types. This continues to be a recurring problem.*

LOSS OF RESOURCES FROM THIS WEEK'S MISHAPS

FATALITIES:	0
INJURIES:	0
AIRCRAFT LOSSES:	0
ESTIMATED COSTS:	$10,712

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

Commander	558-3410/3819
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Colonel Samuel P. Kalagian, Director

TH-55

1 FORCED LANDING ■ Engine quit during practice autorotation at stagefield. Maintenance inspection revealed engine quit from fuel exhaustion. Instructor pilot knowingly made takeoff with inoperative fuel gauge and less than full load of fuel.

7 PRECAUTIONARY LANDINGS ■ Engine chip detector lights of two aircraft illuminated during approach. Both were caused by failure of warning light assemblies. ■ Engine ran rough. Four fuel injection nozzles failed. ■ Instructor pilot smelled something burning during hover. Inspection revealed electrical wires in cockpit were overheating because of voltage regulator failure. ■ Electrical failure occurred during flight. Hole in exhaust manifold allowed heat to burn through alternator wire. ■ Pilot felt high frequency vibration in cruise flight. Caused by heater blower motor failure. ■ Rotor tachometer needle dropped to zero during cruise flight. Caused by broken tachometer drive cable.

WOULD YOU BELIEVE?

The following excerpt was taken from an accident report: Pilot error is also contribution factor, but migrating circumstances of changing touchdown zones out of concern for the safety of the Vietnamese civilians and the deception created by rice growing in the final touchdown area must be considered to lesson the unfavorable stigma attitude to pilot error a contributing factor to the accident. □

CARGO/SYSTEMS

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

DIVISION

■ MAJ Robert P. Judson, Chief
558-4202

Two precautionary landings were reported.

CH-47

1 PRECAUTIONARY LANDING ■ Heater fuel line seal ruptured at tee fitting in cabin area during flight. Rupture caused atomized fuel to be sprayed into cabin.

CH-54

1 PRECAUTIONARY LANDING ■ Main transmission chip detector caution light came on. Inspection of transmission filter revealed small metal and carbon deposits. □

FIXED WING

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

DIVISION

■ LTC Howard D. Deane, Chief
558-3901

Seven precautionary landings were reported.

C-7

1 PRECAUTIONARY LANDING ■ No. 1 engine backfired and rpm fluctuated during flight. Pilot secured engine and landed. Maintenance inspection revealed cylinder head on No. 3 cylinder was cracked.

OV-1

2 PRECAUTIONARY LANDINGS ■ No. 1 engine chip detector light illuminated. Pilot monitored engine instruments and returned to home base. Metal particles were found on engine chip detector plug. Suspect failure of western gearbox bearings. (ARNG) ■ After 30 minutes of flight, hydraulic gauges reflected no pressure. All hydraulic systems were exercised without response. Aircraft was returned to airfield, gear was blown down, and landing was made. Inspection revealed pressure hose from No. 2 engine hydraulic pump had ruptured at pump fitting.

T-41

2 PRECAUTIONARY LANDINGS ■ Pilot noticed excessive nose gear shimmy during takeoff. Inspection revealed shimmy dampener bushing was excessively worn. ■ Pilot leveled aircraft at 2,500 feet after takeoff. When power was reduced to 23 inches, oil pressure dropped below green area. Plunger (P/N 631687) was scored and springs (P/N 534885 and 539619) were weak.

T-42

1 PRECAUTIONARY LANDING ■ Loud bang was heard when gear was raised during takeoff. Aircraft

remained in closed traffic. When gear was lowered, several bangs were heard. Gear indicated down. Flyby of tower was made and gear down was confirmed. Caused by failure of shear pin, P/N 45-824014.

U-8

1 PRECAUTIONARY LANDING ■ After takeoff from wet and icy runway, gear was retracted. Nose and right main gear indicated down, and left main indicated in transit. Gear was recycled several times. The above indication did not change when gear was retracted. Tower personnel confirmed that gear appeared to be operating properly. Gear was extended electrically and was then mechanically pumped down until resistance was felt in handle. Landing was made. Inspection of gear showed all three downlock switches were covered with one-eighth to one-fourth inch of ice.

ALTIMETER CHECK

SUBJ: Technical Advisory Message Regarding Altimeters in All Army Aircraft, Excepting the U-21 Series (Gen 75-3)

A. SOF MSG U-21-75-1 Dtd 142300Z Jan 75, Subj: U-21-75-1 Safety of Flight Message (one-time inspection) for U-21 series aircraft, altimeters, TB 55-1510-209-20-21.

1. Purpose of message: To determine that altimeters intended for use on U-21 series aircraft (some of which could be defective) have not been inadvertently installed on any other Army aircraft.

2. Our records indicate that the altimeters specified in this message are used only on the U-21 series aircraft. It is possible that these altimeters could have been installed on other Army aircraft. Therefore all other Army aircraft should be checked to determine if any were inadvertently installed on them. If so, they should be removed and replaced with the appropriate instrument.

3. The removed altimeters must be modified in accordance with instructions in SOF Msg U-21-75-1, dated 142300Z Jan 75, prior to installation in U-21 aircraft.

4. Following are the suspect altimeters:

a. United Instruments, Inc., D/NS 5932, 5934, IKK model LA4 TSOC10B, TKK model LA7 TSOC10B.

b. Beech Aircraft, P/N 50-380094, 50-384119, 58-380011, 58-380012, 58-380041, 100-324056, 163-380073.

c. Cessna, P/N C661011, C661071, C661025.

d. Piper, P/N 99009, 405-611, 455-694, PS50008, 550-488, 550-489, 550-490, 550-491, 550-492, 550-493, 322-81-03, 322-81-04.

e. Bell, P/N 206-070-263, 47-711-303.

5. Request you notify this headquarters, AMSAV-FEG, ATTN: Mr. Wiedermann, only if you find any of these instruments inadvertently installed on your aircraft. □

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

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ARMY AIRCRAFT MISHAP PREVENTION DATA

FLIGHT FAX

ORVAL RIGHT
Chief Advisor on
Matters of Aviation

A USAAAVS PUBLICATION

VOL. 3, NO. 16 ■ 12 FEBRUARY 1975 mishaps for the period of 24-30 JANUARY 1975

TWO TIMES WELL DONE

Mr. Theodore Shulsen, a civilian flight instructor at Fort Rucker, was flying a TH-55 when he saw another TH-55 crash into the trees. Mr. Shulsen immediately landed, grabbed the fire extinguisher from his aircraft, and rushed to the aid of the student pilot who was flying the other aircraft. Mr. Shulsen approached the wrecked helicopter, which was leaking gasoline in the vicinity of its hot exhaust pipes, and sprayed the engine with his fire extinguisher.

He then turned his attention to the student pilot, who was pinned in the aircraft by a tree which had penetrated the cabin area between the pilot and copilot seats. The student's left arm and leg were broken and doubled up against his body. His head was thrown back and he was bleeding from the nose and mouth.

The student was not breathing and appeared to be dead. Mr. Shulsen tried to revive him with mouth-to-mouth resuscitation, something he had never done before. This did not help. Mr. Shulsen thought the student's lungs needed emptying, but was afraid to press on the student's chest because of the danger of puncturing the lungs if there were broken ribs. Twice, he removed the blood from the student's mouth and then found he had resumed breathing. Shortly afterward, the student regained consciousness. The rescue helicopter arrived within a few minutes and evacuated the student to Lyster Army Hospital. He remained in critical condition for several days, but is expected to fully recover.

Mr. Shulsen has been nominated for the Presidential Citizens Medal for his performance in this situation.

■■■

Mr. Harold J. Beauchesne, a civilian instructor pilot, recently completed 1,000 flying hours as TH-55 instructor pilot in the Rotary Wing Primary Course at Fort Rucker without being involved in an accident or incident.

■■■

USAAAVS is proud to recognize Mr. Beauchesne and Mr. Shulsen for jobs well done.

ARN 103 TACAN. Information from the field reveals that an unlock condition can occur when using FAA VORTAC GRC 9. Aircraft flying within 5-15 miles of the VORTAC in the 1,500-2,000 ft agl altitude range have experienced unlock in DME and Azimuth. This is caused by saturation of the ground station by the high power output of aircraft-installed ARN 103. FAA is aware of this problem and the GRC 9 VORTAC is being modified under FAA Modification Document TCTO 3124-2-GRN-9-521/522. To date 20 percent of the GRC 9 VORTACs have been modified and the remainder are forecast to be completed by June 1975. This unlock condition can also occur when using the Air Force GRC 20 ground station. Aviators flying aircraft equipped with the ARN 103 TACAN **should be aware of this problem particularly when making approaches.**

LOSS OF RESOURCES
FROM THIS WEEK'S MISHAPS

FATALITIES:	0
INJURIES:	0
AIRCRAFT LOSSES:	0
ESTIMATED COSTS:	$530,962

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

Prepared from information compiled by the Directorate for Aircraft Accident Analysis & Investigation
Colonel Samuel P. Kalagian, Director

UTILITY/ATTACK

Fatalities: 0 ■ *Accidents:* 1
Injuries: 0 ■ *Estimated Costs:* $517,462

BRANCH

■ MAJ Charles E. Toomer, Chief
558-4198

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

UH-1

1 INCIDENT ■ Aircraft struck dead tree during low-level flight. Type of damage and cause unknown.
16 PRECAUTIONARY LANDINGS—following are selected briefs ■ Pilot heard loud noise from engine area and aircraft yawed. Landing was made. Caused by failure of engine case assembly. (ARNG) ■ Battery fluid boiled from battery vent onto windshield. Battery switch was turned off and aircraft landed. Caused by short between battery cells. ■ Pilot landed due to deteriorating weather. Further flight would have resulted in aircraft entering inadvertent IMC. ■ Transmission oil pressure light illuminated and transmission oil pressure gauge indicated loss in pressure. Caused by failure of transmission oil filter gasket. ■ Engine chip detector lights of three aircraft illuminated. Fuzz was found on all three chip detector plugs. ■ Engine oil pressure gauge dropped to zero. Aircraft was VFR on top and descended through hole in clouds and landed. Caused by failure of engine oil pressure indicator.

AH-1

1 ACCIDENT ■ Crew chief started aircraft, picked up to hover, and lost control. Aircraft crashed. Crew chief was not injured. Investigation is in progress.
1 INCIDENT ■ Main rotor flexed into tail rotor drive shaft during touchdown of straight-in standard autorotation. Tail rotor drive shaft was severed.
2 PRECAUTIONARY LANDINGS ■ Transmission chip detector light came on. Transmission chip detector wire came loose from cannon plug. ■ No. 1 hydraulic caution light illuminated. Three minutes later, pedals froze and feedback was felt in cyclic. Pilot made running landing. Caused by improper installation of hydraulic return line from pump to module on No. 1 hydraulic system. □

LOH/CARGO

Fatalities: 0 ■ *Accidents:* 1
Injuries: 0 ■ *Estimated Costs:* $12,000

BRANCH

■ MAJ Robert P. Judson, Chief
558-4202

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

OH-58

1 INCIDENT ■ During local service mission, unauthorized pilot lost control of aircraft on final approach to landing area. Aircraft started spinning and struck ground. Landing cross tubes and skin were damaged.
8 PRECAUTIONARY LANDINGS ■ Four chip detector light illuminations were reported. Two were on transmissions, one was on engine, and one was on tail rotor gearbox. Inspection revealed two magnetic plugs contained fuzz and two transmission plugs contained metal chips. Both transmissions are undergoing further checks. ■ Fuel filter caution light came on during landing. Filter was clogged. (ARNG) ■ Hydraulic pressure lights of two aircraft came on. Investigation revealed one hydraulic pump would not rotate because of internal failure and the other hydraulic pump had a sheared shaft. Pumps were replaced and both aircraft released for flight. ■ Pilot flew aircraft into fog bank during takeoff. Pilot experienced vertigo, descended aircraft at high rate, and possibly overtorqued engine. Investigation of engine is in progress.

TH-55

1 ACCIDENT ■ Engine failure occurred on short final. Student pilot landed aircraft hard, causing major damage. Investigation is in progress.
1 PRECAUTIONARY LANDING ■ Pilot felt vibrations and heard strange noise during flight. Maintenance inspection revealed heater blower motor failure.

CH-47

2 PRECAUTIONARY LANDINGS ■ Aircraft was on approach with external sling load and rpm went to 255 when pilot lowered thrust control. Pilot landed without mishap with controlled thrust and emergency engine trim inputs. Normal engine trim failure suspected. (ARNG) ■ No. 2 engine transmission chip detector light came on. Maintenance inspection revealed internal failure of No. 2 transmission. □

FIXED WING

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

BRANCH

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

One incident and three precautionary landings were reported.

T-41

1 PRECAUTIONARY LANDING ■ Cylinder head temperature gauge exceeded red line during climb. Pilot returned to field and landed. Inspection revealed gauge failure.

U-8

1 PRECAUTIONARY LANDING ■ After takeoff on training flight, pilot reduced power to 43" manifold pressure and 2750 rpm. IP failed to monitor power settings and overboost condition occurred. Both engines are being changed.

U-21

1 INCIDENT ■ Unforecast icing was encountered during cruise flight on night service mission. Climb to higher altitude eliminated icing hazard and deicing equipment removed ice from wings and tail surfaces. However, ice remained on dipole antenna. Postlanding inspection revealed lower portion of left HF dipole antenna was cracked. Ice accumulation on leading edge of antenna caused lower portion to crack 1 inch below mount, running entire width of outboard side.

1 PRECAUTIONARY LANDING ■ During training flight, No. 1 engine was shut down because of suspected fuel leak. Landing was completed without incident. Inspection revealed faulty fuel drain valve.

OV-1 EJECTION SEAT CARTRIDGE SET

SUBJECT: Technical Advisory Message for OV-1 Series Aircraft Control Number OV-1-75-1

1. Purpose of Message. This message is being transmitted to advise that ARMCOM has extended the shelf life of ejection seat cartridge set 1377-00-627-9256 from six years to seven years from the date of manufacture. This technical advisory is being dispatched to preclude unnecessary grounding of OV-1 Mohawk aircraft due to temporary nonavailability of replacement cartridges.

2. This cited change in shelf life has been validated by engineering tests and does not constitute a reduction in safety. OV-1 Mohawk units that have recorded cartridge installation dates should review the DA Form 2408-18 retirement dates to determine if cartridge installed periods can be extended an appropriate period to agree with this new shelf life extension. However, the 42-month installation period shall not, repeat shall not, be exceeded.

3. OV-1 Mohawk units that cannot certify the cartridge installation dates shall replace ejection seat cartridges in accordance with the dates cited on the respective DA Form 2408-18. In this case a concentrated search of local munitions storage areas should be undertaken in an effort to locate unopened cartridge containers for possible use.

4. Information cited in this message should be inserted in TM 55-1680-255-24 pending receipt of the formal change. ~~The~~ following applies to change 10.

a. Chapter 2, page 16, paragraph 16G, is deleted in its entirety.
b. Chapter 3, page 96, paragraph 52, change note to cite seven years shelf life in lieu of six years shelf life.
c. Chapter 3, page 96, paragraph 55, delete in its entirety.
d. Chapter 3, page 96, paragraph 56, is revised as follows:
56. Seven year requirements. Accomplish the following every seven years.
a. Replace harness assembly.
b. Replace ejection seat cartridges seven years from date of manufacture regardless of cartridge installation (service) date.

5. Instructions contained herein may be used by OV-1 units pending receipt of the formal change to the ejection seat maintenance manual.

6. In view of the guidance cited herein, request all OV-1 Mohawk users survey their respective munitions storage areas for unopened cartridge sets which are surplus to immediate requirements. Report any surplus to ARMCOM, ATTN: AMSAR-QAR, with an information copy to AVSCOM, ATTN: AMSAV-QWV. □

ENVIRONMENTAL FACTORS

BRANCH

■ LTC Robert G. Hackett
558-3913

SUSPECTED CONTAMINATION

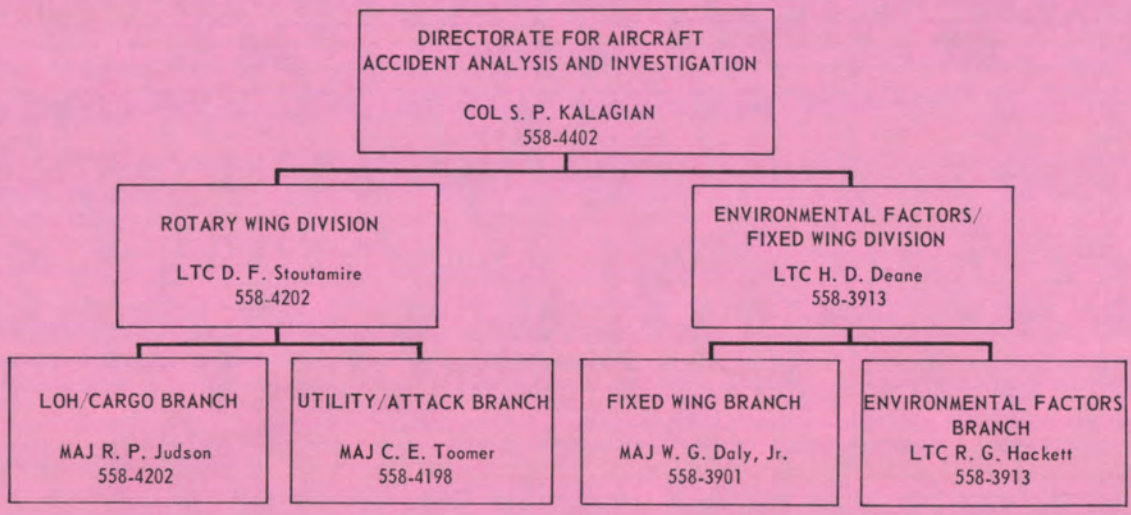
SUBJECT: Suspected Contamination of NSN 9150-00-944-8953 MIL-G-81322 Lots 10 and 28 Mfg by Royal Lubricants (GEN-75-01)

A. Msg JSAFACFS ATZR-DISU dtg 171848Z Dec 74, Subj: Suspected Contamination of NSN 9105-00-944-8953 (NOTAL)
B. Msg NAVAIRDEVCEN Warminister, PA, dtg 241935Z Oct 74, Subj: Suspected Contamination of FSN 9150-944-8953 MIL-G-81322 Aircraft Grease Batch Lot 9 DOP Nov/72 Mfg Royal Lubricant Contract DSA600-73-0-1291 (NOTAL)

1. Reference A reports visual inspection of subject lots reveals the formation of crystalline particles on the product's surface. Further container identification is lot 10 DOP Feb/73 Royal Lub Contract DSA600-73-C-1389; and Lot 28 DOP May/74 Royal Lub Contract DSA600-74-C-1681.

2. Recommend all Army activities under your command be notified to place only lots 10 and 28 in hold status, repeat, place only lots 10 and 28 in hold status. Report locations and quantities to DGSC-OB2, Richmond, VA, with info copy to USAGMPA STSGP-T by 14 Feb 75. Negative replies are not required. Disposition instructions will follow after further laboratory evaluation.

3. NADC (ref B), the qualifying activity for MIL-G-81322, after evaluation of a similar problem found on a Royal Lub lot 9 indicates product is satisfactory for use in all but critical instrument bearing applications. Because this grease is used in numerous aircraft bearings, all of which are considered critical applications, it is not feasible to attempt to prepare a list of areas where these lots could be used. Therefore, both lots 10 and 28 must not be used during maintenance of Army aircraft. □



On 1 February 1975, USAAAVS' Aircraft Accident Analysis and Investigation Directorate reorganized as shown above. The major change was the combining of LOH and Cargo into a single branch. Functions and responsibilities remain unchanged.

DEPARTMENT OF THE ARMY
UNITED STATES ARMY AGENCY FOR AVIATION SAFETY
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ARMY AIRCRAFT MISHAP PREVENTION DATA

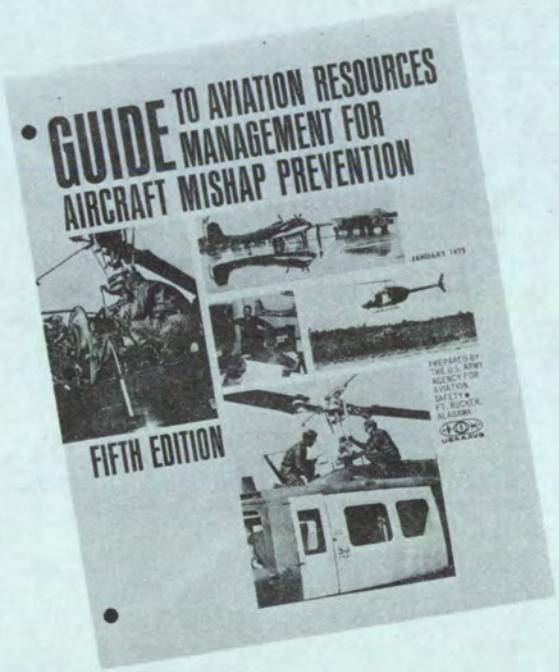
FLIGHTFAX

ORVAL RIGHT
Chief Advisor on
Matters of Aviation

A USAAAVS PUBLICATION

VOL. 3, NO. 17 ■ 19 FEBRUARY 1975

mishaps for the period of 31 JAN-6 FEB 1975



New Guide On The Way

The fifth edition of the Guide to Aviation Resources Management for Aircraft Mishap Prevention will soon be in distribution. A quick examination of the new edition will reveal a significant change in the listing of the references cited for each question. We did not include the specific page, paragraph, etc., of each reference as in past issues. It was felt that revisions to the references themselves, prior to a new edition of the Guide being published, would cause confusion in locating the required information. Also, we hope that users will discover some additional information in their "search" through the references. The foreword explains that subsequent editions will be published only when a substantial amount (more than the references) of the material changes. Minor changes will be published in the interim and sent to the field. Announcement of these changes will appear in FLIGHTFAX.

Users of this book are encouraged to submit recommended changes and comments to improve the effectiveness of this publication. Comments should be substantiated with reasons and keyed to the specific page, question number, and line being considered. Comments may be forwarded using the self-addressed mailer in the back of the book.

In the past, we have made bulk distribution of the Guide to approximately 1,200 addresses as well as fill additional requests for copies, regardless of the number. This year, in the interest of economy and paper conservation, five copies of the Guide will be sent to each addressee. We feel that this number will probably be sufficient for most unit operations if the following recommendation is adopted. One complete copy should be retained by the unit commander, operations officer, and aviation safety officer. The remaining two copies should be broken down and distributed in accordance with the subsection titles. If more copies are required, however, do not hesitate to submit your request. It will be filled!

UTILITY/ATTACK BRANCH

Fatalities: 0 ■ *Accidents:* 0
Injuries: 0 ■ *Estimated Costs:* $129

■ MAJ Charles E. Toomer, Chief
558-4198

One incident and twenty-two precautionary landings were reported.

UH-1

1 INCIDENT ■ Aircraft struck tree during climbout from confined area, breaking left chin bubble.

16 PRECAUTIONARY LANDINGS–following are selected briefs ■ Aircraft yawed during cruise flight and loud noise was heard from vicinity of engine. Maintenance checked but could not detect any malfunction. ■ Two aircraft landed because of fire warning lights. Both had moisture in cannon plugs. ■ Right fuel boost pump failed. ■ Main transmission oil filter gasket failed and oil pressure dropped to 10 psi. (ARNG) ■ Aircraft lost No. 1 hydraulic system. Caused by ruptured hose. (USAR) ■ Two aircraft were landed because of unforecast weather conditions. ■ Engine chip detector lights of four aircraft illuminated.

AH-1

6 PRECAUTIONARY LANDINGS–following are selected briefs ■ Pilot noted binding in lateral cyclic. Investigation revealed ducting of environmental control unit froze and caused duct to expand and bind cyclic linkage. Ducting was installed backwards. ■ Engine oil temperature increased to 125° and oil bypass light came on. Cause unknown. ■ Engine chip detector light illuminated during hover. Engine oil screens had metal slivers and oil analysis showed high metal content. ■ Engine chip detector light came on during hover. Inspection revealed metal chips on magnetic plug. □

LOH/CARGO BRANCH

Fatalities: 0 ■ *Accidents:* 0
Injuries: 0 ■ *Estimated Costs:* $2,012

■ MAJ Robert P. Judson, Chief
558-4202

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

OH-58

1 INCIDENT ■ Main rotor blade struck tree during supervised NOE flight.

2 FORCED LANDINGS ■ Pilot heard loud bang from aft of aircraft. All engine instruments went to zero. This same engine was reported as having a hot start two days before this failure. ■ Engine quit during hover. Suspect air leak in fuel line.

6 PRECAUTIONARY LANDINGS ■ Prior to initiating hover autorotation, SP noted stiffness in controls. Caused by hydraulic pump failure. ■ Pilot experienced self-induced cyclic movement during hover. Cause unknown. ■ Transmission chip detector light illuminated during landing. Magnetic plug contained carbon

LOSS OF RESOURCES FROM THIS WEEK'S MISHAPS

FATALITIES:	0
INJURIES:	0
AIRCRAFT LOSSES:	0
ESTIMATED COSTS:	$3,141

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
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After-duty tape recording of incoming calls to be returned following day (hours: 1615 to 0730)	558-6510
Commercial:	255-XXXX

Prepared from information compiled by the Directorate for Aircraft Accident Analysis & Investigation
Colonel Samuel P. Kalagian, Director

deposits. ■ Transmission oil pressure warning light came on. Transmission pressure sending unit wires were improperly attached. ■ Main rotor blades struck tree during supervised NOE flight. ■ N2 appeared to fluctuate slightly during cruise flight. After landing, line to fuel control was found to be loose. Line was tightened and aircraft released for flight.

TH-55

3 PRECAUTIONARY LANDINGS ■ Transmission chip detector light came on. Inspection revealed faulty magnetic chip detector. ■ Rotor tachometer needle dropped to zero. Rotor and engine tachometer indicator failed. ■ Engine oil pressure dropped to zero. Engine oil pump drive shaft failed.

CH-47

1 PRECAUTIONARY LANDING ■ No. 2 engine chip detector caution light came on during landing. Inspection revealed small sliver of metal on magnetic plug. □

FIXED WING

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

BRANCH

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

One incident and six precautionary landings were reported.

U-10

1 INCIDENT ■ During bundle drop mission, bundle failed to release from static line and chute did not open. Pilot felt two jerks on aircraft. Aircraft nosed up and handler cut static line. Door bulkhead was damaged and there was a 10-inch gash in sheet metal. WELL DONE to the bundle handler for his prompt action which may well have prevented an accident.

C-7

1 PRECAUTIONARY LANDING ■ Unusual noise was heard from No. 2 engine, followed by vibration and rpm fluctuation. Engine was secured and landing was made. Engine was changed after maintenance inspection revealed hole in engine case power section between No. 4 and No. 6 cylinder.

U-21

2 PRECAUTIONARY LANDINGS ■ During transit of gear to down position for final landing loud thump was heard and felt by both pilots. Safe gear condition was indicated in cockpit and agreed upon by tower after two flybys. Landing was made without incident. No further information reported at this time. ■ No. 2 engine chip detector light illuminated on takeoff. Engine was secured and landing was made. Fuzz found on magnetic plug.

U-8

1 PRECAUTIONARY LANDING ■ No. 1 engine chip detector light came on during takeoff roll. Takeoff was aborted. Inspection of magnetic chip detector plug revealed metal particle 1/2" long and 3/16" wide which appeared to be a portion of bearing or ring. Engine was changed. Cause unknown.

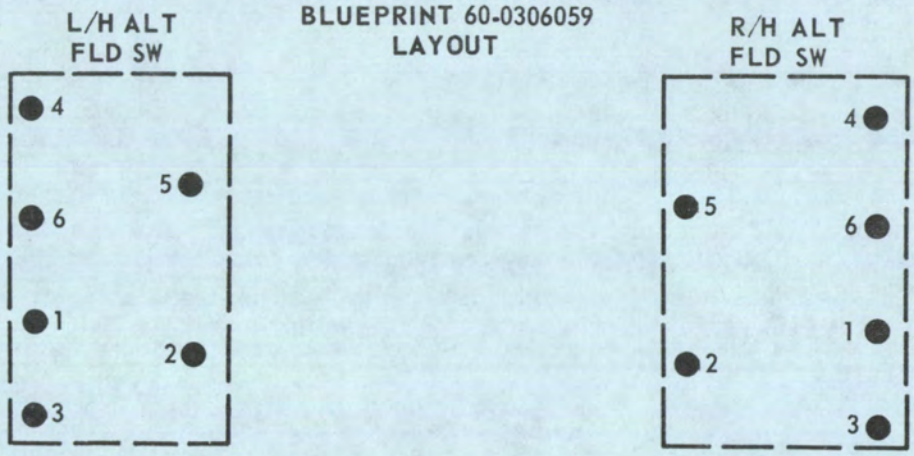
OV-1

1 PRECAUTIONARY LANDING ■ Prelanding check indicated unsafe condition of right gear. Pilot blew gear down and landed safely. Gear malfunction was caused by broken wire leading to mircoswitch.

T-42

1 PRECAUTIONARY LANDING ■ As pilot entered traffic pattern at night, landing gear was lowered, landing lights were turned on, and flaps were lowered. As flaps were being lowered, complete electrical failure occurred. Maintenance inspection revealed that battery monitoring kit was wired incorrectly. *Airworthiness Directive 72-19-4 gives authority for installation of the battery monitoring kit on T-42 aircraft. However, blueprints furnished with the battery monitoring kit do not show numbers assigned to switch contact points. Consequently the individual applying the kit can wire the switch incorrectly,*

which will cause the battery to function improperly and allow the alternator to drop off the line, resulting in complete electrical failure. If you have not yet received a letter from USAAVSCOM, St. Louis, MO, correcting this wiring discrepancy, the following should be accomplished:



The above drawing, if positioned over drawing on blueprint 60-0306059, will indicate the proper numbering sequence for installing wiring to switch terminal.

CAUTION

Keyways on switches must face "RE-EXC" position on the 96-364038-5 placard.

CHECKLIST ADDITIONS

The Thought for the Week carried in FLIGHTFAX Vol. 3, No. 10, dated 11 December 1974, advocated written additions to checklist procedures and then solicited a better idea from our readers. We got one. A conscientious SIP in the Office of Standards responded with the following comment: "All of the super SIP's I know are professional enough not to need instructional techniques written into their checklists as reminders. As a matter of fact, AR 310-3, par. 2-23a, prohibits pen and ink changes to looseleaf publications." □

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ARMY AIRCRAFT MISHAP PREVENTION DATA

FLIGHT FAX

ORVAL RIGHT
Chief Advisor on
Matters of Aviation

A USAAAVS PUBLICATION

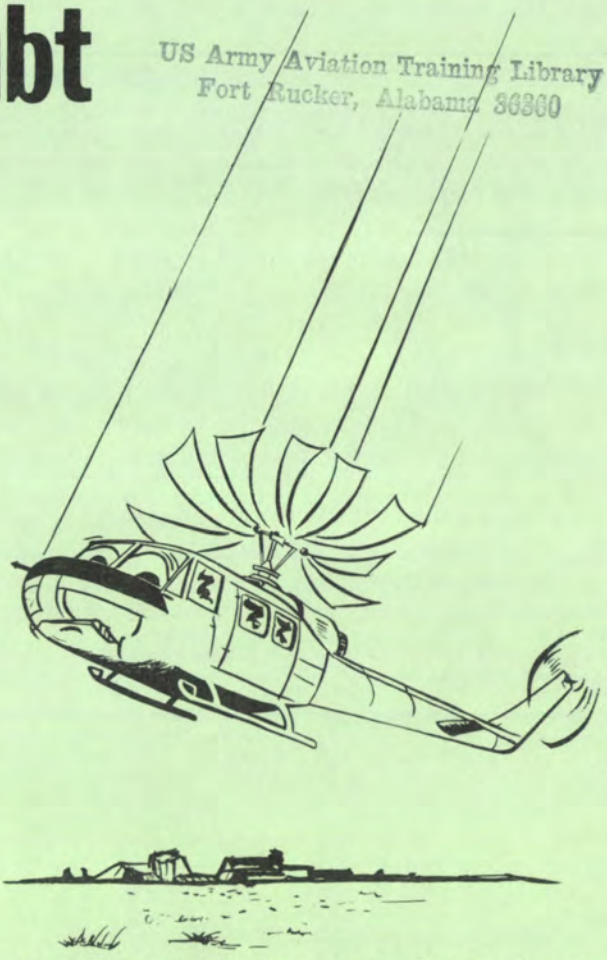
VOL. 3, NO. 18 ■ 26 FEBRUARY 1975

mishaps for the period of 7-13 FEBRUARY 1975

When In Doubt

USAAAVS accident files contain many cases where instructors have allowed students to go too far before attempting to take control of the aircraft. In helicopter flying this tendency probably shows up mostly during autorotations or during landings where there is a high sink rate. Following is just one example.

A UH-1 instructor pilot (IP) and student pilot (SP) made one normal approach and then performed 10 or 11 straight-in autorotations. After about 1 hour, they left the traffic pattern for a local area orientation and then returned to the stagefield and made two more straight-in autorotations. The SP permitted the airspeed to dissipate to 50 knots during each maneuver when he rolled the throttle to the flight idle position. On the second autorotation, the SP simultaneously applied aft pressure to the cyclic and reduced airspeed to 50 knots. At this time, the IP assisted in correcting the attitude and airspeed and noticed the collective pitch to be up 1½ to 2 inches from the full down position.



At approximately 50 feet agl, the SP executed a moderate deceleration and the aircraft entered a high vertical rate of descent. The IP then assumed full control, reduced collective pitch to regain rotor rpm, and attempted to cushion the aircraft on the ground. On ground contact, the main rotor blades severed the tail boom.

The IP was aware of the low airspeed and up collective at a sufficient altitude to have taken timely and proper corrective action. The low airspeed and reduced rotor rpm coupled with a high sink rate were allowed to progress to a point beyond which a safe power recovery and/or successful completion of the autorotation could be made. The IP should not have attempted to salvage a substandard autorotation and should have either initiated a go-around procedure or executed a termination with power.

As a general rule, it is safe to say that whenever there is doubt in the instructor's mind as to the safety of a particular phase of a maneuver he should assume control of the aircraft. The real trick of course is to be able to anticipate rough situations just moments away and then take over. There should be no excuse whatever for an instructor allowing events to take their natural course when there is the slightest doubt in his mind as to the outcome of the maneuver.

UTILITY/ATTACK BRANCH

Fatalities: 0 ■ *Accidents:* 3
Injuries: 3 ■ *Estimated Costs:* $231,000

■ MAJ Charles E. Toomer, Chief
558-4198

Three accidents, one incident, and twenty-eight precautionary landings were reported.

UH-1

2 ACCIDENTS ■ During downwind leg of traffic pattern, engine and rotor rpm decreased and aircraft crashed in trees. Cause under investigation. ■ Aircraft was hovering out of ground effect during maintenance test flight when 42° gearbox coupling failed. Aircraft landed hard, damaging tail boom and underside.

1 INCIDENT ■ Main rotor blades were found damaged after authorized NOE flight.

22 PRECAUTIONARY LANDINGS–following are selected briefs ■ Rotor and engine rpm decreased. Pilot initiated autorotation, then placed governor in emergency when N1 stabilized at 60 percent. Power was regained and instrument landing made. WELL DONE to Franklin D. Carlisle, DAC, who handled the emergency in IMC. ■ Engine chip detector light came on during takeoff. Fuzz was found on detector plug. ■ Crew detected fuel fumes during level-off after climb. Caused by overfilling during refueling. ■ Egt went to zero during cruise. Caused by frayed wire.

AH-1

1 ACCIDENT ■ Pilot felt severe vibration during cruise flight. Tail rotor gearbox separated at mount when collective was lowered. Aircraft turned left during autorotation, then spun right when collective was applied. Aircraft came to rest on left side. Cause not reported.

6 PRECAUTIONARY LANDINGS ■ Electrical system failed during cruise. Cause of failure not reported. ■ Low fuel caution light came on. Suspect malfunction of low fuel caution system. ■ Loud noise was heard from transmission and engine compartment during maintenance test flight, followed by shudder of airframe. Inspection and additional test flight could not isolate cause. ■ Transmission chip detector light came on during takeoff. Fuzz found on plug. ■ No. 1 hydraulic light came on, followed by noise and light feedback through cyclic. Caused by ruptured hydraulic line. ■ During engine topping check, engine oil pressure light came on and pressure dropped to 40 psi. Cause under investigation. □

LOSS OF RESOURCES FROM THIS WEEK'S MISHAPS

FATALITIES:	0
INJURIES:	3
AIRCRAFT LOSSES:	0
ESTIMATED COSTS:	$233,168

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

Prepared from information compiled by the Directorate for Aircraft Accident Analysis & Investigation
Colonel Samuel P. Kalagian, Director

LOH/CARGO BRANCH

Fatalities: 0 ■ *Accidents:* 0
Injuries: 0 ■ *Estimated Costs:* $2,168

■ MAJ Robert P. Judson, Chief
558-4202

Two incidents, two forced landings, and fourteen precautionary landings were reported.

OH-58

1 INCIDENT ■ Main rotor blade struck tail rotor drive shaft during attempt to avoid obstacle.

1 FORCED LANDING ■ After refueling, aircraft was hovering for takeoff when engine quit. Hovering autorotation was completed without damage. Cause of engine failure undetermined.

9 PRECAUTIONARY LANDINGS ■ Three chip detector light illuminations were reported. Two aircraft were released for flight and one is pending further analysis. ■ Two aircraft had hydraulic problems. One hydraulic system pressure switch failed and the other aircraft had excessive hydraulic leak from right cyclic servo actuator. ■ Three engine malfunctions were reported. One resulted from deficient linear actuator, no cause could be determined for one, and one was caused by failure of double check valve. ■ Transmission oil temperature caution light came on. Caused by failure of transmission oil temperature switch.

TH-55

1 INCIDENT ■ Right-hand canopy blew out during cruise flight. Aircraft was landed without further damage. Cause undetermined.

1 PRECAUTIONARY LANDING ■ Engine tachometer needle fluctuated during flight. Maintenance inspection revealed dual tachometer failure.

CH-47

5 PRECAUTIONARY LANDINGS ■ No. 1 generator came off line after initial landing. As aircraft was picked up to hover to parking area, No. 2 generator came off line. Leaking hydraulic fluid caused No. 1 generator to short between output poles. No. 2 generator overheated when forced to pick up electrical load. ■ No. 1 engine failed after 15 minutes of flight. No abnormal indications were present prior to failure. After aircraft was returned to takeoff point, maintenance inspection revealed no engine discrepancies. MOC was performed with no indication of problem. Weather factor is listed as a possible cause as OAT was −10° on surface. ■ No. 2 engine normal beep failed and would not respond to emergency beep. Engine was secured and running landing made. Caused by faulty actuator. ■ No. 2 engine transmission chip detector light came on. Small filings were found on plug. Oil sample was taken and plug was cleaned and reinstalled. As aircraft was hovered to parking area, No. 2 engine chip detector light came on. Engine chip detector plug was removed, cleaned, and reinstalled. ■ No. 2 engine chip detector light came on. Caused by broken wire to detector unit. □

FIXED WING BRANCH

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

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

Nine precautionary landings were reported.

U-21

1 PRECAUTIONARY LANDING ■ Directional control difficulties were experienced shortly after takeoff. Mechanical rudder trim would not trim the aircraft and excessive right rudder was required to maintain directional control to complete a safe landing. Maintenance inspection revealed plastic cover below rudder trim knob was warped, exerting upward pressure on trim knob and allowing the gears to become disengaged on rudder trim assembly.

OV-1

2 PRECAUTIONARY LANDINGS ■ During landing approach, right main gear indicated unsafe and lock-down tab was not flush, confirming gear was not locked down. After four recycling attempts and the use of emergency gear extension procedure, gear was still unsafe. A successful touch-and-go landing was executed with a slight crab to exert sideward pressure to lock gear in place. Final landing was made without difficulty. Right main gear actuator assembly pin was slightly out of adjustment. ■ No. 1 engine chip detector warning light came on. Several large metal particles were found on chip detector plug.

T-42

1 PRECAUTIONARY LANDING ■ No. 2 engine chip detector light came on during climbout. Fuzz was found on detector plug.

U-8

5 PRECAUTIONARY LANDINGS ■ Right main gear down light did not illuminate in gear handle. Inspection revealed broken wire to indicator light. (ARNG) ■ Stack fire in outboard augmentor tube of No. 1 engine during engine start was extinguished by fireguard. Inspection and ground runup was completed with no discrepancies and takeoff was completed. Odor similar to burning wire was detected when gear was raised. Left main gear warning light did not illuminate after lowering the gear for a declared emergency landing. The light did illuminate during tower fly-by and successful landing was made. ■ During a test flight the next day for the above mentioned difficulty, left main gear light again failed to illuminate. Tower reported that gear appeared to be down and light came on during touchdown. It was reported that no reason could be detected by maintenance for the above events. ■ After more than 2 hours flight, No. 2 engine rpm dropped about 800 rpm. Engine temperature and oil pressure were normal. Engine was secured and landing was made. Propeller link assembly had not been properly safetied. ■ As engine power was reduced to climb power after takeoff, one or both engines missed momentarily. Upon reaching 6,000 feet and as power was reduced, another momentary miss was detected. All engine instruments remained normal. Later, as power was again reduced 2 inches for airspeed and altitude control during ILS approach, left engine quit. During shutdown procedure, as it was starting to feather, engine caught and ran for about a minute before quitting again. Engine shutdown was completed. As single-engine power was being reduced, right engine quit momentarily. Successful single-engine landing was completed but right engine ran very rough during ground check, then smoothed out and ran okay to parking ramp. Fuel analysis revealed no contamination. Suspect possible carburetor icing. Flight time was 45 minutes. □

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

OFFICIAL BUSINESS

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DEPARTMENT OF THE ARMY
DOD-314

ARMY AIRCRAFT MISHAP PREVENTION DATA

FLIGHT FAX

ORVAL RIGHT
Chief Advisor on
Matters of Aviation

A USAAAVS PUBLICATION

VOL. 3, NO. 19 ■ 5 MARCH 1975

mishaps for the period of 14-20 FEBRUARY 1975

Eyeglasses–
not the same as industrial safety glasses

On 1 January 1972, an FDA (Food and Drug Administration) ruling concerning eyeglasses became effective. It required that all eyeglasses and sunglasses be impact-resistant. There is little doubt that this ruling will reduce injuries caused by shattered eyeglass lenses. There seems to be a problem, however. Some people evidently have the idea that impact-resistant glasses are of the same quality as industrial safety glasses. Unfortunately, this simply is not true.

Industrial safety lenses must meet the requirements set forth in American National Standard Practice for Occupational and Educational Eye and Face Protection, Z87.1, 1968, which is referenced in OSHA regulations. To meet the above standard, safety lenses must be at least three millimeters thick and be capable of withstanding the impact from a 1-inch diameter steel ball dropped from a height of 50 inches. FDA makes no requirement for lens thickness, and a 5/8-inch steel ball is called for. Chiefs of safety/administrators who haven't already publicized the above information would do well to do so. Not only is this important to help prevent eye injuries on the job, but also at home, especially for those who are do-it-yourselfers. A random survey confirmed suspicions that most people are unaware that impact-resistant lenses are not up to the standards of industrial safety lenses. This convinced us that more publicity on the subject is required. We hope it convinces you. **Reprinted from SAFETY MANAGEMENT NEWSLETTER, HQ AFSC.**

ATTENTION USAR COMMANDERS/AVIATION SAFETY OFFICERS

USAR Representative Appointed at USAAAVS

Captain James Cassel, formerly assigned to HQ, FORSCOM, DCSOPS Aviation Division, has been reassigned to USAAAVS as the USAR Point of Contact. USAR aviation commanders and USAR aviation safety officers are encouraged to direct all correspondence to Commander, USAAAVS, ATTN: IGAR-PP, Fort Rucker, AL 36360; Autovon 558-6510/4714; commercial 255-6510/4714.

WELL DONE

We extend a well done to the personnel of the First Infantry Division and Fort Riley Standards Branch for completing more than 1 year of NOE training without an accident or incident. Sixty-two students flew 1,120 NOE hours.

COMPANY COMMANDER'S SELF-HELP ACCIDENT PREVENTION PROGRAM

One of the best ways for you company commanders to find out what the hazards are in your units, so that you can take positive corrective action, is the self-help accident prevention program.

Have every man in your unit write on a piece of paper a list of all the things he has seen that could cause an accident, either air or ground. Have them put at the top of the list the one thing that they think will cause the next accident in your unit. Have your safety officer collect the lists and tabulate them. Correct those hazards you can at your own level. Report those you can't correct to higher headquarters. There will always be hazards that can't be corrected, either because materials or personnel aren't available. In these cases, about all you can do is be sure that everyone, including the 10% who never get the word, is aware of the hazard and what must be done to minimize it.

UTILITY/ATTACK BRANCH

Fatalities: 2 ■ *Accidents:* 2
Injuries: 1 ■ *Estimated Costs:* $370,276

■ MAJ Charles E. Toomer, Chief
558-4198

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

UH-1

2 ACCIDENTS ■ Aircraft crashed during VFR training mission and was destroyed. Both crewmembers sustained fatal injuries. Investigation with USAAAVS participation is in progress. (USAR) ■ While on night training mission at 800 feet agl, crew noted indications of engine failure and entered autorotation. Turn was made to what appeared to be a suitable landing area. At approximately 100 feet pilot initiated deceleration and landing lights revealed high tension wires. Aircraft struck wires, then struck ground in upright position. Copilot was injured.

2 INCIDENTS ■ Marking panel and retaining stake struck main rotor blade during termination of approach. Inspection revealed hole 4 inches from leading edge of one blade. ■ Aircraft struck tree during NOE flight in gusty winds. Both main rotor blades were damaged.

12 PRECAUTIONARY LANDINGS–following are selected briefs ■ Pilot smelled battery fumes during hover. All electrical equipment was turned off and aircraft shut down. Inspection of battery revealed evidence of thermal runaway. Aircraft had just completed 2.5-hour training flight. ■ All pressure instruments dropped to zero during cruise flight. Caused by failure of a.c. transformer. ■ Engine oil temperature rose to 150°. Caused by failure of engine oil cooler bypass valve. ■ While on descent from 5,000 feet msl in IMC, pilot encountered rime ice and light to moderate vibrations. Postflight inspection revealed one-half inch rime ice on stabilizer bar and mixing levers. Aircraft was deiced and flown back to home station. (ARNG)

AH-1

1 PRECAUTIONARY LANDING ■ Transmission oil pressure began to fluctuate during cruise flight. Inspection revealed failure of flanged part of tube assembly connecting external transmission oil filter to transmission. □

LOSS OF RESOURCES
FROM THIS WEEK'S MISHAPS

FATALITIES:	2
INJURIES:	1
AIRCRAFT LOSSES:	1
ESTIMATED COSTS:	$526,464

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
USAR Representative	558-6510/4714
After-duty tape recording of incoming calls to be returned following day (hours: 1615 to 0730)	558-6510
Commercial:	255-XXXX

Prepared from information compiled by the Directorate for Aircraft Accident Analysis & Investigation
Colonel Samuel P. Kalagian, Director

LOH/CARGO BRANCH

Fatalities: 0 ■ *Accidents:* 2
Injuries: 0 ■ *Estimated Costs:* $151,188

■ MAJ Robert P. Judson, Chief
558-4202

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

OH-58

1 INCIDENT ■ Main rotor blade struck tree during NOE flight. Aircraft landed without further incident.

5 PRECAUTIONARY LANDINGS ■ Three warning light illuminations were reported. One transmission temperature warning light came on due to grass accumulation on transmission oil cooler grill. Transmission low oil pressure light came on during NOE flight. Transmission inspection is in progress. A third light illuminated as a result of fuzz on tail rotor chip detector plug. ■ Crew heard loud noises coming from aft section of aircraft after takeoff. Aircraft landed and inspection revealed noise was coming from loose metal inside container stored in back seat of aircraft. ■ Pilot was making downwind takeoff from confined area when torque went to 93 pounds for 2 seconds. Aircraft was flown to nearest Army airfield. Overtorque inspection was completed and aircraft is grounded pending oil analysis.

TH-55

1 ACCIDENT ■ During practice hovering autorotation, SP made abrupt and excessive upward collective pitch application. IP took controls and attempted power recovery. Aircraft struck ground and rolled on left side.

2 PRECAUTIONARY LANDINGS ■ Engine oil pressure fell below 60 psi during cruise flight. Caused by malfunction of engine oil pressure gauge. ■ IP noted high frequency vibration and landed. Fair wear and tear caused excessive play in upper pulley assembly.

CH-47

1 ACCIDENT ■ Airframe and component damage occurred during shutdown when one aft rotor blade struck left side of aircraft at station 260. Cause was attributed to low rotor rpm normally associated with aircraft in shutdown mode and other aircraft hovering in immediate area.

1 INCIDENT ■ Skin puncture to bottom of aircraft at station 450 was caused by aircraft striking sling load in pickup zone.

1 PRECAUTIONARY LANDING ■ No. 1 engine chip detector light came on. Fuzz was found on plug. □

FIXED WING BRANCH

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

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

Two incidents and three precautionary landings were reported.

U-21

2 INCIDENTS ■ Gouge approximately 6 inches from tip was discovered on propeller blade during visual inspection. Propeller was changed. Suspect foreign object damage during engine runup. ■ Pilot felt vibration in controls during flight and saw vibration of left HF dipole antenna. Top and bottom portions of dipole were cracked. Suspect materiel deficiency.

1 PRECAUTIONARY LANDING ■ IP shut down No. 2 engine to demonstrate restart procedures. No. 1 generator failed before restart could be accomplished. Battery power was insufficient for restart, but was sufficient to lower gear and flaps. Single-engine landing was uneventful. Voltage regulator burned out.

U-8

1 PRECAUTIONARY LANDING ■ Seven minutes after takeoff, No. 2 engine began to backfire and rpm fluctuated. Fuel was switched from main to auxiliary tank and engine operation returned to normal. Aircraft was immediately returned for landing. Postflight inspection revealed right main fuel tank was empty. (Visual inspection prior to takeoff had indicated right main tank was approximately half full.) Maintenance found heater fuel line fitting loose at heater solenoid.

T-41

1 PRECAUTIONARY LANDING ■ Engine chip detector light came on. Magnetic plug was cleaned and oil sample analysis was negative.

THOUGHT FOR THE WEEK

Avionics personnel, have you been having maintenance problems with the MD-1 displacement gyroscope?

Reports from the field received at the U.S. Army Electronics Command have indicated that the MD-1 (U-21, all series RU-21, and all series UH-1) has been damaged when aircraft have been moved soon after power shutdown (reference TB 43-0001-9-1).

It has been determined and confirmed by the manufacturer that if the aircraft is moved before the MD-1 comes to rest, the gyroscope may be damaged. The following caution must be observed: Do not move the aircraft for 25 minutes after power has been removed from the MD-1. If, however, the aircraft must be moved after shutdown, power should be reapplied to the MD-1. After 5 minutes with power on, the aircraft may be moved without damaging the gyroscope. □

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

OFFICIAL BUSINESS

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DOD-314

ARMY AIRCRAFT MISHAP PREVENTION DATA

FLIGHT FAX

ORVAL RIGHT
Chief Advisor on
Matters of Aviation

A USAAAVS PUBLICATION

VOL. 3, NO. 2 ■ 16 OCTOBER 1974

mishaps for the period 27 SEP-3 OCT 1974

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 Accident Prevention–Avn 27," 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.)

WELL DONE

A second human factor event was reported to USAAAVS on 19 September 1974 by the 114th Avn Co (AHC), Fort Clayton, CZ. During an instrument training flight, the pilot of a UH-1H suffered from coughing, dizziness, and nausea induced by battery acid fumes. The IP made a precautionary landing and the battery was removed.

The first human factor event recorded by USAAAVS was received on 27 April 1974 from USASATEC Avn Br, Fort Huachuca, AZ. An OV-1 pilot's oxygen mask exhalation valve malfunctioned and he became incapacitated without losing consciousness. The technical observer, also OV-1 rated, made a descent to 7,000 feet and the pilot recovered sufficiently to land the aircraft.

Each of these events is considered a human factor mishap. A human factor mishap is a mishap in which a psychological, physiological, or pathological condition occurs to prevent or interfere with an aircrewmember's performance of his duties during the operation or maintenance of Army aircraft. A forthcoming change to AR 385-40 provides guidelines for reporting human factor mishaps when:

a. A crewmember becomes sufficiently incapacitated to cause:

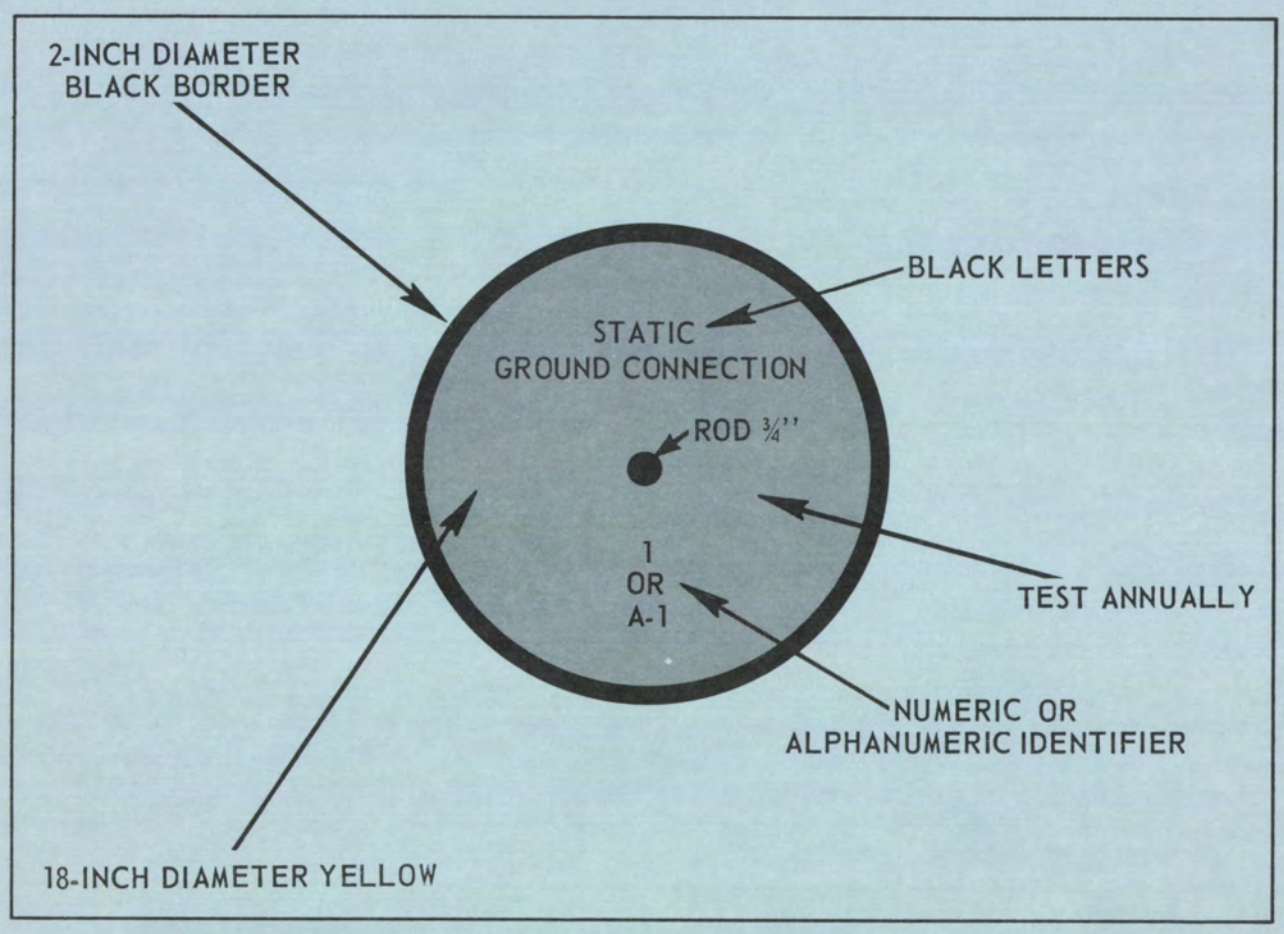
(1) the duties of one crewmember to be assumed by another crewmember or

(2) the mission to be aborted, delayed, or diverted.

b. An occupant injury occurs that exceeds the degree of minimal as defined in paragraph 15-13a, AR 95-5. Conditions which may cause human factor mishaps are listed on, but not limited to, DA Form 2397-9.

USAAAVS extends a WELL DONE to each of these units, pilots, and ASO's who reported these human factor mishaps in the interest of aviation safety. We urge other units to report those cases which fall into this category to help us preserve vital aviation resources.

CORRECTION–Reference page 13, paragraph entitled STATIC ELECTRICITY, of the HELICOPTER RAPID REFUELING STUDY published by USAAAVS in September. The frequency of inspection of ground points is annually and the date tested and Ohmic reading will be maintained in a log, not marked in the circle as the text reads. (Reference TM 10-1101, C1.) The diagram at the top of page 13 should be as shown here:



LOSS OF RESOURCES
FROM THIS WEEK'S MISHAPS

FATALITIES:	0
INJURIES:	0
AIRCRAFT LOSSES:	0
ESTIMATED COSTS:	$55,444

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

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
Commercial:	255-XXXX

UTILITY/ATTACK DIVISION

Fatalities: 0 ■ *Accidents:* 0
Injuries: 0 ■ *Estimated Costs:* $22,525

■ MAJ Charles E. Toomer, Chief
558-4198

Five incidents and twenty-four precautionary landings were reported.

UH-1

2 INCIDENTS ■ During simulated forced landing, IP was attempting to demonstrate governor failure when engine failed. Aircraft rocked forward during landing, breaking right chin bubble. (USA) ■ Main rotor struck vegetation during NOE flight, damaging both main rotor blades. (USA)

19 PRECAUTIONARY LANDINGS–following are selected briefs ■ Engine chip detector light came on. Fuzz found on chip detector plug. (USAR) ■ Right fuel boost pump failed as aircraft was landing. Fuel boost pump replaced. (USA) ■ Hydraulic pressure caution light came on. Caused by contaminated hydraulic system. (USA) ■ IP noted lateral and 1:1 vertical vibrations. Inspection revealed worn pitch change links. (USA) ■ N1 rpm fluctuated 1.5% and egt rose to 600° in cruise flight. Suspect fuel control malfunction. (USA) ■ Crew smelled fuel fumes in cockpit. Caused by improper seating of fuel filter drain valve. (USA) ■ Tail rotor pedal binding occurred during final approach. Caused by dirt on tail rotor servo pitot valve bolt. (USA) ■ Pilot noticed smoke and vapor from battery upper vent hole. Crack in battery cell caused overheating. (USA)

AH-1

3 INCIDENTS ■ Main rotor struck trees during NOE hover, damaging both blades. (USA) ■ Aircraft was turning left during NOE flight when main rotor struck trees, damaging one blade. (USA) ■ Pilot heard loud pop and cyclic moved violently left after takeoff. Pilot cut throttle as aircraft spiraled left, striking ground and trees. Landing gear collapsed. Cause unknown. (USA)

5 PRECAUTIONARY LANDINGS ■ Pitch attitude oscillated during level flight. Caused by failure of fore and aft cyclic servos. (USA) ■ Engine oil temperature rose to 120° and oil pressure dropped to 65 psi. Cause unknown. (USA) ■ Tail rotor chip detector light came on. Normal wear found on magnetic plug. (USA) ■ No. 1 hydraulic system failed. Caused by chafed hydraulic line. (USA) ■ IP heard sharp banging noise during hover, followed by grinding sound and severe left yaw. Engine rpm decreased to 5500. Cause unknown. (USA) □

LOH DIVISION

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

■ LTC David F. Stoutamire, Chief
558-4202

Four forced landings and fourteen precautionary landings were reported.

OH-58

3 FORCED LANDINGS ■ Low rpm warning buzzer and engine-out warning light came on. Pilot reduced collective and autorotated to field. Maintenance personnel replaced double check valve and aircraft was flown to home station. (USA) ■ N1 dropped to 62% in flight. Pilot autorotated to open field. Suspect governor failure. (USA) ■ TOT rose to 730° C. during test flight. Pilot attempted to reduce power when engine failed. Aircraft autorotated to open area. (USA)

10 PRECAUTIONARY LANDINGS ■ Hydraulic pressure light came on. Caused by failure of hydraulic pressure switch. (USA) ■ Engine chip detector lights of two aircraft came on. Both were caused by internal failure of engine. EIR submitted on both engines. (USA) ■ Two tail rotor chip detector light

illuminations were reported. Caused by normal wear. (USA) ■ Transmission chip detector light came on. Caused by normal wear. (USA) ■ Fuel boost pump light illuminated. Caused by failure of fuel boost pump. (USA) ■ N1 began fluctuating and TOT rose to 750°. Suspect fuel control failure. (USA) ■ Pilot heard unusual noise from aircraft tail section. Maintenance inspection revealed N2 hanger bearing failure. (USA) ■ Transmission oil pressure light came on. Wire from pressure switch shorted out. (USA)

OH-6

1 FORCED LANDING ■ Engine oil pressure dropped to zero and aircraft was landed in open field. Suspect incorrect engine oil line ruptured. (ARNG)

2 PRECAUTIONARY LANDINGS ■ Transmission chip detector light came on. Caused by normal wear. (ARNG) ■ Unusual loud noise was heard during flight. Cause unknown. (ARNG)

TH-55

2 PRECAUTIONARY LANDINGS ■ Rotor tachometer dropped to zero. Caused by failure of rotor tachometer. (USA) ■ Engine oil pressure dropped below red line. Caused by failure of oil pressure sending unit. (USA)

THOUGHT FOR THE WEEK

If everyone spent as much time planning how to perform their mission safely as they spent planning how to get around existing safety requirements, _____.

Finish the above statement in 25 words or less and send it to: Orval Right
USAAAVS
Fort Rucker, AL 36360

The best ones will be published in the near future. □

CARGO/SYSTEMS DIVISION

Fatalities: 0 ■ *Accidents:* 0
Injuries: 0 ■ *Estimated Costs:* $22,836

■ CW4 Richard D. Havenstrite, Chief
558-4202

One incident and three precautionary landings were reported.

CH-47

1 INCIDENT ■ During cargo unloading in LZ, a jeep belonging to the supported unit and driven by a member of the supported unit was driven beneath forward blades of aircraft. Extended jeep-mounted whip antenna struck turning rotor blades of aircraft, damaging blades and antenna. (USA)

3 PRECAUTIONARY LANDINGS ■ Tower notified pilot that access panel appeared to be loose. Pilot landed immediately and discovered that crew had failed to secure No. 2 drive shaft cover prior to flight. Cover was inspected and secured, and aircraft was released for flight. (ARNG) ■ Pilot felt SAS input during takeoff. No. 1 hydraulic flight boost pressure dropped to zero, with simultaneous warning lights for No. 1 hydraulic pressure and No. 1 SAS. Caused by broken assembly between pressure reducer and SAS filter. Tube was replaced and aircraft returned to flight. (USAR) ■ No. 1 engine torque dropped to zero during takeoff to hover. No. 1 engine was shut down and aircraft was returned to ramp with No. 2 engine power. Caused by failure of first stage compressor blades. (USA) □

FIXED WING DIVISION

Fatalities: 0 ■ *Accidents:* 0
Injuries: 0 ■ *Estimated Costs:* $10,083

■ LTC Howard D. Deane, Chief
558-4202

Three incidents and nine precautionary landings were reported.

U-21

3 INCIDENTS ■ Brakes reportedly locked during landing roll, resulting in left main gear tire failure. No other damage was reported. (USA) ■ En route, aircraft struck black bird in area of No. 2 engine. No vibrations or other indications of damage were noticed. Just after aircraft touched down for landing, two seagulls were struck in area of No. 1 engine. Postflight examination revealed bent blades on both propellers. (USA) ■ During overwater ferry flight crew heard two loud bangs and noticed buckling in right wing leading edge forward of hinge pin. Crew of accompanying aircraft also saw bulge and buckling of skin on underside of wing. Aircraft returned to point of departure where examination revealed rivets had popped loose aft of right wing spar. All RU-21B and C aircraft have been grounded pending determination of cause..(USA)

2 PRECAUTIONARY LANDINGS ■ No. 1 engine fire warning system activated (lights and horn). Check of engine instruments and visual examination of No. 1 engine nacelle did not confirm actual fire. Test switch was recycled but warning remained active. Aircraft continued approximately 16 miles to destination where postlanding examination revealed both fire detection system signal control amplifiers were inoperative, causing faulty indication. (USA) ■ Right main tire collapsed during landing. Aircraft veered right but was kept under control by forward thrust of No. 2 engine. Aircraft stopped with right gear approximately 3 feet off runway on hard shoulder. No other damage was reported. (USA)

C-7

1 PRECAUTIONARY LANDING ■ Landing gear would not retract after takeoff. Postlanding check revealed corrosion and broken wire on left main gear weight switch cannon plug. (USA)

C-45

1 PRECAUTIONARY LANDING ■ No. 2 engine oil pressure dropped to 15 psi. Engine was shut down and landing made at nearby airfield. Fitting was found loose on oil line to scavenge pump. (USA)

C-54

1 PRECAUTIONARY LANDING ■ No. 4 engine rpm started to fluctuate and engine ran rough after takeoff. Engine was shut down and flight continued to destination. No. 6 cylinder was cracked. (USA)

OV-1

1 PRECAUTIONARY LANDING ■ IP noted No. 1 propeller control leaking excessively in flight. Examination revealed seal was leaking. Propeller control assembly was replaced.

U-8

3 PRECAUTIONARY LANDINGS ■ Pilot felt aircraft vibrate during takeoff. He continued climb to assigned altitude and vibration continued. All instruments remained stable but pilot elected to return to point of departure. A flyover revealed right wheel well was open. Aircraft was placed on jacks but problem could not be duplicated. (USA) ■ Gear would not retract fully nor extend after takeoff. Crew elected to continue flight to home base with gear partially extended. Shortly afterwards, smoke began to enter cabin. Emergency was declared, gear was manually extended, and landing was made at available airport. Crew stated all instruments were normal, but after turning off radios smoke stopped. Source of

smoke and gear trouble was not reported pending maintenance determination. (USA) ■ Aircraft was on test flight when left main gear failed to lock down during prelanding check. Attempts to recycle gear were unsuccessful and gear was manually extended. All lights were green but gear warning horn was sounding. Flyby of tower confirmed gear was down and landing was made. Left main gear right downlock was out of adjustment.

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	$18,172	$26,834	$65,601	$5,591,906

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

OFFICIAL BUSINESS

POSTAGE AND FEES PAID
DEPARTMENT OF THE ARMY
DOD-314

ARMY AIRCRAFT MISHAP PREVENTION DATA

FLIGHT FAX

ORVAL RIGHT
Chief Advisor on
Matters of Aviation

A USAAAVS PUBLICATION

VOL. 3, NO. 20 ■ 12 MARCH 1975

mishaps for the period of 21-27 FEBRUARY 1975

Half Full or Half Empty?

A T-41B PILOT and copilot preflighted their aircraft, one taking the left side and the other the right side. Both pilots reported a full quantity of fuel and oil.

The pilot started the aircraft and taxied to the runup area. All systems operated normally except the left fuel quantity gauge which indicated only three-quarters full. This deficiency was noted as a diagonal condition on the DA Form 2408-13.

Takeoff time was 1835 hours. At an en route stop the crew contacted approach control for holding at the local vortac and a VOR approach. They were given holding instructions. Approximately 30 minutes later, at 1931, a VOR approach was terminated with a missed approach. Climbout was southeasterly to an altitude of 5,500 feet msl. Upon arrival at their next stop, a VOR approach was initiated at approximately 2020. They landed and shut down at 2025.

The pilots took a coffee break, rechecked weather, and returned to the aircraft. Each pilot, using a flashlight, visually checked a fuel tank and reported the tanks to be approximately **one-half full.** They changed crew duties and took off at 2117. They climbed to 4,500 feet msl and at that point the left fuel tank low warning light was on and the left fuel gauge indicated empty. At their next stop, the crew made two touch-and-go landings and a full stop. After taxiing back to takeoff position, they departed and climbed to 4,500 feet msl. At that time, the right fuel gauge was indicating one-quarter or less and both fuel warning lights were on. The pilot adjusted power to 55 percent, 21 inches of manifold pressure and 2300 rpm, with fuel flow set at 9 gallons per hour.

Fifteen minutes west of one airport, and midway between two airports, both fuel gauges indicated empty. The crew then decided to go to the nearest airport and check their fuel situation. The pilot estimated that the engine quit at 2255. MAYDAY calls were made on all transmitters but no response was received. The copilot spotted the outline of a country road and the pilot set up a spiraling approach. On final impact, the aircraft flipped over on its back. Both pilots sustained minor injuries.

Several human errors set the stage for this senseless accident. The crew did not perform proper preflight planning and in-flight fuel management in accordance with the Operator's Manual. They deviated from their flight plan and did not refuel the aircraft when fuel was available. The crew ignored the low-level fuel quantity indicators for an extended period of time and did not land at available airports.

AR 95-1 requires the pilot to plan a VFR flight so that he will have a 30-minute minimum fuel reserve on reaching his destination. Yet, pilots who succumb to the temptation to continue flight with a low fuel supply nullify the safety factor intended by AR 95-1 and increase the possibility of mishaps.

Supervisory error was also present in this mishap. On a previous occasion these same two aviators flew a T-41B for an extended period. The aircraft was then refueled with 51 gallons. The combined capacity of the two tanks is 52 gallons. This fact was brought to the maintenance officer's attention but was not passed on to flight operations or to the aviators.

Fuel exhaustion mishaps, like smallpox, should be relegated to the past. And they will be. But only after we determine to do our respective jobs the way we are supposed to—BY-THE-BOOK!

UTILITY/ATTACK BRANCH

Fatalities: 0 ■ *Accidents:* 0
Injuries: 0 ■ *Estimated Costs:* $6,189

■ MAJ Charles E. Toomer, Chief
558-4198

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

UH-1

2 INCIDENTS ■ Hole was found in tail rotor drive shaft cover during postflight inspection. Inspection revealed boxed end wrench had been left in area of aft tail rotor drive shaft section. (ARNG) ■ Left cargo door separated from aircraft in flight. Door was not secured in open position. (ARNG)

2 FORCED LANDINGS ■ Crew heard engine noise and saw engine chip detector light come on. Engine failed during approach. ■ Engine failed when IP initiated simulated forced landing. Flight idle solenoid was stuck in down position. (ARNG)

21 PRECAUTIONARY LANDINGS–following are selected briefs ■ Tail rotor chip detector light came on. Metal shavings were found on 90° gearbox magnetic plug. ■ Crew noted caution light and continuous decrease in transmission oil pressure during climbout. Caused by failure of transmission oil filter gasket. ■ Engine rpm decreased to 6250. Caused by loose bleed band actuator line. ■ Crew noticed strong fuel odor during cruise flight. Fuel line was improperly installed. ■ While hovering, crew smelled electrical insulation burning. Twenty seconds after landing, all pressure instruments dropped to zero. Caused by inverter failure. ■ Aircraft was on tactical support mission when weather deteriorated below forecast conditions. After 2 hours of flight and not being able to land at first destination (field coordinates) nor at scheduled refueling stop due to weather, pilot elected to make precautionary landing with 180 pounds of fuel.

AH-1

1 INCIDENT ■ Crew had completed low-level high-speed autorotation to full stop and brought aircraft to hover when another crew notified them that left front crosstube was broken.

1 FORCED LANDING ■ During routine training flight, IP gave student simulated forced landing. During power recovery at approximately 300 feet agl, IP heard grinding noise, followed by engine failure. IP landed aircraft with no damage. Caused by compressor failure. WELL DONE to CPT Kurt A. Rhodehamel, DGFT, USAAVNC, Ft. Rucker, Alabama.

11 PRECAUTIONARY LANDINGS–following are selected briefs ■ Postflight inspection revealed bird strike in turret area. No damage. ■ Master caution and transmission oil lights came on. Internal transmission oil filter was improperly installed. ■ Hydraulic fluid was seen leaking from aircraft during start. No. 1 hydraulic system bled to No. 2 hydraulic system through collective servo cylinder assembly. ■ Crew noticed stiff pedals. Caused by defective tail rotor servo assembly. ■ No. 1 hydraulic system failed when pump return line ruptured. □

LOSS OF RESOURCES FROM THIS WEEK'S MISHAPS

FATALITIES:	0
INJURIES:	0
AIRCRAFT LOSSES:	0
ESTIMATED COSTS:	$6,854

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
USAR Representative	558-6510/4714
After-duty tape recording of incoming calls to be returned following day (hours: 1615 to 0730)	558-6510
Commercial:	255-XXXX

Prepared from information compiled by the Directorate for Aircraft Accident Analysis & Investigation
Colonel Samuel P. Kalagian, Director

LOH/CARGO BRANCH

Fatalities: 0 ■ *Accidents:* 0
Injuries: 0 ■ *Estimated Costs:* $665

■ MAJ Robert P. Judson, Chief
558-4202

Four incidents and nineteen precautionary landings were reported.

OH-58

2 INCIDENTS ■ During low-level reconnaissance mission, pilot diverted his attention to map reading and aircraft struck trees, causing incident damage. ■ During cruise flight, aircraft struck bird, damaging right lower chin bubble.

10 PRECAUTIONARY LANDINGS—following are selected briefs ■ Four chip detector light illuminations were reported. One engine, one tail rotor, and two transmissions were involved. Fuzz was found on two plugs, one plug contained loose wire, and one was contaminated with water. Three were ARNG aircraft. ■ Two crew mishaps were reported. One involved a tree strike and the other was an improper preflight. ■ Engine-out warning light came on, followed by rpm audio sound. After landing, inspection revealed tachometer generator failure. (ARNG) ■ Pilot heard loud clanging noise during flight and aircraft was landed. Caused by failure of hydraulic pump. This was the third pump failure for this aircraft.

OH-6

2 PRECAUTIONARY LANDINGS ■ Engine chip detector light came on. Inspection revealed fuzz on magnetic plug. (ARNG) ■ Aircraft lost electrical power. Caused by failure of reverse current relay. (ARNG)

TH-55

1 INCIDENT ■ Aircraft landed hard during practice of 180° autorotation, resulting in incident damage.

1 PRECAUTIONARY LANDING ■ Cabin door came open during climb after takeoff. Aircraft was landed to close door. Inspection revealed that door handle latch was worn and would not properly hold door closed.

CH-47

1 INCIDENT ■ Puncture in skin occurred when aircraft was landed on top of sling load.

5 PRECAUTIONARY LANDINGS ■ All five resulted from chip detector light illuminations. Two warning lights were from No. 2 engine, one from No. 1 engine, one from forward transmission, and one from No. 1 engine transmission. Of these, only the No. 1 engine transmission was changed because impending failure was indicated.

CH-54

1 PRECAUTIONARY LANDING ■ Fuel was seen draining overboard during flight. Caused by improperly seated O-rings connecting fuel control with fuel pressurizing and dump valve.

THOUGHT FOR THE WEEK

Recently, a maintenance test pilot who was in the process of performing an MOC on a CH-47 that had undergone extended maintenance was amazed to see his egt gauge operate in reverse as he attempted to start the No. 1 engine. Suspecting the gauge to be wired backwards, he checked the rear of the gauge for confirmation. Sure enough, an obvious discrepancy existed. It seems that on the rear of the egt gauge there are two threaded studs (one small and one large) protruding from the gauge housing. The electrical leads which attach to these studs have connectors sized accordingly to fit the appropriate size stud. Obviously the large connector can be installed on the small stud with little or no problem; however, it takes a little engineering to install the small electrical connector on the large stud. In this case, the small connector was cut on one side and enlarged to fit, resulting in the egt gauge operating in reverse. How about that, supervisors? Something that supposedly could not be "Murphyed," but was. □

FIXED WING BRANCH

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

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

Eight precautionary landings were reported.

U-8

2 PRECAUTIONARY LANDINGS ■ No. 2 engine failed, but air start was successful. After second failure, uneventful emergency landing was completed. Deterioration of air intake hose resulted in piece lodging in carburetor. ■ No. 1 CAT rose to 300°, then dropped to zero. All other instruments were normal. Engine began running rough and landing was made. Both plugs on No. 1 cylinder were fouled.

U-21

2 PRECAUTIONARY LANDINGS ■ Copilot noted oil temperatures above red line (85° C.) while cruising at 21,000 feet. No. 1 was approximately 90° C. and No. 2 was 88° C. Aircraft was decelerated to slow cruise and descent was initiated to 19,000 feet. Temperatures returned to normal after approximately 3 minutes. Flight continued without further difficulty. Oil sample analysis and test flight at 21,000 feet revealed nothing of value. Suspect ice on oil cooler may have restricted efficiency. ■ Three recycling attempts failed to give safe gear-down indication. Gear was then extended manually to complete safe landing. Left main gear-down limit switch was out of adjustment.

T-42

1 PRECAUTIONARY LANDING ■ Gear was lowered manually when unsafe gear indication was noted. Tower confirmed gear appeared down. Inspection revealed landing gear motor mount was loose.

T-41

1 PRECAUTIONARY LANDING ■ Engine chip detector light came on. Caused by moisture on magnetic plug.

U-3

1 PRECAUTIONARY LANDING ■ After gear was lowered for landing, safe green light failed to illuminate. After two more unsuccessful attempts to get safe indication, gear was lowered manually, still without a green light. Visual observation indicated gear appeared down. Landing was completed without incident. Gear-down switch indicator (P/N 1SE3-3) failed. (USAR)

OV-1

1 PRECAUTIONARY LANDING ■ Pilot reported loss of hydraulic pressure on No. 1 engine during final approach. Problem was caused by internal failure of gearbox assembly (P/N 1358R60). □

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

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DOD-314

ARMY AIRCRAFT MISHAP PREVENTION DATA

FLIGHT FAX

ORVAL RIGHT
Chief Advisor on
Matters of Aviation

A USAAAVS PUBLICATION

VOL. 3, NO. 21 ■ 19 MARCH 1975

mishaps for the period of 28 FEB-6 MAR 1975

WELL DONE

McCRIMMON

WALKER

PARKER

During the late evening of 7 February 1975, a Marine Corps CH-53 helicopter stopped and refueled at Cairns Field, Ft. Rucker, Alabama. During take-off, the aircraft crashed and burst into flames.

Eleven of the 12 firefighters on duty were already in bed. The twelfth man was on alarm watch and heard the aircraft crash at 2238 hours. He immediately hit the alarm and light switches about 2 to 3 seconds ahead of tower personnel. Wheels of the firefighting vehicles were rolling within 30 seconds after the alarm.

The first crash rescue team member to arrive at the burning wreckage was Mr. John P. McCrimmon, a 26-year veteran fireman. Two of the Marine crewmen had already escaped unassisted. The third crewman had been assisted by CW2 Robert Martin, an Army Reserve aviator from a nearby aircraft. Mr. McCrimmon was told that the fourth crewman was still in the aircraft.

The cockpit portion of the helicopter remained in an upright position but was leaning to the right. It was the only portion that wasn't completely engulfed in flames. Mr. McCrimmon approached the aircraft from the right side and found the pilot still conscious but seriously injured and unable to get out.

During the same time frame (a matter of seconds), two large firetrucks were approaching the wreckage. The turrets were already in operation and the fire extinguishing agent was spewing on the fire while the trucks were still rolling. Mr. Walter P. Walker, a 9-year veteran fireman, ran to the aircraft and helped Mr. McCrimmon get the injured pilot out of the burning wreckage. The pilot's clothing was steaming from the intense heat of the burning wreckage and he was apparently in severe pain. A third fireman, Mr. Pleasant Parker, assisted in supporting the pilot's injured back while he was being carried to safety.

Although five or six of the firemen on duty that night were relatively inexperienced, observers praised their teamwork and professionalism. Each man knew his job and they functioned as a precision team. Fort Rucker Fire Chief John R. Harrison attributed this fact to their intensive training.

Mr. McCrimmon, Mr. Walker, and Mr. Parker were recommended for the Meritorious Civilian Service Award. All other team members were recommended for Certificates of Achievement. USAAAVS congratulates this firefighting team and CW2 Martin for a job well done.

U.S. ARMY AIRCRAFT MISHAPS, CY 1974
(INCLUDES ACTIVE ARMY, ARNG, AND USAR)

	MISHAPS						RATES		Accident Dollar Cost Per Hour Flown
	Accidents	Incidents	Forced Landings	Prec. Landings	Fatalities	Injuries	Accident	Fatality	
TOTAL	113	258	133	2,437	8	83	7.23	0.51	$ 9.75
Rotary Wing	96	216	128	2,075	8	74	7.06	0.59	$ 8.50
Fixed Wing	17	42	5	362	0	9	8.41	0	$18.11

Statistics for each major aircraft are shown in each branch section. Accident and fatality rates represent number of occurrences per 100,000 flying hours, and the cost per hour shows the dollar cost for each flying hour due to accidents.

LOSS OF RESOURCES
FROM THIS WEEK'S MISHAPS

FATALITIES:	5
INJURIES:	5
AIRCRAFT LOSSES:	1
ESTIMATED COSTS:	$575,195

U.S. ARMY AGENCY FOR AVIATION SAFETY, FT. RUCKER, AL 36360
Autovon 558-3913/4202

UTILITY/ATTACK

Fatalities: 5 ■ *Accidents:* 3
Injuries: 5 ■ *Estimated Costs:* $565,070

BRANCH

■ MAJ Charles E. Toomer, Chief
558-4198

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

UH-1

3 ACCIDENTS ■ Pilot made simulated air attack while on service support mission in conjunction with annual training test. Aircraft struck wires, pitched up, and landed inverted in riverbed. Pilot and four passengers sustained fatal injuries and copilot was injured. Aircraft was destroyed. ■ During authorized NOE flight aircraft hit unmarked wire and rolled on left side. Two crewmembers and two passengers sustained minor injuries. ■ Crew heard loud noise during climbout and aircraft pitched down and to right. Aircraft was landed in rice field and rolled on left side, with major damage. Accident under investigation.

18 PRECAUTIONARY LANDINGS–following are selected briefs ■ Hydraulic caution light illuminated. Caused by failure of hydraulic pressure switch. ■ On short final pilot heard popping sound and egt rose to 820° for 3 seconds. Popping noise then stopped and instruments returned to normal. Cause unknown pending further investigation. (ARNG) ■ Batteries of two aircraft overheated in flight. One was caused by voltage regulator set too high and the second by improper servicing of battery. ■ During takeoff pilot was told that his tail rotor drive shaft cover was open. Aircraft landed without incident. Loose cover was missed on daily and preflight inspections. ■ Tail rotor chip detector light came on. Caused by loose chip detector wire. ■ Engine fuel pump warning light came on. Caused by failure of fuel pressure differential switch.

AH-1

2 INCIDENTS ■ During practice low-level autorotation aircraft slid approximately four helicopter lengths and settled to ground on bottom of fuselage. Fore and aft cross tubes sheared above skid saddle, UHF-VHF antenna was torn off, and underpanel was damaged. ■ Three-inch tear was found on bottom of one main rotor blade during postflight inspection. Aircraft was performing authorized and supervised NOE flight.

1 FORCED LANDING ■ Aircraft suddenly yawed three times during cruise flight. Pilot entered autorotation and noted egt was 850°. Pilot also detected strong odor of JP-4 and turned off main fuel switch. Forced landing was completed without damage. WELL DONE for a successful power-off emergency landing goes to CW2 William J. Flood, Jr., D Trp, 3rd Sqdn, 7th Cav, 3rd Inf Div, USAREUR.

5 PRECAUTIONARY LANDINGS ■ Tail rotor chip detector lights of two aircraft illuminated. One was caused by suspected gear wear and the second revealed no oil in 90° gearbox sight gauge. ■ No. 2 hydraulic warning light came on. Caused by failure of hydraulic pressure switch. ■ Two aircraft had gunner's canopies to come open in flight. Cause not reported. Canopy door handles of both aircraft were replaced.

CALENDAR YEAR 1974 AIRCRAFT MISHAP DATA

MISHAPS							RATES		Accident Dollar Cost Per Hour Flown
Aircraft	Accidents	Incidents	Forced Landings	Prec. Landings	Fatalities	Injuries	Accident	Fatality	
UH-1	36	79	57	1,128	3	43	4.67	0.39	$ 6.57
A/TH-1	11	44	9	201	4	11	14.96	5.44	$42.16

LOH/CARGO

Fatalities: 0 ■ *Accidents:* 0
Injuries: 0 ■ *Estimated Costs:* $5,075

BRANCH

■ MAJ Robert P. Judson, Chief
558-4202

Two incidents, two forced landings, and 16 precautionary landings were reported.

OH-58

1 INCIDENT ■ During takeoff from hilltop, pilot started right turn after clearing edge and main rotor blade struck top of tall tree, causing blade tip damage. (ARNG)

1 FORCED LANDING ■ Engine failed just prior to touchdown during practice autorotation. Test flight could not duplicate situation. Aircraft released for flight.

6 PRECAUTIONARY LANDINGS ■ During hover flight, it was suspected that main rotor blade had struck tree. After landing, no damage could be found. Aircraft released for flight. ■ Abnormal airframe vibrations were noted after takeoff. After landing, inspection revealed no discrepancies. Suspect ice accumulation in flight components. (ARNG) ■ Transmission warning lights of two aircraft illuminated. One was caused by oil pressure switch malfunction and the other by contamination of magnetic chip detector plug. (ARNG) ■ Tail rotor chip detector light came on. Tail rotor gearbox was flushed and aircraft released for flight. ■ Cockpit filled with smoke during takeoff. Aircraft was inspected and no discrepancy found.

OH-6

1 FORCED LANDING ■ Engine noise was heard during takeoff. Inspection revealed that engine malfunctioned because of FOD. Barrier filter washer, NSN 5310-00-851-5865, and bolt, NSN 5306-00-064-3488, came loose and fell into engine inlet. (ARNG)

TH-55

6 PRECAUTIONARY LANDINGS ■ Four materiel malfunctions were reported. Two were caused by exhaust valve failure in cylinders. One was caused by defective oil pressure sending unit, and one was a tail rotor gearbox, cause unknown. ■ Excessive vibrations were felt during flight. Cause unknown. ■ Smoke entered cockpit. Insulating tape came off wire, allowing short to occur.

CH-47

4 PRECAUTIONARY LANDINGS ■ Rotor tachometer failed. Inspection revealed defective rotor tachometer generator. (ARNG) ■ Pilot noted a.c. and d.c. beep failure of No. 2 engine. Caused by faulty actuator. ■ No. 2 engine chip detector light came on. Inspection revealed fuzz on plug. ■ SAS system developed leak during flight. Caused by chafed hydraulic line.

CH-54

1 INCIDENT ■ At approximately 100 feet altitude, hoist assembly with sling load separated from aircraft. Caused by failure of cargo hoist mount assembly.

CALENDAR YEAR 1974 AIRCRAFT MISHAP DATA

MISHAPS							RATES		Accident Dollar Cost Per Hour Flown
Aircraft	Accidents	Incidents	Forced Landings	Prec. Landings	Fatalities	Injuries	Accident	Fatality	
OH-58	21	43	37	404	0	11	6.71	0	$ 6.03
OH-6	5	4	12	50	1	6	16.57	3.31	$14.27
TH-55	22	24	11	105	0	3	18.50	0	$ 5.98
CH-47	1	21	1	172	0	0	2.20	0	$ 8.17
CH-54	0	0	0	15	0	0	0	0	0

FIXED WING

Fatalities: 0 ■ *Accidents:* 1
Injuries: 0 ■ *Estimated Costs:* $5,050

BRANCH

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

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

U-3

1 ACCIDENT ■ As gear was being retracted after takeoff on touch-and-go landing, No. 1 engine surged and quit. Because of lack of single-engine speed, straight-ahead, wheels-up landing was necessary. *Once again the importance of single-engine airspeed is brought to our attention!* (ARNG)

1 INCIDENT ■ Gear jammed against wheel well cowl, causing actuating motor to overheat and disconnect circuit breaker. Ring lock (0841200-19) slipped from tube, inner (081200-17) allowing bearing, strut (0891200-18) to come off tube, inner, along with extend stop spacer (0841200-20). Spacer wedged between bearing and tube, locking strut in compressed position. (ARNG)

OV-1

1 PRECAUTIONARY LANDING ■ Takeoff was aborted and No. 1 engine secured when loss of power and egt was noted. Engine turbine section was partially disintegrated. Engine was under 5-hour special oil sample period at time of failure.

U-21

4 PRECAUTIONARY LANDINGS ■ No. 1 engine fire warning light came on. Caused by wet connections. ■ Fuel leak beneath No. 2 engine nacelle was noticed on final approach. Inspection hole gasket was replaced. ■ On base leg for landing, fuel flow fluctuation was noted on No. 2 engine, followed by engine failure. Maintenance inspection and test revealed fuel control main turbine unit (2915-157-2313) failed. ■ Right fuel boost pump failed. Crew continued IFR flight with left boost providing pressurized fuel to No. 2 engine through crossfeed. After about 2.4 hours, usable fuel was depleted from left tanks and No. 1 engine failed from fuel starvation. No. 2 engine continued to operate on engine-driven fuel pump. After feathering No. 1 prop and declaring emergency, crew continued flight for another 40 minutes, bypassing numerous suitable airports. Investigation is continuing into crew judgment, knowledge, and proficiency.

T-42

3 PRECAUTIONARY LANDINGS ■ No. 1 engine chip detector light came on. Caused by malfunction of press-to-test indicator light socket. ■ Fuel siphoning was detected around left inboard fuel cap. Landing was completed and cap reseated. ■ Gear would not retract on climbout. Initially, lights indicated main gear up but after recycle attempt, all gear lights indicated down, regardless of position of selector handle. Safety switch (AN 321D-1) failed in closed down position.

U-1

1 PRECAUTIONARY LANDING ■ Engine chip detector light came on during climbout. Caused by fuzz.

C-54

1 PRECAUTIONARY LANDING ■ Left outside main tire blew during touchdown. Aircraft was taxied to line and tire changed.

T-41

2 PRECAUTIONARY LANDINGS ■ Engine chip detector light came on. Pilot returned to home base. Metal flakes were found on magnetic plug and engine analysis revealed propeller governor failure. Flyweight retaining pin safety wire broke, allowing pins to lathe filings from governor case. ■ Engine chip detector light came on. Caused by moisture.

CALENDAR YEAR 1974 AIRCRAFT MISHAP DATA

MISHAPS							RATES		Accident Dollar Cost Per Hour Flown
Aircraft	Accidents	Incidents	Forced Landings	Prec. Landings	Fatalities	Injuries	Accident	Fatality	
OV-1	2	4	0	71	0	4	9.88	0	$153.01
T-41	1	5	1	30	0	2	3.12	0	$ 0.53
T-42	4	6	0	43	0	0	15.24	0	$ 3.54
U-3	2	3	0	11	0	0	17.58	0	$ 1.32
U-6	1	0	1	1	0	0	10.22	0	$ 0.21
U-8	4	4	2	85	0	0	11.74	0	$ 10.28
U-21	0	13	1	59	0	0	0	0	$ 0.32

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

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ARMY AIRCRAFT MISHAP PREVENTION DATA

FLIGHT FAX

ORVAL RIGHT
Chief Advisor on
Matters of Aviation

A USAAAVS PUBLICATION

VOL. 3, NO. 22 ■ 26 MARCH 1975

mishaps for the period of 7-13 MARCH 1975

Downed Aircraft Assistance Request

The Joint Casualty Resolution Center (JCRC) is still seeking, from all available sources, any additional information on combat and any other operational losses of aircraft in Southeast Asia (SEA). This information will be processed into JCRC's extensive computer bank and correlated with existing data in upgrading an Aircraft All Loss Report used by the JCRC in accomplishing its difficult mission. If you were involved in, associated with, or know of an aircraft loss in SEA anytime between the beginning of the conflict and the cease-fire date—you could be of assistance in the casualty resolution of our missing comrades in arms!

Navy, Air Force, and Army aviators with aircraft accident investigation experience are assigned to JCRC in Thailand as Crash Site Investigators (CSI). The CSI mission is to investigate all aircraft located at crash sites in SEA and to identify the subject aircraft by bureau/tail number to determine if personnel carried in an MIA status could be associated with the wreckage. This is a difficult task, for available wreckage usually contains only limited clues with which to work. In many cases, tail numbers cannot be located or identified in the crash site debris and parts research must be conducted on whatever serialized components can be found at the site. This entails endless inquiries, review, and examination of maintenance records in an attempt to trace component serial numbers to an aircraft tail number.

DO YOUR PART! Forward any information you may have on the date of loss, type aircraft, bureau or tail number, and the exact location (UTM coordinates or latitude/longitude coordinates to seconds) of the wreckage. Any amplifying information that can be recalled would aid. Please address correspondence to Headquarters, Joint Casualty Resolution Center, ATTN: CDD-CSI, APO San Francisco 96232. At your discretion, include your name, address, and phone number in the event further details are needed.

Attention Safety Officers

Detach and retain this information concerning USAAAVS Aviation Accident Prevention Course for future use.

■ This course is 10 duty days in length with graduation at 1015 on Friday morning of the second week.

■ Each military student arriving from another post/installation on TDY orders will report to the BOQ Billeting Officer, Building 308, for assignment of quarters. Civilian students can use the military BOQ or one of the motels located in the surrounding communities. Statements of nonavailability will not be issued to military personnel on TDY status.

■ Personnel sign-in will be accomplished at 0730, Room 110, Building 4905 (USAAAVS building), on the first day of scheduled class. Bring a sufficient number of copies of your orders (Reserve and National Guard require 8 copies to process through the Finance Center).

■ Classroom uniform can be either Nomex flight suit, fatigues, or Class A. Khaki/TW uniforms are optional between 17 March and 3 November. Due to the field location of the accident investigation and airfield survey sites, attendees are advised to bring at least one pair of Nomex, fatigues, and boots. Nonmilitary students can wear appropriate civilian attire in the classroom, but are advised to bring one set of attire suitable for wear in the field.

■ Dining facilities for military personnel are available at Consolidated Dining Hall #3, which is located close to the BOQ. The Fort Rucker Officers Open Mess is also available for all personnel and is within walking distance of the USAAAVS classroom.

■ Local transportation, with the exception of field trips, cannot be provided. Each student is encouraged to make his own arrangements concerning local transportation prior to arrival.

■ Request all military personnel who have received official orders to attend the AAPC contact USAAAVS, by using autovon telephone numbers listed in last paragraph, or by writing Commander, USAAAVS, ATTN: IGAR-PO, Fort Rucker, Alabama 36360.

■ If further information is required, contact Chief, Officer Instructional Division, USAAAVS, autovon 558-4510/4218, commercial 205-255-4510/4218.

UTILITY/ATTACK

Fatalities: 0 ■ *Accidents:* 0
Injuries: 0 ■ *Estimated Costs:* $7,135

BRANCH

■ MAJ Charles E. Toomer, Chief
558-4198

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

UH-1

3 INCIDENTS ■ During hover into confined area to recover downed aircraft, main rotor blades struck tree branch. One rotor blade was damaged. ■ Aircraft rocked back and slid off concrete pad during throttle reduction. Pilot applied forward cyclic, causing damage to swashplate and scissors assembly. ■ Left engine cowling came open in flight. Postflight inspection revealed cowling to be torn and buckled. Cowling latches had not been properly fastened or checked before flight.

2 FORCED LANDINGS ■ Aircraft was being hovered by maintenance officer to check reported compressor stall. Engine failed and aircraft was autorotated. ■ Crew heard loud bang, followed by drop in rpm to 6000. Second bang was heard and engine seized. Pilot initiated 180° autorotation from 500 feet agl with no subsequent damage to aircraft. WELL DONE for a successful power-off emergency landing goes to CW2 Howard L. Ragsdale, B Trp, 7/1st Cav, Fort Knox, KY.

21 PRECAUTIONARY LANDINGS–following are selected briefs ■ Pilot noted unusual vibration and landed. Caused by internal failure of No. 2 hanger bearing. ■ Engine chip detector lights of two aircraft came on. One was caused by loose wire and the second had a carbon deposit on detector plug. ■ Left boost pump light came on during hover. Caused by failure of left fuel boost pump. ■ Pilot noted high side governor failure during cruise flight. Rpm was maintained by use of throttle and aircraft was landed. ■ Pilot encountered severe vibration during test flight. Aircraft was landed and inspection revealed skin had peeled back about 1½ inches along leading outboard bottom edge of one main rotor blade. Skin had peeled off due to corrosion. EIR submitted. ■ Engine fuel pump caution light came on. Caused by failure of fuel pump pressure switch. (USAR)

AH-1

4 PRECAUTIONARY LANDINGS ■ Pilot heard crackling and popping noises in flight. TI was unable to find any deficiencies and test pilot could not duplicate noises in subsequent flight. ■ No. 2 hydraulic light came on. Caused by failure of hydraulic pressure switch. ■ Transmission oil pressure began to fluctuate and transmission oil bypass light illuminated. Caused by crack at base of flare on filter end of transmission oil line. ■ Tail rotor chip detector light came on. Suspect internal failure of 90° gearbox. □

LOH/CARGO

Fatalities: 0 ■ *Accidents:* 0
Injuries: 0 ■ *Estimated Costs:* $2,112

BRANCH

■ MAJ Robert P. Judson, Chief
558-4202

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

OH-58

1 INCIDENT ■ Aircraft struck powerline while pilot was attempting to land after encountering rainshower and zero visibility. Main rotor blade trim tab was torn off. NOE flight was not being conducted. (USAR)

LOSS OF RESOURCES FROM THIS WEEK'S MISHAPS

FATALITIES:	0
INJURIES:	0
AIRCRAFT LOSSES:	0
ESTIMATED COSTS:	$9,247

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
USAR Representative	558-6510/4714
After-duty tape recording of incoming calls to be returned following day (hours: 1615 to 0730)	558-6510
Commercial:	255-XXXX

Prepared from information compiled by the Directorate for Aircraft Accident Analysis & Investigation
Colonel Samuel P. Kalagian, Director

1 FORCED LANDING ■ During authorized and supervised NOE flight, loud bang was heard and TOT started climbing. Aircraft was landed in small clearing with partial power. Pieces of *yellow* compressor liner caused FOD to fifth stage compressor blades, overtemperature, and loss of power. Suspect old compressor liner had flown 57 hours beyond TBO. WELL DONE to CW2 Melvin G. Wade, A Trp, 7/1st Cav, Fort Knox, KY.

9 PRECAUTIONARY LANDINGS–following are selected briefs ■ Transmission chip detector light came on. Caused by fuzz on plug. ■ Starter generator system malfunctioned. Generator was replaced. (USAR) ■ Inverter caution light came on. Suspect inverter failure. ■ Fuel filter caution light illuminated. Filter was replaced. (ARNG) ■ N2 would not rise above 96%. Caused by malfunction of linear actuator.

TH-55

3 PRECAUTIONARY LANDINGS ■ Malfunction of left magneto caused engine to cut in and out. ■ Engine and rotor tachometer needles fluctuated excessively. Caused by malfunction of tachometer. ■ Rough running engine was caused by malfunctioning engine cylinder.

CH-47

1 FORCED LANDING ■ No. 1 engine flamed out, followed immediately by No. 2 engine. Crew completed successful night autorotation landing. Cause of engine flameout was excessive water in fuel. WELL DONE to CPT Wayne S. Fischer and crew of 242nd Aviation Company, Fort Wainwright, Alaska.

3 PRECAUTIONARY LANDINGS ■ Forward transmission chip detector light came on. Fuzz was found on plug. ■ N2 overspeed of No. 2 engine occurred on takeoff. Suspect failure of N2 overspeed governor. ■ No. 2 engine went to 100% on takeoff, and No. 1 engine decreased to 28%. Pilot was unable to control torque with either a.c. or d.c. beep. Cause unknown.

THOUGHT FOR THE WEEK

Exercise the heart to minimize potentially fatal effects of a heart attack by:

1. Selecting an exercise which will raise the maximum pulse rate a minimum of 50%. (Ideal is considered about 70-80%.)
2. Maintaining this exercise with the elevated pulse rate for at least 20 minutes continuously.
3. Performing this exercise three times a week.

Hopefully, this exercise will improve body responses to the point where, should a heart attack occur, chances for survival are greatly increased. **CAUTION: Have your flight surgeon verify appropriateness of exercise, your maximum pulse rate, and your optimum elevated pulse rate.** □

FIXED WING

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

BRANCH

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

Eight precautionary landings were reported.

T-42

2 PRECAUTIONARY LANDINGS ■ No. 1 engine ran rough immediately after takeoff. Caused by broken casting which holds valve rocker shaft for exhaust valve assembly, #4 cylinder. ■ When power was reduced, No. 1 engine began losing power and fuel pressure. Rich mixture and boost pump kept engine running until final descent, when engine stopped. Main fuel line from control unit was loose at distribution valve fitting.

OV-1

2 PRECAUTIONARY LANDINGS ■ Gear would not retract after takeoff because of tripped dump valve in nose wheel well. ■ Nose wheel gear door would not retract. Caused by internal failure of timer sequence valve. (ARNG)

U-8

4 PRECAUTIONARY LANDINGS ■ No. 2 engine would not start after being shut down during test flight. Single-engine landing was made and engine was started by maintenance. Cause undetermined. ■ Aircraft was diverted to military base when unsafe gear condition was indicated during IMC. After manual gear extension, tower confirmed gear appeared down. Successful landing was completed and thorough inspection revealed nothing. Aircraft was flown to home base with gear down. Suspect ice buildup on gear microswitch. ■ Right main gear condition indicated unsafe on final. Manual extension gave safe indication. Overtorque of through bolt on drag brace prevented full gear extension. ■ No. 1 cylinder head temperature

dropped to 120°, oil pressure dropped below 50 psi, and chip detector light came on. Power was reduced and approach and landing completed in IMC. Maintenance inspection revealed large chunks of metal on magnetic plug. One piece was 3/4" x 5/16". Engine is being changed. Cause undetermined at this time. (ARNG) □

REQUEST FOR INTERPRETATION

This request is for a field interpretation of the word CATASTROPHIC as it relates to aviation mishaps. Anonymous or signed definitions are welcome.

As a starting point, one definition is ventured for deliberation, discussion, debate, addition, deletion, or other:

"Catastrophic Accident—an occurrence which potentially results in total loss of the aircraft and fatal injuries to all occupants."

My definition of a catastrophic aircraft accident is:

_____

_____

_____

_____

Send your definition to: Commander
U.S. Army Agency for Aviation Safety
ATTN: IGAR-AL
Fort Rucker, Alabama 36360

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

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DOD-314

ARMY AIRCRAFT MISHAP PREVENTION DATA

FLIGHT FAX

ORVAL RIGHT
Chief Advisor on
Matters of Aviation

A USAAAVS PUBLICATION

VOL. 3, NO. 23 ■ 2 APRIL 1975 mishaps for the period of 14-20 MARCH 1975

An Ounce Of Cure

Gambles and guesses simply are not the hallmark of the aviator who thinks of himself—and rightly so, too—as a true professional. Sure, there may be times when an educated guess becomes necessary, but there is a considerable difference between predicting tomorrow's weather—based on the facts available—or the density altitude at the destination of your flight—and trying to draw to an inside straight. You can pull off the latter every now and then, but not very often, and when you do it is a matter of plain luck.

Plain luck has no place in the weight and balance situation—or in any other aspect of Army aviation, either. Every now and then, though, we run across a mishap which gives rise to the suspicion that maybe some pilots aren't always acting like the real pros they have been taught to be. Here's a case involving a UH-1H.

At approximately 1600 hours, the pilot received a call from a ranger station requesting an air ambulance to rescue an injured mountain climber from near the 11,000-foot level of a mountain. The crew departed and flew to the ranger station to be briefed on the mission. The individual in charge of the rescue operation requested that the aircraft transport three mountain rescue personnel and their gear to a location near the summit of the mountain. Rescue personnel were then to descend on foot to assist an injured climber at the 13,000-foot level. On the flight up the mountain they were to look for two climbing parties who reportedly had injured people with them. After the aircraft dropped the rescue personnel at a suitable location they were to pick up an injured party located at the 11,000-foot level.

The helicopter took off from the ranger station and climbed to 13,800 feet. A landing site was selected at approximately 13,400 feet. About 100 meters from the point of intended landing, the aircraft encountered turbulence, lost rotor rpm, and was descending at a rate of 1,500 to 2,000 feet per minute. The pilot aborted the approach and broke off to the right to regain rotor rpm and altitude. After discussing the situation, the crew decided to attempt another approach from the opposite direction. As the aircraft neared the point of intended landing, the crew chief and medic partially opened the cargo doors to clear the aircraft and give height information to the pilot. At an estimated height of 20 feet, the aircraft developed a high rate of descent. The pilot attempted to slow this rate by adding power. Rotor rpm began a rapid decay to a point where yaw control was lost. The high rate of descent continued and the aircraft yawed approximately 80 degrees to the right, although full left antitorque control was applied. The aircraft crashed and came to rest on its right side. Fortunately, there were no injuries.

The crew had not performed weight and balance computations after loading passengers and cargo aboard the aircraft. The reason for this error can be attributed to crew complacency and a lack of command supervision.

Supervisory error was a factor in this mishap. The crew did not have adequate mountain flying training nor were they directed to perform weight and balance computations in any situation that might result in maximum gross weight conditions.

The only nice thing about weight and balance disease, when it strikes, is that you don't even need a pound of cure. Just a few well-placed ounces will turn the trick.

One of them is cultivation of a healthy attitude toward flying, in particular your aircraft. A touching faith in its powerplant to work almost any miracle is sometimes understandable, but it is a sad fact that miracles don't come a dime a dozen.

About the only miracles being pulled off these days are the result of solid hard work and unremitting attention to detail. As a matter of fact, once you have that lesson under your belt you don't need any miracles.

Where you will find weight and balance given its proper share of respect, together with all the other problems which plague us, is in units which have sound training and supervisory programs aimed at impressing younger pilots with the importance of weight and balance and keeping old hands from forgetting about it.

Weight and balance and density altitude, like calories, are fixed facts of life. Pretending they aren't there, or can be tinkered with, isn't going to make them go away.

It is just going to weigh on you that much heavier. That's all.

UTILITY/ATTACK

Fatalities: 4 ■ *Accidents:* 1
Injuries: 0 ■ *Estimated Costs:* $293,272

BRANCH

■ MAJ Charles E. Toomer, Chief
558-4198

One accident, one incident, two forced landings, and sixteen precautionary landings were reported.

UH-1

1 ACCIDENT ■ Aircraft crashed into wooded area and burned. Investigation with USAAAVS participation is in progress.

1 INCIDENT ■ Crew attempted engine start with main rotor blades tied down.

2 FORCED LANDINGS ■ Engine failed at 1,000 feet agl. Pilot landed in small clearing on side of mountain. WELL DONE to CW4 Richard Piety. ■ Low rpm warning light and audio signal activated. Pilot autorotated straight ahead into open field. Caused by failure of gear spur.

13 PRECAUTIONARY LANDINGS–following are selected briefs ■ Ninety-degree gearbox chip detector light came on. Inspection revealed metal on magnetic plug. ■ Compressor stall occurred during simulated antitorque control failure. Caused by fuel control malfunction. ■ Pilot landed to visually check fuel quantity when 20-minute light illuminated after 45 minutes of flight. ■ Aircraft encountered clear ice while at cruise in VMC. (ARNG) ■ Engine fuel pump segment light came on. Pressure switch failed. ■ Fire warning light illuminated. Caused by moisture in cannon plug. (USAR)

AH-1

3 PRECAUTIONARY LANDINGS ■ Pilot noticed egt rise during flight and performed second DER check that showed 1 percent N_1 and 40° egt difference from first DER check. Maintenance could not duplicate problem. ■ During cruise flight both hydraulic segment lights began illuminating for approximately 30-second intervals. Suspect wiring problem. ■ Ninety-degree gearbox chip detector light came on. Caused by plug connector touching airframe. □

LOH/CARGO

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

BRANCH

■ MAJ Robert P. Judson, Chief
558-4202

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

OH-58

2 FORCED LANDINGS ■ During landing, pilot noticed N_2 decreasing through 94 percent and executed power-on autorotation. Cause of engine malfunction undetermined. ■ Without warning, complete engine failure occurred at 2,500 feet. Inspection after landing revealed loose fuel line connection, allowing air to be sucked into fuel system. WELL DONE to MAJ E. L. Richardson, Maine ARNG, for a successful emergency autorotation. (ARNG)

LOSS OF RESOURCES
FROM THIS WEEK'S MISHAPS

FATALITIES:	4
INJURIES:	0
AIRCRAFT LOSSES:	1
ESTIMATED COSTS:	$377,272

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
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After-duty tape recording of incoming calls to be returned following day (hours: 1615 to 0730)	558-6510
Commercial:	255-XXXX

Prepared from information compiled by the Directorate for Aircraft Accident Analysis & Investigation
Colonel Samuel P. Kalagian, Director

4 PRECAUTIONARY LANDINGS ■ Two hydraulic system malfunctions were reported. One was listed as hydraulic pressure switch failure and the other as hydraulic pressure relief valve failure. ■ Engine oil bypass warning light came on during takeoff. Aircraft was landed and oil was added to engine oil tank. Aircraft was released for further flight. ■ During hover to takeoff pad, tail rotor gearbox chip detector light came on. Aircraft was grounded pending results of oil analysis. (ARNG)

TH-55

2 PRECAUTIONARY LANDINGS ■ Full power could not be obtained during attempted power recovery from simulated forced landing. Inspection revealed throttle cable was binding in cable housing. ■ Engine started running rough during landing. Inspection of engine revealed No. 1 cylinder had zero compression. Cause of defective cylinder unknown at this time.

CH-47

1 INCIDENT ■ Combining transmission access cover left aircraft during flight. No. 1 engine nacelle and two aft rotor blades were damaged. Minute vibration in controls was only indication of trouble. Suspect over-center locking device vibrated loose.

2 PRECAUTIONARY LANDINGS ■ No. 1 SAS return line filter fitting broke during flight. Fitting was overtorqued. ■ Low transmission oil warning light came on. Caused by faulty transducer.

CH-54

1 PRECAUTIONARY LANDING ■ Antenna wire broke at wire mount point on tension unit. Chipped paint on one tail rotor blade indicates that antenna made contact with tail rotor. Sharp hole edges at wire mounting point caused cutting action in antenna wire and eventual separation.

NOTE FOR OH-58 AVIATORS

OH-58 aircraft are being modified to incorporate the crashworthy fuel system. This modification will most likely change the basic weight of each aircraft. Of course, reweighing and entries on the weight and balance forms are appropriate. USAREUR has reported that in some cases the modification resulted in increasing the basic weight to as high as 1,830 pounds. This increase may be sufficient to exceed maximum gross weight limitations when fuel and oil, pilot and copilot, and two passengers are contemplated for a flight. Although the operator's manual specifies that aviators compute "takeoff and anticipated landing gross weight," this preflight planning item can easily be neglected due to familiarity with the "old" OH-58.

See FLIGHTFAX, 23-29 August 1974, for an article dealing with power required while in and out of ground effect for further information on OH-58 preflight planning. □

FIXED WING

Fatalities: 0 ■ *Accidents:* 1
Injuries: 0 ■ *Estimated Costs:* $70,000

BRANCH

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

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

T-42

1 INCIDENT ■ On landing rollout, nose gear collapsed, followed by right main gear. Cause is under investigation.

1 PRECAUTIONARY LANDING ■ Fuel was siphoning from vicinity of left main filler cap during climbout. Pilot returned to base. Inspection revealed locking flange was dented in several places and prevented proper seal. *Pilots, keep your eye on those refuelers and make a thorough preflight!*

U-8

2 PRECAUTIONARY LANDINGS ■ Gear would not retract after takeoff. Gear switch box on right main gear, FSN 5930-177-2807, had moved out of position. ■ Left engine surged and partial power loss was noticed. During approach for precautionary landing, chip detector light illuminated. Reduction gear retainer was found on chip detector plug. Cause of failure unknown. Engine was replaced.

U-21

1 ACCIDENT ■ Aircraft struck sea gull during short final, denting leading edge of right wing in critical area.

3 PRECAUTIONARY LANDINGS ■ Flaps would not retract when missed approach was initiated. Flap motor circuit breaker popped. Suspect relay flap dynamic blade failure caused failure of flap motor. ■ Loose oil filler cap on No. 1 engine allowed oil to siphon overboard. Reduced oil pressure caused fluctuation of torque and propeller rpm. Caused by improper securing on preflight! ■ Left engine torque and N_1 began increasing. Reduction of engine power had little effect, torque stabilizing at 1325 and N_1 at 97.5. Engine was secured on final. Caused by internal failure of fuel control.

OV-1

2 PRECAUTIONARY LANDINGS ■ No. 2 egt rose to 700° for more than 5 seconds during cruise flight. Power reduction lowered temperature to 620°. Landing was made at reduced power and maintenance found faulty egt gauge. ■ Encoder altimeter failed at 3,800 feet, necessitating change from IFR to VFR, assisted by radar vectors. Flight was terminated at home base.

THOUGHT FOR THE WEEK

Chafed lines and crossthreaded fittings are serious problems, particularly when they occur in aircraft fluid systems. Improper application of torque, whether it involves technique of application or amount of torque applied, is also a serious problem. The application of torque above that amount required to provide a tight fit that will not vibrate loose (called "overtorque") generally results in a hairline crack or deformation of the male or female fitting. When this occurs, pressure causes fluid leakage and aircraft downtime is incurred while the line, fitting, or both are replaced. Maintenance manuals outline proper procedures and torque values to be used whenever fluid systems require maintenance effort. Leaks and seeps can occur for reasons other than loose fittings, i.e., deformed, pinched, or dried out preformed packing, and these will not be corrected by additional applications of torque. Look it up . . . and torque it right. □

ENLISTED SEW-ON INSIGNIA

Enlisted personnel are authorized optional wear of subdued sew-on grade insignia on the field and work uniform in lieu of the subdued pin-on insignia. The sew-on insignia will be available in post exchanges on or about 1 May 1975. This policy will be published in the first printed change to AR 670-5, now being printed. The Nomex flight suit is considered a work uniform.

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

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DOD-314

ARMY AIRCRAFT MISHAP PREVENTION DATA

FLIGHT FAX

ORVAL RIGHT
Chief Advisor on
Matters of Aviation

A USAAAVS PUBLICATION

VOL. 3, NO. 24 ■ 9 APRIL 1975

mishaps for the period of 21-27 MARCH 1975

Safety Through Different Eyes

My torque meter and exhaust gas temperature gauge clearly indicated that I was rapidly approaching a possible engine failure during what had been an uneventful flight home—still 150 miles away. I immediately initiated the emergency procedure which was now automatic after flying for almost 10 years and I was able to control the stall—or so I thought.

I knew I was only about 10 minutes away from an Air Force base but I had been away from home almost 2 weeks and I'd be damned if I was going to be stuck another 2 days or so, especially when I felt I had firm control of the situation. Briefly I recalled our last safety meeting and the subject of get-home-itis, but I felt our safety officer was really talking to the younger pilots. After all, I was the most experienced, safety-conscious guy in the outfit, and I had the problem under control.

I glanced at my copilot who was just out of flight school and saw he was looking a little skeptical, but I reassured him that we were OK. He had wanted to make a precautionary landing but that would have put an unnecessary blemish on a perfect flight record—mine. Forget that, I thought. After all my decision was based on experience and who could argue with that, especially when I had the situation under control.

We flew on past the Air Force base and entered the final leg of our flight which carried us over desolate terrain. Then it began. A loud rapping sound in the engine indicated the onslaught of the compressor stall. Already being at reduced power and altitude from my initial high temp problem didn't really help matters as I began to look for a forced landing area and rolled off throttle.

The explosion rocked the aircraft and a violent right yaw told me we were in for a rough ride. Out of the corner of my eye I saw debris flying out to the right of me but the Christmas tree effect of the warning lights held my attention. My eyes darted to the altimeter and it read 1,200 feet.

An eternity passed before my eyes. How could this be happening to me? I'm not supposed to be in a situation like this. I briefly recalled a safety briefing on complacency. Why didn't I land at that Air Force base? I glanced at young Dave Shook and saw his panic-stricken face. Even with his limited experience I could see he knew the score. I remember saying to him, "I'm sorry."

The impact was tremendous, filling my ears with screeching, tearing sounds and my eyes with debris. My body tore at the restraints as the instrument panel came up to meet me. Funny, I thought, how easy it is to read the gauges when they are so close. I could actually see the reflection of my face in the glass. Was that bloody mess really me?

That was the last sight I ever saw as the g forces popped my eyes from my head. Would this never end? A searing pain entered my back as the unrelenting pressure of the transmission forced me forward and I felt some object pierce my side. Smoke and fumes filled my lungs and the taste of blood nauseated me. I remembered pictures of crashed aircraft which didn't remotely resemble the sleek beautiful birds they had once been. Now it really didn't matter. I could not see or feel anything except a spreading warmth and a voice somewhere crying, "Help me, God." Then silence.

As you know by now, this really didn't happen to me. I tried to think of a unique way to approach safety—through the eyes of an aviator who realized his errors but wouldn't get another chance to correct them. Maybe I have a wild imagination, but would you really like the opportunity to see? Flight safety violations just might give you the chance.

This article was written by **2LT WILLIAM C. McMURPHY,** *507th Medical Company, Fort Sill, OK, while he was attending a recent USAAAVS Aviation Accident Prevention Course.*

UTILITY/ATTACK BRANCH

Fatalities: 2 ■ *Accidents:* 3
Injuries: 2 ■ *Estimated Costs:* $462,170

■ MAJ Charles E. Toomer, Chief
558-4198

Three accidents, three incidents, one forced landing, and thirty-six precautionary landings were reported.

UH-1

2 ACCIDENTS ■ Aircraft landed extremely tail low, causing tail rotor to separate. Aircraft spun several times before IP closed throttle for hovering autorotation. Aircraft landed hard, damaging landing gear and tail boom. ■ Aircraft crashed into trees. Suspect tail rotor failure as result of wire strike.

2 INCIDENTS ■ Right cargo door separated in flight. Cause not reported. ■ Main rotor blades struck tree while aircraft was being repositioned near treeline. Ground guide was being used.

1 FORCED LANDING ■ Engine had several compressor stalls during approach about 10 feet agl. Stalls intensified when collective was reduced. Pilot closed throttle and landed.

31 PRECAUTIONARY LANDINGS–following are selected briefs ■ Engine rpm went to 6400 and maximum torque obtainable was 20 psi. Suspect fuel control malfunction. ■ During left turn, several loud bangs were heard and aircraft yawed. Suspect compressor stall. ■ Hydraulic system failed as a result of failed hose. ■ Crew noticed fluid coming from battery vent, main generator reading 30 volts, and standby generator reading 29 volts. Voltage regulator was set too high. ■ Master caution and engine chip segment lights came on during climbout. Engine magnetic plug wire was loose. ■ Aircraft developed vibration while landing. Postflight inspection disclosed that patch had separated from main rotor blade. ■ Engine-driven fuel pump segment light illuminated as a result of pressure switch failure. ■ Maintenance test pilot was performing low rpm (6000), *high hover (25 feet)* check with throttle full open. Aircraft yawed violently to right and engine rpm went to 7000. Pilot closed throttle and performed hovering autorotation. Suspect overspeed governor failure. *Low rpm hover at more than 3 feet skid height is not consistent with TM 55-1500-219-MTF.*

AH-1

1 ACCIDENT ■ Engine failed during low-level flight at 100 feet agl, causing aircraft to crash.

1 INCIDENT ■ Pilot inadvertently activated wing stores jettison switch. Left outboard 158 pod released at forward mount, but not at aft mount. The 158 pod damaged trailing edge of wing and position light.

LOSS OF RESOURCES FROM THIS WEEK'S MISHAPS

FATALITIES:	2
INJURIES:	2
AIRCRAFT LOSSES:	1
ESTIMATED COSTS:	$467,200

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

Commander	558-3410/3819
Technical Research and Applications	558-6404/6410
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Colonel Samuel P. Kalagian, Director

5 PRECAUTIONARY LANDINGS ■ No. 1 hydraulic system pressure switch failed, causing master caution and No. 1 hydraulic segment lights to illuminate. ■ Transmission oil bypass light came on in flight. Loose fitting above oil bypass caused slight loss of pressure. ■ Engine chip detector light illuminated during runup. Fuzz was found on magnetic plug. ■ Tail rotor chip detector light came on. Fuzz was found on magnetic plug. ■ Transmission oil pressure dropped to 5 psi and transmission oil pressure and oil bypass lights came on during climbout. Loss of oil resulted, following failure of transmission oil filter gasket. □

LOH/CARGO

Fatalities: 0 ■ *Accidents:* 0
Injuries: 0 ■ *Estimated Costs:* $5,030

BRANCH

■ MAJ Robert P. Judson, Chief
558-4202

Three incidents and twenty precautionary landings were reported.

OH-58

3 INCIDENTS ■ Aircraft was on authorized and supervised NOE flight, 10 feet agl and 10 knots in straight and level flight, when gust of wind caused sideward movement, causing one main rotor blade to strike dead tree limb. Blade was replaced and aircraft released for flight. ■ Pilot was attempting to herd cattle into stock pen on authorized flight for Agriculture Department when main rotor blades struck tree limbs. Aircraft landed, blades were replaced, and aircraft released for flight. ■ Main rotor blades struck tree during authorized and supervised NOE flight. Aircraft was landed without further damage.

7 PRECAUTIONARY LANDINGS ■ Three chip detector light illuminations were reported. Two were related to engines and one to transmission. In all three cases, magnetic plugs were cleaned and aircraft returned to flyable status. Two were ARNG aircraft. ■ Two hydraulic pressure light illuminations were reported. One was caused by failure of pressure switch. Suspect the other was caused by collection of moisture in hydraulic reservoir. ■ N_2 rpm decreased through 101 percent and could not be regained. Suspect power turbine governor failure. ■ Pilot saw fluctuation of N_1 and N_2 percent and landed aircraft. Double check valve was clogged. Valve was cleaned and aircraft returned to flying status.

OH-6

1 PRECAUTIONARY LANDING ■ Engine-out audio and warning light came on during training flight. Inspection of aircraft revealed tachometer generator failure. (ARNG)

TH-55

4 PRECAUTIONARY LANDINGS ■ Four materiel failure mishaps were reported. These failures involved an oil pressure sending unit, oil temperature sending unit, fuel injector line, and electric fuel pump.

CH-47

7 PRECAUTIONARY LANDINGS ■ Two fire detector light illuminations were reported. One was caused by electrical short in fire detector system and one was caused by chafed element. ■ Chip detector lights of four aircraft came on. One was caused by normal wear, one by light malfunction, and one by inadequate electrical ground at detector. Cause of the fourth is unknown, but suspect normal wear. ■ No. 1 engine N_1 condition lights illuminated with aircraft at hover. No. 1 engine would not respond to inputs from condition lever. Caused by failure of N_1 actuator and engine control box assembly.

CH-54

1 PRECAUTIONARY LANDING ■ Transmission chip detector light came on. Investigation revealed small metal particles on plug. Suspect normal break-in wear as transmission had only 7 hours since installation. □

FIXED WING

BRANCH

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

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

One forced landing and ten precautionary landings were reported.

T-41

1 FORCED LANDING ■ Engine oil pressure dropped to zero. Chip detector light came on, loud bang was heard, and severe vibration was noted. Propeller stoppage then occurred. Cause unknown pending engine teardown.

1 PRECAUTIONARY LANDING ■ After takeoff, rpm dropped 200, with slight roughness in engine. Inspection revealed that fly weight retaining pin safety wire broke, allowing pins to lathe filings from governor case.

T-42

1 PRECAUTIONARY LANDING ■ Right main tire blew during landing rollout.

U-8

5 PRECAUTIONARY LANDINGS ■ At 11,000 feet msl, No. 2 propeller surged and crew was unable to correct situation. Caused by failure of propeller governor assembly. ■ Right main gear would not indicate down. Gear was manually stacked, but light still wouldn't indicate locked position. Aircraft was landed and cause was determined as improperly rigged right main gear. ■ After climb from 6,000 to 8,000 feet before reduction of power, engine began to run rough and surge. Cruise power of 2600 rpm and manifold pressure of 30 inches Hg could not be maintained. Aircraft was landed. Caused by internal engine failure. ■ No. 2 engine ran rough and then failed. Caused by carburetor air filter assembly disintegrating and clogging air intake. ■ On takeoff roll, smoke was seen coming from copilot's instrument panel. Takeoff was aborted. Caused by water leaking through windshield base seal and soaking electrical wiring behind instrument panel, causing short circuit.

U-21

1 PRECAUTIONARY LANDING ■ After takeoff, landing gear would not retract fully. Gear was pumped down after cycling switch with no effect. Caused by failure of main landing gear motor.

OV-1

1 PRECAUTIONARY LANDING ■ After takeoff, loud bang was heard behind ejection seat, hydraulic pressure went to zero, and smoke filled cockpit. Pilot declared emergency, blew gear down, and landed. Caused by incorrectly installed tube on linear directional valve (FSN 4730-197-2917, P/N MS 2439408).

C-54

1 PRECAUTIONARY LANDING ■ No. 4 engine fuel pressure and rpm began to fluctuate. Engine was secured and landing made. Caused by No. 4 carburetor malfunction.

The following technical advisory message was received from USAAVSCOM.

AAU-32/A ALTIMETER

PURPOSE OF MESSAGE: To provide advanced operating instruction for the AAU-32/A altimeter to be utilized until this information is published in each applicable aircraft operator's manual. General information: AAU-32/A pneumatic counter-drum-pointer altimeter is a self-contained unit which consists of a precision pressure altimeter combined with an altitude encoder. The display indicates and the encoder transmits, simultaneously, pressure altitude reporting. Altitude is displayed on the altimeter by a 10,000-foot counter, a 1,000-foot counter, and a 100-foot drum. A single pointer indicates hundreds of feet on a circular scale, with 50' center markings. Below an altitude of 10,000 feet, a diagonal warning symbol will appear on the 10,000-foot counter. A barometric pressure setting knob is provided to insert the desired altimeter setting in inches of Hg. A d.c. powered vibrator operates inside the altimeter whenever aircraft power is on. If d.c. power to the altitude encoder is lost, a warning flag placarded code off will appear in the upper left portion of the instrument face, indicating that the altitude encoder is inoperative and that the system is not reporting altitude to ground stations.

NOTE: The code-off flag monitors only the encoder function of the altimeter. It does not indicate transponder condition. The AIMS altitude reporting function may be inoperative without the AAU-32/A code-off flag showing, in case of transponder failure of improper control setting. It is also possible to get a "good" mode C test on the transponder control with the code-off flag showing. Display of the code flag only indicates an encoder power failure or a code-off flag failure. In this event, check that d.c. power is available and that the circuit breakers are in. If the flag is still visible, radio contact should be made with a ground radar site to determine whether the AIMS altitude reporting function is operative, and the remainder of the flight should be conducted accordingly. Normal operation: The AIMS altimeter circuit breaker should be closed prior to flight. The mode C switch (M-C) on the transponder control should be switched to "on" for altitude reporting during flight. The AAU-32/A altimeter indicates pneumatic altitude reference to the barometric pressure level as selected by the pilot. At ambient pressure, altimeters should agree within plus or minus 75 feet of the field elevation when the proper barometric pressure setting is set in the altimeter. If there is an error of greater than 75 feet, do not use the altimeter for IFR flight. A red flag marked code off is located in the upper left portion of the altimeter's face. In order to supply mode C information to the IFF transponder, the code-off flag must not be visible. Abnormal operation: If the altimeter's internal vibrator becomes inoperative due to internal failure or d.c. hover failure, the pointer and drum may momentarily hang up when passing from "9" through "0" (climbing) or from "0" through "9" (descending). This hang-up will cause lag, the magnitude of which will depend on the vertical velocity of the aircraft and the friction in the altimeter. Pilots should be especially watchful for this type failure when the minimum approach altitude lies within the "8"-"1" part of the scale (800-1100, 1800-2100, etc.).

If the code off flag is visible, the d.c. power is not available, the circuit breaker is not in, or there is an internal altimeter encoder failure.

If the altimeter indicator does not correspond within 75 feet of the field elevation (with proper local barometric setting) the altimeter needs rezeroing or there has been an internal failure.

If the baroset knob binds or sticks, abnormal force would not be used to make the setting as this may cause internal gear failure resulting in altitude errors. Settings can sometimes be made by backing off and turning at a slower rate.

NOTE: Instructions contained in this message should be inserted in chapter 2 and/or 5 of the operator's manual until receipt of formal change.

(Continued on back page)

(Continued from page 5)

If additional information is needed, or if there are any questions, contact Commander, U.S. Army Aviation Systems Command, ATTN: AMSAV-FEG, P.O. Box 209, St. Louis, MO 63166.

NOTE: Message Gen-74-26 dated 131700Z Aug 74 is still valid and applies to the AAU-32 altimeter. It states that "the AAU-32 altimeter contains a d.c. powered internal vibrator which is required to overcome friction and assure accuracy. D.c. power is provided from the emergency buss which is automatically supplied by turning the battery switch to on. A minimum of one minute warm-up time is essential prior to setting or checking the altimeter." □

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ARMY AIRCRAFT MISHAP PREVENTION DATA

FLIGHT FAX

ORVAL RIGHT
Chief Advisor on
Matters of Aviation

A USAAAVS PUBLICATION

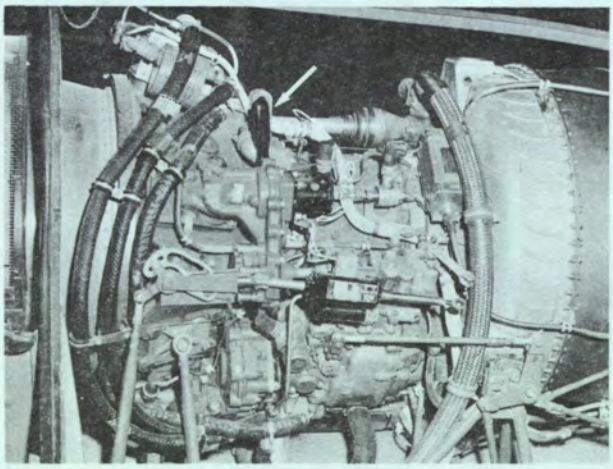
VOL. 3, NO. 25 ■ 16 APRIL 1975

mishaps for the period of 28 MARCH-3 APRIL 1975

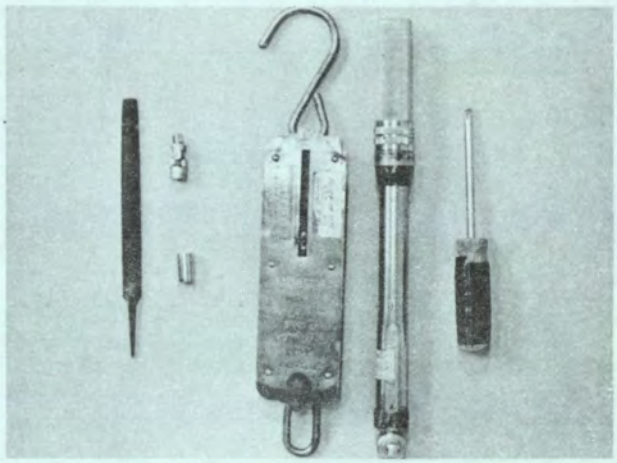
FOD Control—Everybody's Job

A professional aviation mechanic's toolbox is a model of organization. In the first place, it helps him get the job done faster and more efficiently, with less wear and tear on the nervous system. As far as FOD is concerned, the toolbox is a model before the job begins and after it is over. Everything is where it should be—in the box or in actual use. No pliers or screwdrivers will ever get a turbine or a control in trouble if they are safe and accounted for, in their proper slot, and under lock and key when the aircraft rolls out to the flight line.

Toolbox inventory is one of the heaviest weapons maintenance personnel have in the war on FOD. These cases emphasize the fact that not just maintenance personnel, but crew chief and pilot alike must always be on the alert for foreign objects. Generally, when an aircraft crashes because a tool is left where it shouldn't be, nobody knows who was responsible. Except for one man. He knows, but he doesn't like to think about it.



AN 18-INCH SCREWDRIVER
was found in this UH-1 engine during a technical inspection. The screwdriver had been there for several weeks, apparently left by a mechanic during a daily inspection. At least five different pilots had flown the UH-1 and it had been through two previous intermediates before the screwdriver was discovered.



THESE FOREIGN OBJECTS
were found inside a UH-1D tail boom during a preflight inspection. The pilot found these objects by placing his ear close to the tail boom, hitting the bottom side, and listening for rattling noises.

UTILITY/ATTACK

Fatalities: 0 ■ *Accidents:* 0
Injuries: 0 ■ *Estimated Costs:* $6,071

BRANCH

■ MAJ Charles E. Toomer, Chief
558-4198

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

UH-1

2 INCIDENTS ■ During landing from hover, aircraft touched down with skids partially off ramp apron, causing nose of aircraft to pitch up. As aircraft was being positioned back on ramp, aft crosstube was damaged. ■ Engine failed as aircraft became light on skids. Debris from engine struck tail rotor blades, causing incident damage. Debris and cause of failure undetermined.

3 FORCED LANDINGS ■ On final approach at 75 feet, several loud bangs were heard from engine compartment, along with right and left yawing. Power was reduced and autorotation was made. (ARNG) ■ N_1 decreased to 5 percent during practice autorotation. Autorotation was continued. ■ While on final during ILS approach, crew heard two loud bangs from engine, followed by complete engine failure. WELL DONE to DAC Edward L. Hogeboom, USAAVNC, Fort Rucker, Alabama, for a successful emergency autorotation.

21 PRECAUTIONARY LANDINGS–following are selected briefs ■ Aircraft yawed left during cruise flight. Pedals were checked and aircraft failed to respond. Postlanding inspection revealed failure of tail rotor quill housing. ■ Fuel filter light came on. Caused by failure of fuel filter switch. ■ Right aft floor panel came loose during takeoff. Inspection revealed holding screws were not in place. Aircraft had flown 3 hours since PMP. ■ Feedback was noted through cyclic control during climbout. Caused by malfunction of irreversible valve. (ARNG) ■ Fire warning light came on. Caused by loose cannon plug. ■ Pilot smelled fumes in cockpit. Caused by overheated battery. ■ Tail rotor chip detector light illuminated. Fuzz found on detector plug.

AH-1

1 INCIDENT ■ Aircraft was flying cover for troop insertions into LZ located in artillery impact area. Ground explosion occurred near aircraft while it was making low-level pass. Aircraft was landed. Inspection revealed 4-inch hole in one rotor blade 2 feet from hub and minor dents in fuselage.

1 PRECAUTIONARY LANDING ■ Tail rotor chip detector light came on. Fuzz found on detector plug. □

LOH/CARGO

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

BRANCH

■ MAJ Robert P. Judson, Chief
558-4202

One accident and eighteen precautionary landings were reported.

OH-58

1 ACCIDENT ■ Aircraft apparently had spike knock and pylon whirl during ground run from touchdown autorotation. Pilot picked aircraft up and moved it to parking ramp. Inspection revealed wrinkles and crack in lower fuselage aft of cargo compartment. Investigation is continuing. *Pilots are CAUTIONED not to move aircraft after pylon whirl is thought to have been encountered. This is in compliance with*

LOSS OF RESOURCES FROM THIS WEEK'S MISHAPS

FATALITIES:	0
INJURIES:	0
AIRCRAFT LOSSES:	0
ESTIMATED COSTS:	$30,171

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
USAR Representative	558-6510/4714
After-duty tape recording of incoming calls to be returned following day (hours: 1615 to 0730)	558-6510
Commercial:	255-XXXX

Prepared from information compiled by the Directorate for Aircraft Accident Analysis & Investigation
Colonel Samuel P. Kalagian, Director

TM 55-1520-228-10, paragraph 8-5. At least two fatalities have occurred from failure to inspect aircraft following suspected pylon whirl situation.

8 PRECAUTIONARY LANDINGS ■ Three tail rotor chip detector light illuminations were reported. One was caused by metal fuzz, one by small chrome chip, and the third by large metal chip which resulted in gearbox change. ■ Engine chip detector lights of two aircraft came on. One was caused by metal fuzz and the other by faulty upper chip detector plug. ■ Engine and rotor rpm deteriorated to 90 percent during hover. Caused by malfunction of double check valve. ■ Rotor rpm deteriorated and stabilized at 95 percent during cruise flight. Aircraft landed and inspection revealed malfunction of engine fuel governor. ■ While performing autorotation during maintenance test flight following replacement of tail rotor pitch change links, pilot noted binding of collective. Recovery was made and it was found that armor plate latching mechanism had overridden nylon receptacle and was lodged against left side collective control. Nylon receptacle was shimmed, correcting problem. Reference figure F4, page 685, TM 55-1520-228-34P. EIR is being submitted. (ARNG)

TH-55

7 PRECAUTIONARY LANDINGS—following are selected briefs ■ Main transmission oil pressure warning lights of two aircraft came on. Caused by malfunction of pressure switches. ■ Main transmission temperature warning light illuminated. Caused by temperature switch malfunction. ■ Fuel gauge showed rapid loss of fuel during cruise flight. Caused by malfunction of gauge. ■ Engine chip detector light came on. Caused by malfunction of detector. ■ Alternator malfunctioned during hover. Alternator replaced.

CH-47

3 PRECAUTIONARY LANDINGS ■ Right aft parking brake line failed during flight. Line was capped and flight continued. (ARNG) ■ Hydraulic line failed in control closet area during flight. Caused by chafing due to tube improper alignment. ■ Left fuel tank cap came off in flight, causing fuel to be siphoned overboard. Caused by improper fuel tank cap installation.

MESSAGES RECEIVED

1. Message 031630Z Apr 75, subject: Restriction on Use of CH-47C Aircraft With T55-L-11 Engines.
2. Message 312055Z Mar 75, subject: Maintenance Advisory Message on Utility Hydraulic System Relief Valve in CH-47A/B/C Aircraft.

THOUGHT FOR THE WEEK

Aviation is a demanding profession. It requires very close attention to details, continual practice of procedures, and never-ending improvement.

Individual pilots are responsible for the accuracy and completeness of the tools designed to make flying safer, more precise, and adaptable to training. The operators flight manual belongs to the individual pilot.

Every pilot reads the operators manual. However, the professional *uses* the manual. He flies his aircraft safely, accomplishing the mission without endangering his life, his crew, or his aircraft. He knows the procedures in the manual, and knows how to execute them.

When giving instructions to a student pilot the professional continually emphasizes the reasons behind the "manual's way" while he never deviates from the correct procedures himself. When an instructor pilot deviates in even the slightest way from the operators manual, he places a weak block in the student pilot's foundations. The use of nonstandard procedures makes a magnified impression on any student, and must be avoided.

When the PROFESSIONAL disagrees with any item or procedure in his operators manual, he doesn't just disregard it and do it his way. He submits a change recommendation on a DA Form 2028 and thereby shares his knowledge and experience with everyone.

Use your operators manual—be a professional.

(Adapted from an article appearing in a recent issue of SAFETY RAISER Mag-26 Safety NATOPS) □

FIXED WING

Fatalities: 0 ■ *Accidents:* 0
Injuries: 0 ■ *Estimated Costs:* $3,100

BRANCH

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

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

U-8

1 INCIDENT ■ No. 1 engine cowl flew open during takeoff roll and takeoff was aborted. Suspect improper securing of cowl after preflight.

1 PRECAUTIONARY LANDING ■ No. 1 engine failed and chip detector light came on simultaneously. Engine was secured and successful landing made. Cause unknown at this time. (USAR)

U-21

1 INCIDENT ■ Five VHF antennas were broken by trace icing when aircraft encountered cloud condition at 8,000 feet. Freezing level was forecast at 10,000 or above. VHF antennas are engineered to break under slightest amount of icing. ECOM advised appropriate action is being taken to correct deficiency.

2 PRECAUTIONARY LANDINGS ■ Unsafe right gear indication was noted as gear was lowered for landing. Repeated attempts, including manual extension, failed to give green light. Landing was uneventful. Caused by broken wire to down-lock switch assembly. ■ Aircraft was cruising at 23,000 feet when right fuel boost pump failed. Pilot closed crossfeed switch and continued to operate engine with engine-driven fuel pump. WELL DONE to CW2 Ralph A. White, Ft. Bliss, TX, for using the proper dash 10 procedures. *(REMEMBER–the engine-driven pump, when used without the boost pump, has an accumulative time of 10 hours per TBO.)*

OV-1

2 PRECAUTIONARY LANDINGS ■ No. 1 engine chip detector light illuminated immediately after takeoff. Plug was cleaned and oil sample taken. ■ Pilot noted haze in cockpit at 5,000 feet and opened air conditioner bypass lever to vent cockpit. Burning odor was still evident so approach and landing were completed. Inspection revealed burned out a.c. voltage regulator.

T-41

1 FORCED LANDING ■ Engine chip detector light came on during practice approach. About 10 seconds later loud bang was heard, causing excessive engine vibration. Smoke filled cockpit and engine was secured. CPT H. P. Linder, Ft. Stewart, GA, completed a successful landing on the airfield. (WELL DONE *for maintaining your "cool" and continuing to fly the aircraft!)* No. 2 connecting rod failed. Caused by broken oil pump shaft.

O-2

1 PRECAUTIONARY LANDING ■ In-transit light remained on after lowering gear for landing. Microswitch was out of adjustment.

T-42

1 PRECAUTIONARY LANDING ■ Ground observer and airborne Huey pilot reported left main gear appeared to be partially down after takeoff. Gear was extended and landing completed. Tests could not duplicate condition. □

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ARMY AIRCRAFT MISHAP PREVENTION DATA

FLIGHTFAX

ORVAL RIGHT
Chief Advisor on
Matters of Aviation

A USAAAVS PUBLICATION

VOL. 3, NO. 26 ■ 23 APRIL 1975

mishaps for the period of 4-10 APRIL 1975

– WARNING –
Teetering Rotor Systems

An article with this same title appeared in FLIGHTFAX, Vol. 2, No. 35, dated 12 June 1974. The August 1974 ARMY AVIATION DIGEST carried an article entitled "Let's Take A Close Look At Mast Bumping." Since then, additional information has become available on mast bumping.

Ames Laboratory has attributed the 47 cases of mast separation in-flight breakup accidents referenced in the 12 June 1974 FLIGHTFAX to the following causes:

- Engine Failure
- Tail rotor failure
- Elevator failure
- Unknown
- Mechanical failure
- Low g maneuvers
- Turbulence

Mast separation makes catastrophes out of what would otherwise be incidents or forced landings. Here are some conditions which could aggravate a simple emergency to the point where mast bumping occurs:

■ A flight condition which might have contributed to many of these accidents is sideslip flight. Mast to hub clearance angle is 11° to 12°. A lateral velocity of 30 knots will cause a flapping angle of 9°. Moderate to high speed flight with extreme sideslip angles contributes to large flapping angles.

■ "Fall off" maneuvers are typical producers of this condition.

■ A highly probable cause of severe mast contact and main rotor separation is low g maneuvering.

■ Sustained levels of .2 g or less are extremely critical on the teetering rotor and must be emphasized to pilots. "Pushover" maneuvers at moderate to high airspeed approach zero or negative g loading, and are extremely critical. In fact, flight near or below zero g is prohibited.

Since the first article in FLIGHTFAX, two more cases of mast separation have occurred, resulting in six fatalities. *Stay within the flight envelope.*

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TENTATIVE FY 76 SCHEDULE OF USAAAVS SAFETY CLASSES

Aviation Accident Prevention Course (AAPC-Officer)		Aviation Accident Prevention Management Course (AAPMC-NCO)	
No.	Dates	No.	Dates
76-1	21 Jul-1 Aug 75	76-1	7-18 Jul 75
76-2	18-29 Aug 75	76-2	4-15 Aug 75
76-3	15-26 Sep 75	76-3	1-12 Sep 75
76-4	29 Sep-10 Oct 75	76-4	13-24 Oct 75
76-5	10-21 Nov 75	76-5	27 Oct-7 Nov 75
76-6	5-16 Jan 76	76-6	19-30 Jan 76
76-7	2-13 Feb 76	76-7	16-27 Feb 76
76-8	1-12 Mar 76	76-8	15-26 Mar 76
76-9	29 Mar-8 Apr 76	76-9	12-23 Apr 76
76-10	26 Apr-7 May 76	76-10	10-21 May 76

Holidays: 1 September–Labor Day
13 October–Columbus Day
27 October–Veterans Day
16 February–Washington's Birthday
24 May–Memorial Day

UTILITY/ATTACK BRANCH

Fatalities: 0 ■ *Accidents:* 1
Injuries: 0 ■ *Estimated Costs:* $17,000

■ MAJ Charles E. Toomer, Chief
558-4198

One accident, two incidents, one forced landing, and forty-three precautionary landings were reported.

UH-1

1 ACCIDENT ■ Tail rotor struck ground during termination of practice autorotation, causing tail rotor and tail rotor gearbox to separate. (ARNG)

1 INCIDENT ■ Aircraft landed hard at termination of practice autorotation.

1 FORCED LANDING ■ Pilot heard three loud bangs from engine during practice of NOE quick stop. Aircraft yawed and rpm dropped through 6000. Pilot closed throttle and executed hovering autorotation. Suspect compressor stall.

33 PRECAUTIONARY LANDINGS–following are selected briefs ■ Crew detected odor of electrical smoke and saw smoke coming from overhead electrical panel. Caused by short circuit in heater switch. (ARNG) ■ Engine oil pressure fluctuated. Caused by faulty pressure sensor. ■ Engine chip detector light came on during approach. Fuzz was found on magnetic plug. Special oil sample revealed excessive metal content. Engine is being changed on recommendation of AOAP lab. ■ During runup checks, crew detected binding in left rear cyclic and feedback in cyclic. Maintenance cleared ice off controls and released aircraft for flight. Improper preflight. ■ Master caution and hydraulic pressure lights came on. Caused by loose cannon plug. ■ Pilot noticed burning odor during maintenance test flight. Suspect failure of main drive shaft. ■ While on base, crew noticed fumes and smoke from overhead. Gears in wiper assembly were binding and caused windshield wiper motor to overheat. ■ Engine rpm dropped to 6000 during final approach. Linear actuator failed.

AH-1

1 INCIDENT ■ Damage to vertical fin was found on postflight inspection. Cause unknown.

10 PRECAUTIONARY LANDINGS–following are selected briefs ■ During formation flight, wing advised lead that tail rotor gearbox filler cap was off. Gearbox was flushed and filler cap replaced. ■ No. 1 hydraulic system failed during approach. Improper installation of O-ring caused loss of fluid. ■ Tail rotor appeared to hit bush as aircraft was being guided to parking area. Inspection revealed no damage. ■ Crew detected cyclic feedback in flight. Lateral servo cylinder assembly malfunctioned. □

LOSS OF RESOURCES FROM THIS WEEK'S MISHAPS

FATALITIES:	0
INJURIES:	1
AIRCRAFT LOSSES:	0
ESTIMATED COSTS:	$36,000

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
USAR Representative	558-6510/4714
After-duty tape recording of incoming calls to be returned following day (hours: 1615 to 0730)	558-6510
Commercial:	255-XXXX

Prepared from information compiled by the Directorate for Aircraft Accident Analysis & Investigation
Colonel Samuel P. Kalagian, Director

LOH/CARGO

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

BRANCH

■ MAJ Robert P. Judson, Chief
558-4202

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

OH-58

1 INCIDENT ■ Pilot noticed high frequency vibration during cruise flight and landed. While on ground, No. 3 tail rotor drive shaft hanger bearing froze (P/N 2060403397) and caused drive shaft to fracture.

9 PRECAUTIONARY LANDINGS ■ Four chip detector light illuminations were reported. Two tail rotor lights were caused by broken wire and grounded chip detector. A small metal burr on transmission plug caused the third, and a faulty engine receptacle connector caused the fourth. ■ Main transmission hot lights of two aircraft came on because of wiring short and malfunctioning oil temperature switch. ■ Engine oil temperature gauge rose from 85° C. to 120° C. because temperature indicator shorted. ■ Engine oil bypass light came on and N_1 tachometer malfunctioned. Axial fracture of metal tube assembly at connector (P/N 8859956) caused loss of oil, and oil shorted N_1 tachometer. (ARNG) ■ Aircraft yawed left during cruise flight and pilot lowered collective. N_2 decreased to 94 percent and pilot made power-on landing. Caused by malfunction of double check valve.

TH-55

1 FORCED LANDING ■ Engine quit during cruise flight and student pilot made successful autorotative landing. Cause of engine malfunction is under investigation. WELL DONE to WOC Terry G. Ledford.

2 PRECAUTIONARY LANDINGS ■ Instructor pilot noted unusual noise and landed. Maintenance inspection revealed malfunction of starter ring gear support assembly (P/N 72565), starter ring gear (P/N 72566), and starter drive gear (P/N 72614). ■ Instructor pilot heard unusual noise during landing. Maintenance inspection revealed malfunction of upper bearing on pulley assembly for main rotor belt transmission (P/N 269A-5050-56).

CH-47

6 PRECAUTIONARY LANDINGS—following are selected briefs ■ Aircraft was on takeoff when No. 2 engine quit. Cause not reported. ■ Aircraft was at hover with slingload when No. 2 generator failed. Caused by internal generator failure. ■ No. 2 pressure gauge went to zero and caution light came on during final approach. Caused by failure of No. 2 flight boost pump. ■ No. 1 engine oil pressure dropped to zero. Caused by failure of No. 1 engine oil pressure transmitter. ■ Transmission chip detector light came on during runup. Inspection revealed fuzz on combining transmission chip plug.

CH-54

1 PRECAUTIONARY LANDING ■ Aircraft aborted takeoff twice due to chip detector light illumination of main transmission. Oil sample indicated normal wear. Transmission oil sample will be resubmitted after 5 hours of flight. □

FIXED WING

Fatalities: 0 ■ *Accidents:* 1
Injuries: 1 ■ *Estimated Costs:* $17,000

BRANCH

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

One accident and four precautionary landings were reported.

U-3

1 ACCIDENT ■ No. 1 engine failed at approximately 250 feet after takeoff. Pilot tried to return to airport but could not maintain altitude. Wheels-up landing was made and pilot sustained scratched elbow.

According to pilot's handbook, the U-3 is very critical during single engine operation but can be flown and landed safely with one engine inoperative at altitudes up to 4,000 feet with a minimum of 95 mph, providing single engine procedures and flight characteristics are understood. U-3 pilots, review and understand your dash 10. (ARNG)

T-42

1 PRECAUTIONARY LANDING ■ No. 2 engine-driven fuel pump failed in flight, causing engine to quit. Engine was restarted with boost pump and successful landing was made.

T-41

1 PRECAUTIONARY LANDING ■ Smoke and odor in cockpit caused pilot to declare an emergency. All electrical equipment was secured and landing was made. Rheostat switch wire became disconnected and contacted rear of instrument panel, causing short circuit.

U-21

1 PRECAUTIONARY LANDING ■ Nose gear light indication was noted during "before landing" check. After recycling, tower flyby confirmed gear appeared down. Landing was uneventful. Caused by broken electrical contact in indicator assembly.

C-54

1 PRECAUTIONARY LANDING ■ Gear would not retract after takeoff. After landing, maintenance inspection revealed down lock switch on right main gear had malfunctioned. □

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ARMY AIRCRAFT MISHAP PREVENTION DATA

FLIGHT FAX

ORVAL RIGHT
Chief Advisor on
Matters of Aviation

A USAAAVS PUBLICATION

VOL. 3, NO. 27 ■ 30 APRIL 1975

mishaps for the period of 11-17 APRIL 1975

SPIKE KNOCK AND NEGATIVE G's

In recent weeks there have been several inquiries regarding negative g's in the OH-58A. TM 55-1520-228-10, Operator's Manual, OH-58 Helicopter, currently provides no guidance regarding flight at or below zero g. This aircraft basically has the same limitation as other helicopters using the teetering rotor system. LTC James A. Burkes' article, "Let's Take a Close Look at Mast Bumping," ARMY AVIATION DIGEST, August 1974, clearly spells out the tolerance limits of this type rotor head. "Anytime we operate at g-loads less than 0.5 g the aircraft will start to show adverse signs of control response, and as the g-loading is reduced to approximately 0.2 g's, functional loss of effective cyclic control is fully developed."

To provide adequate guidance to operators of OH-58's, changes to the Operator's Manual have been proposed and should be incorporated in future changes. Until these changes are published, however, operators should limit their maneuvers to those that will prevent the g-loading from approaching the zero g area.

A recent incident involved spike knock in an OH-58 during the touchdown phase of a practice autorotation. The aircraft was then hovered to the maintenance area where it was shut down and inspected for damage, which was found.

The OH-58 dash 10, page 8-1, paragraph 8-5, has a *CAUTION* which spells out the procedures to be taken when spike knock is encountered. An inspection is required before the aircraft is to be moved. This includes ground taxiing, hovering, or flight. Due to the misinterpretation of these requirements the wording is being changed, and will be incorporated in the next change to the dash 10. This change will require an entry on the 2408-13 and an inspection to be performed by maintenance personnel before continuing. The critical problem when spike knock is encountered is not to move the aircraft until an adequate and thorough inspection is performed by the proper personnel and the aircraft found to be undamaged.

SPH-4 HELMET EARPHONE SEAL

Aviation commanders, crewmembers, and unit safety officers have expressed concern over the availability of the earphone seal for the SPH-4 helmet. If you have had difficulty requisitioning the seal, read below:

Seal, Earphone, NSN *5330*-00-143-8577, has been redesignated Seal, Earphone, NSN *8415*-00-143-8577. All future requisitions from units must show the new NSN. The NSN change was necessary when control of the item was moved from Defense Industrial Supply Center (DISC) to Defense Personnel Support Center (DPSC). The depot stock of Seal, Earphone, NSN 8415-00-143-8577, has been exhausted; however, a shipment is expected shortly. When the shipment is received, DPSC will fill requisitions based on priority designation. USAAAVS recommends all requisitions be checked to insure they are still valid.

The Army Materiel Command project officer for Aviation Life Support Systems (AMCPM-LSE/ Mr. A.B.C. Davis, U.S. Army Materiel Command, P.O. Box 209, St. Louis, MO 63166, autovon 698-3241/3291) will assist units having special situations or difficulty acquiring Seal, Earphone, NSN 8415-00-143-8577. When contacting Mr. Davis for assistance, you should have at hand all unit requisitions.

UTILITY/ATTACK BRANCH

Fatalities: 0 ■ *Accidents:* 1
Injuries: 2 ■ *Estimated Costs:* $80,015

■ MAJ Charles E. Toomer, Chief
558-4198

One accident, four incidents, one forced landing, and thirty-two precautionary landings were reported.

UH-1

1 ACCIDENT ■ Aircraft struck ground tail low during practice touchdown autorotation, tearing 90° gearbox from tail boom. Aircraft then yawed 30° to right and turned over on left side, causing main rotor to strike ground. Both pilots received minor injuries. Investigation in progress.

2 INCIDENTS ■ Main rotor blades struck tree during confined area operation, damaging both main rotor blades. ■ Tail rotor struck ground during practice touchdown autorotation, causing tail rotor gearbox to separate from aircraft. Aircraft was landed with no further damage. (ARNG)

24 PRECAUTIONARY LANDINGS–following are selected briefs ■ Aircraft yawed right 5° to 10°. N2 tachometer and torquemeter failed. Pilot retarded throttle to control rpm and landed with manual control of throttle. Caused by failure of upper drive shaft assembly of N2 governor. (USAR) ■ On short final pilot noticed binding in tail rotor pedals. Inspection revealed internal failure of tail rotor servo. ■ Tail rotor chip detector lights of two aircraft came on. Both were caused by metal fuzz. ■ Fire warning light came on during hover. Caused by malfunction of fire control alarm box. ■ Transmission oil temperature light came on. Caused by malfunction of transmission thermo switch. ■ Hydraulic caution light illuminated, without loss of hydraulic pressure. Caused by failure of hydraulic pressure switch. ■ Two transmission chip detector light illuminations were reported. One was caused by small metal slivers and the second was caused by water getting in the rubber boot covering the detector plug. ■ Engine oil cooler fan seized in flight. Oil cooler fan was replaced.

AH-1

2 INCIDENTS ■ During postflight inspection both main rotor blades were discovered damaged. Cause not reported. ■ During training mission engine fuel pump warning light came on, followed immediately by engine stoppage. Pilot entered autorotation and increased collective to clear a ditch. Low rotor rpm resulted and aircraft hit hard. Main rotor blade struck tail rotor drive shaft.

1 FORCED LANDING ■ Engine began to seize and pilot autorotated to open field. Suspect No. 1 and No. 2 engine bearing failure. WELL DONE to CW2 George W. Foley, D Trp, 1/17th Cav, Ft. Bragg, NC, for a successful emergency autorotation.

LOSS OF RESOURCES FROM THIS WEEK'S MISHAPS

FATALITIES:	0
INJURIES:	2
AIRCRAFT LOSSES:	0
ESTIMATED COSTS:	$102,345

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
USAR Representative	558-6510/4714
After-duty tape recording of incoming calls to be returned following day (hours: 1615 to 0730)	558-6510
Commercial:	255-XXXX

Prepared from information compiled by the Directorate for Aircraft Accident Analysis & Investigation
Colonel Samuel P. Kalagian, Director

8 PRECAUTIONARY LANDINGS ■ Engine chip detector lights of two aircraft illuminated. One was caused by metal fuzz and the cause of the other was not reported. ■ Engine oil temperature rose to 110° during approach. Inspection revealed failure of oil cooler fan. ■ Pilot encountered airframe vibration in flight. Suspect faulty feather bearing. ■ Aircraft was being test flown and encountered compressor stall. Cause not reported. ■ Pilot experienced sharp cyclic inputs during flight. Inspection revealed fore and aft servo mounting studs had broken off. ■ Two tail rotor chip detector light illuminations were reported. One was caused by metal fuzz and the second gearbox was found to be void of oil due to stuck chip detector drain valve.

The following technical advisory message, 140937Z April 1975, from USAAVSCOM is reprinted for your information:

SUBJECT: Technical Advisory Message for UH-1B/C/M/D/H Aircraft Equipped With Internal Rescue Hoist (UH-1-75-3).

1. Purpose of Message: To clarify restricted status of UH-1 internal rescue hoist.
2. Reference: AVSCOM Message 262052Z Jul 73, Subject: Safety-of-Flight Advisory (Operational) for UH-1B/C/M/D/H aircraft equipped with internal rescue hoist BL8300-2 FSN 1680-977-1584 or BL8300-4 FSN 1686-938-3141 (part of 285-786-830-15 FSN 1680-163-5994).
3. All U.S. Army UH-1 internal rescue hoists continue to be restricted to "life or death" rescue missions or "noncritical training" or demonstration missions as per the referenced message. Some users of the hoist may not have received the referenced message or may desire clarification as to the status of the hoist after a hoist repair team (now in the field) leaves.
4. The hoist restrictions will remain in effect until a major rework program has been accomplished. Reworked hoists are not expected to be available prior to December 75. The hoist repair team now in the field will repair the current hoists and provide training to permit life or death missions to be safe as possible, but the hoists will still be restricted.
5. "Life or death" means use as a last resort as the only means to prevent what would otherwise cause the death of a person. "Noncritical" or demonstration mission means use in such a way that cable failure cannot result in injury or death to personnel on the cable or ground (pickup less than 10 feet over water or dummy pickup from cleared field).
6. Prior to any mission, personnel will assure that all applicable maintenance and inspections on the hoist have been accomplished. Proper check of the cable for evidence of chafing or damage of any kind is essential. Any cable defect is cause to scrap the cable. No cable repair is authorized. Proper operation of the up limit switch is essential. Any up limit switch malfunction is cause for cable replacement and correction of the switch problems. Cause of any cable damage should be identified and corrected.
7. Whenever an actual rescue mission must be accomplished, personnel trained and familiar with hoist operations should be utilized. It should be noted that all known cable failures occurred during actual running of the hoist (not when hoist motor is stopped).
8. Information on operation and maintenance of the hoist can be found in the TM 55-1520-210 series manuals.□

LOH/CARGO

Fatalities: 0 ■ *Accidents:* 1
Injuries: 0 ■ *Estimated Costs:* $21,330

BRANCH

■ MAJ Robert P. Judson, Chief
558-4202

One accident, five incidents, and twenty-three precautionary landings were reported.

OH-58

2 INCIDENTS ■ At conclusion of authorized and supervised NOE flight, trailing edge of one main rotor blade was found pushed in 3 inches. There was no indication of when damage occurred. Blade replaced. ■ Excessive collective pitch was used to cushion landing during practice touchdown autorotation. Aircraft yawed 20° left and settled. Shuddering stop resulted in damage to fiberglass fairing on underside of tail boom and upper portion of left side of fuselage just below engine cowling.

14 PRECAUTIONARY LANDINGS ■ Six chip detector light illuminations were reported. Four engine lights were caused by loose cannon plug, metal fuzz, fine metal particles (ARNG), and not described. One tail rotor light was caused by fuzz, and a main transmission light was caused by metallic chips. ■ Hydraulic caution lights of two aircraft illuminated. One was accompanied by loss of hydraulics (ARNG) and the other was malfunction of pressure switch. ■ During takeoff, engine and rotor rpm deteriorated with collective pitch. Lowering collective caused overspeed and manual control of throttle was taken. Loss of rpm was attributed to governor malfunction. ■ Transmission oil pressure light came on. Inspection found condensation on cannon plug. ■ Engine oil bypass light came on. Inspection revealed improperly secured oil reservoir cap, allowing oil to escape. ■ Transmission oil low caution light came on. Inspection revealed oil leaking from improperly tightened pressure line. ■ Fuel filter caution light came on during takeoff. Filter was clogged by paint particles, dirt, and other black particles. Source of contamination unknown. ■ During low-level river levee recon, aircraft felt as though it had lost power and autorotation to field was made. Lost power sensation was apparently caused by downdraft on leeward side of river levee. (USAR)

OH-6

2 PRECAUTIONARY LANDINGS ■ During climbout, pilot noted loss of torque pressure and oil spraying on inside of cockpit bubble. Inspection revealed broken torque gauge oil line (P/N 369A8010-625). (ARNG) ■ Low pressure transmission warning light came on. Cause not reported.

TH-55

1 ACCIDENT ■ Hard landing resulted from 180° practice touchdown autorotation.

3 INCIDENTS ■ Two aircraft had damage from severe vibrations in tail rotor during clutch engagement. Inspection revealed accumulation of water in tail rotor blades which produced out-of-balance condition. All tail rotor blade drain holes were redrilled. ■ Practice hovering autorotation resulted in broken left skid. Impact was apparently made on forward portion of left skid with left drift.

CH-47

6 PRECAUTIONARY LANDINGS ■ Transmission chip detector light came on. Caused by metal fuzz on forward transmission plug. ■ Aircraft developed hydraulic fluid leak in No. 1 boost system during flight. Caused by failure of connector fitting in hydraulic system. ■ No. 2 engine chip detector light came on. Cause undetermined. As this engine has history of chip detector light illuminations during last 60 hours, engine was removed and submitted to ARADMAC for teardown analysis. ■ Aircraft filled with white smoke and fuel fumes during flight. Investigation revealed heater combustor drain hose was clogged, causing fuel to accumulate in heater combustor. ■ No. 2 engine chip detector warning light came on. Inspection revealed fuzz on chip detector plug. ■ Aircraft developed hydraulic leak in ramp area and No. 1 flight boost pressure indicator dropped to zero shortly afterward. Investigation revealed that a system O-ring seal failed due to crystallization.

CH-54

1 PRECAUTIONARY LANDING ■ Transmission oil pressure caution light came on, voice warning system activated, and oil pressure indicator dropped to zero during flight. Investigation revealed large amount of bronze metal particles on main transmission oil filter. Cause was attributed to internal failure of transmission oil pump. □

FIXED WING

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

BRANCH

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

Two incidents and 12 precautionary landings were reported.

U-21

2 INCIDENTS ■ Both incidents involved broken VHF antenna and both were discovered during postflight inspection. EIR's have been submitted previously for this deficiency and ECOM has initiated corrective action.

T-41

1 PRECAUTIONARY LANDING ■ During night flight all lights dimmed and voltmeter indicated discharge. All electrical equipment was secured and landing made at home base. Caused by failure of voltage regulator.

T-42

2 PRECAUTIONARY LANDINGS ■ Landing gear would not retract after takeoff. Caused by failure of landing gear relay. ■ No. 2 engine was feathered after loss of oil pressure and single-engine landing was completed. Chip detector light did not illuminate although large metal particles were found in oil screen. No. 2 cylinder had failed. Engine was replaced.

U-8

2 PRECAUTIONARY LANDINGS ■ During test flight, pilot was unable to restart No. 1 engine after in-flight shutdown. Single-engine landing was uneventful. Cause unknown. ■ Engine chip detector light came on. Caused by shorted wire behind instrument panel.

OV-1

2 PRECAUTIONARY LANDINGS ■ Takeoff was aborted when No. 1 engine failed just before rotation. Prop was autofeathered, chip detector light illuminated, and egt climbed to 800°. Cause unknown. ■ No. 1 engine chip detector light came on during takeoff. Threaded screw insert for chip detector plug failed.

C-7

2 PRECAUTIONARY LANDINGS ■ Hydraulic line in passenger compartment started to leak. System pressure failed. Landing gear was manually lowered and landing was made. Flap actuator flex line was ruptured. ■ Chip detector light came on. Caused by broken cannon plug wire.

U-9

1 PRECAUTIONARY LANDING ■ Pilot noted loss of manifold pressure and oil pressure and landed. Suspect No. 1 cylinder failure of No. 2 engine. (ARNG)

C-54

1 PRECAUTIONARY LANDING ■ No. 2 engine began running rough and was secured. Carburetor was malfunctioning and No. 4 cylinder intake valve seat had failed.

C-47

1 PRECAUTIONARY LANDING ■ Pilot was unable to raise gear after missed approach. Manual gear extension method was used to insure gear was down for landing. Gear and brake pressure both indicated low. Cause undetermined at this time. □

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DOD-314

ARMY AIRCRAFT MISHAP PREVENTION DATA

FLIGHT FAX

ORVAL RIGHT
Chief Advisor on
Matters of Aviation

A USAAAVS PUBLICATION

VOL. 3, NO. 28 ■ 7 MAY 1975

mishaps for the period of 18-24 APRIL 1975

SELF-DESIGNED or STANDARDIZED?

Cruising at 1,000 feet in a UH-1B, the IP entered autorotation, pointing out his intended forced landing area. He told the three students that the area was beyond normal autorotation glide range and went into what sounded like a well rehearsed MOI presentation about how to extend your glide when no other area is available.

After entering autorotation, the IP lowered the nose and put the helicopter in a dive, and the airspeed began accelerating. He then applied collective pitch to reduce engine rpm to 5000, which put the rotor at approximately 245 rpm. Vertical speed was approaching 2,000 feet per minute descent and increasing. Airspeed was at 90 knots and accelerating.

By this time the ground was rapidly approaching and the IP started to extend the glide to his touchdown area. He applied aft cyclic and held his collective pitch, explaining that this would balloon the aircraft to the landing area which appeared very far away at this time. For several reasons his techniques were futile. The aircraft changed attitude but the glide angle appeared the same.

Then the IP said the engine failed and we weren't going to make it. He began pulling more collective pitch and the aircraft began shuddering violently with each rotation of the main rotor. The engine and transmission compartment was producing a loud whine and bumping noises.

After what seemed an eternity the helicopter struck the ground in a tail-low attitude and the mast separated. The helicopter careened back into the air and came to rest inverted.

Miraculously, all four occupants remained conscious and were able to exit the aircraft. The *non*crashworthy fuel cell, which was full, remained intact. Board findings indicated ground contact was made in excess of 60 knots and 1,600 feet per minute. The aircraft was destroyed and engine failure was discounted.

Where does standardization fit in this story? Was this an accepted procedure? Was the IP demonstrating a maneuver he was thoroughly trained in? Were his reaction and recovery techniques appropriate for the situation? Was this a senseless accident? You bet it was. And it could have been prevented by following the correct procedures for maximum glide in accordance with the operators manual.

How often have other aviators devised their own procedures and convinced themselves these procedures were more effective than standardized maneuvers? Some are no longer around to explain. Others have had that one close call and changed their views and still others cling to their ideas and continue to apply their self-designed procedures. Are you in this latter group? Is someone in your unit?

Standardization and flight safety go hand in hand. When either one is sacrificed, every one loses.

This article was written by CW3 Richard G. Thompson, *Airfield Operations, Fort Rucker, AL, while he was attending a recent USAAAVS Aviation Accident Prevention Course.*

HELP NEEDED

Anyone assigned to HHD 1st Avn Bn, 1st Inf Div, RVN, from 1 July 1968 to 1 October 1968, please contact CPT Walker, autovon 558-3913/3901. USAAAVS needs historical information concerning this unit.

UTILITY/ATTACK

Fatalities: 0 ■ *Accidents:* 1
Injuries: 0 ■ *Estimated Costs:* $64,000

BRANCH

■ MAJ Charles E. Toomer, Chief
558-4198

One accident, three forced landings, and forty-six precautionary landings were reported.

UH-1

1 ACCIDENT ■ During night formation landing to lighted LZ, pilot lost visual contact with ground in blowing dust and landed hard.

2 FORCED LANDINGS ■ Crew exhausted fuel supply. ■ Compressor stall occurred during cruise flight and egt rose to 700° C.

37 PRECAUTIONARY LANDINGS—following are selected briefs ■ Hydraulic warning light came on because of defective hydraulic pressure switch. ■ Transmission oil hot light came on. Transmission oil hot temperature switch replaced. ■ Engine chip detector light illuminated. Granular metal particles were found on chip detector and in oil filter. ■ Ammeter reading increased during level flight and smoke came from battery compartment. Internal short in battery caused it to overheat. ■ Chip detector warning light for 90° gearbox illuminated. Metal particles were found on chip detector plug. ■ Severe vertical vibration occurred in flight. Suspect excessive play in main rotor pitch change linkage. ■ Trail aircraft noticed sparks coming from area of main rotor. Main generator brushes were worn out. ■ Bird strike (sea gull). No damage. ■ Several loud bangs were heard during takeoff and aircraft yawed right. Engine had excessive erosion damage from operating in sandy environment. ■ Engine and transmission oil temperature increased. Oil cooler fan bearings were frozen.

AH-1

1 FORCED LANDING ■ After completion of TEAC, power was reduced and series of compressor stalls resulted. Engine had excessive erosion damage from operating in sandy environment.

9 PRECAUTIONARY LANDINGS—following are selected briefs ■ Pilot felt binding in antitorque pedals. Defective SCAS yaw card. ■ Ninety-degree gearbox chip detector light came on. Caused by internal failure of gearbox. ■ No. 2 hydraulic caution light came on. Caused by malfunction of hydraulic pressure switch. ■ During level flight at 100 KIAS, aircraft yawed left, right, and left again. SCAS yaw channel malfunctioned. ■ Engine chip detector light came on. Fuzz was found on chip detector plug. □

LOH/CARGO

Fatalities: 0 ■ *Accidents:* 0
Injuries: 0 ■ *Estimated Costs:* $2,040

BRANCH

■ MAJ Robert P. Judson, Chief
558-4202

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

OH-6

2 PRECAUTIONARY LANDINGS ■ Transmission oil pressure warning light came on during cruise flight. Oil filter was cleaned and aircraft released for flight. (ARNG) ■ Passenger tossed fatigue pants and shirt into main rotor system during ground operations. No damage to main rotor blades.

LOSS OF RESOURCES FROM THIS WEEK'S MISHAPS

FATALITIES:	0
INJURIES:	0
AIRCRAFT LOSSES:	0
ESTIMATED COSTS:	$66,040

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
USAR Representative	558-6510/4714
After-duty tape recording of incoming calls to be returned following day (hours: 1615 to 0730)	558-6510
Commercial:	255-XXXX

Prepared from information compiled by the Directorate for Aircraft Accident Analysis & Investigation
Colonel Samuel P. Kalagian, Director

OH-58

1 INCIDENT ■ Main rotor blades struck trees during authorized NOE flight, damaging blade tip caps.

3 FORCED LANDINGS ■ Fuel exhaustion occurred in flight, with 2.9 hours since last refueling. ■ N2 bled to 80 percent and aircraft settled to ground during hover. Pneumatic air line to governor (P/N 870219) was loose. Line was tightened and aircraft released. ■ Low rpm audio and warning light came on at 1,600 feet agl. Pilot reduced collective and throttle and noted that engine continued running. Increase of collective reduced main rotor rpm and running landing was made with partial power. Double check valve (P/N 253153-2) was considered at fault. (ARNG)

14 PRECAUTIONARY LANDINGS ■ Seven chip detector light illuminations were reported. Tail rotor gearbox caused four illuminations. Two detector plugs were cleaned and aircraft released, and disposition of the other two was not indicated. Two engine chip detector lights were caused by metal fuzz and metal objects. One main transmission detector plug was cleaned and aircraft released. ■ Hydraulic pressure caution lights of three aircraft illuminated. Two were caused by malfunction of pressure switches (one ARNG) and a third case involved malfunction of servo actuator (P/N 41103730). (ARNG) ■ N2 rpm decreased to 98 percent due to malfunction of overspeed governor (P/N 6874255). ■ Pilot smelled smoke in cockpit but could not see smoke. Caused by loose torquemeter line connection. ■ During authorized and supervised NOE flight, pilot suspected main rotor struck tree. Inspection revealed green stain on underside of blade, but no damage. ■ During landing, main rotor rpm bled off and low rpm audio and warning light came on. Cause not reported. (USAR)

TH-55

1 INCIDENT ■ Picking up to hover, student pilot allowed aircraft to drift toward another hovering helicopter. Student lowered collective abruptly and aircraft landed hard, damaging tail skid and landing light. Cluster bolts were stressed.

5 PRECAUTIONARY LANDINGS ■ Unusual noise was heard during hover. Inspection revealed failure of upper forward bearing on frame assembly for main rotor belt transmission. ■ Illumination of gearbox warning light resulted from malfunction of oil pressure switch. ■ Excessive engine oil pressure indication resulted from malfunction of oil pressure sending unit. ■ Unusual noise from engine area was caused by hole burned through exhaust manifold tube. ■ Alternator malfunction and dead battery caused in-flight electrical failure.

CH-47

5 PRECAUTIONARY LANDINGS ■ No. 1 engine chip detector warning light came on. Caused by fuzz on chip detector plug. (ARNG) ■ Transmission low oil pressure light illuminated intermittently during flight. Cause unknown as maintenance could not duplicate condition. ■ Spraying of hydraulic fluid was noted in utility oil cooler fan area during flight. Caused by cracked elbow fitting on pressure side of oil cooler fan assembly. ■ No. 1 engine oil pressure dropped from 54 psi to 30 psi during flight. Caused by oil pump internal failure. ■ No. 2 engine was reduced to minimum beep for test purposes when PTIT increased to 1,020° C. No. 2 engine was brought to ground position and PTIT returned to normal. Suspect No. 2 engine gearbox sprague clutch failed to release and permitted N2 to freewheel at minimum beep.

CH-54

2 PRECAUTIONARY LANDINGS ■ Tail rotor transmission chip detector light came on during climbout. Caused by broken chip detector wire. ■ Main transmission chip detector light came on during takeoff. Caused by internal deterioration of transmission components. Main transmission scheduled for change.

MESSAGES RECEIVED

■ Safety-of-flight message PR23000Z Apr 75 provides for a one-time inspection of synchronizing drive shaft adapter of the CH-47A, B, and C aircraft, TB 55-1500-210-20-27.

■ OH-58 TECHNICAL ADVISORY MESSAGE (OH-58-75-3). USAAVSCOM message of 241950Z Apr 75 advises that change 9 of 31 March 75 to the dash 10 is in error and a correction is forthcoming. In figure 7-3 on page 7-4, the colors red and green were inadvertently reversed. The areas which are green should be red, and the areas which are red should be green.

THOUGHT FOR THE WEEK

Every safety officer must ask himself this one important question, "What makes a good safety program?" The answer comes down to one word, "ATTITUDE." The safety officer is the individual who must set forth the guidelines for the unit's safety attitude. Through the use of safety meetings, committees, bulletin boards, and personal communication he provides the stepping stones.

A safety "ATTITUDE" goes much further than just thinking about safety. You must have the action to back it up. It is everyone's responsibility to set the example of the correct way to do things. Whether it be a pilot using his checklist or a mechanic using his TM, there is only one thing to remember, "ATTITUDE." You can take these guides and shove them away in a drawer, or take what they say and put it to good use. Don't just sit silently by and say "Well, everyone else doesn't, why should I?" Those may be your last words! An additional factor is "COMMUNICATION." Individuals have to talk to one another to make safety work. If this "COMMUNICATION" does not take place, something could be overlooked that could lead to tragedy.

The end result we all strive for is no accidents or injuries. If we all take and add "PROFESSIONALISM" to what we are now doing, we can achieve a "SAFETY ATTITUDE."

(Extracted from the March 1975 issue of "Safety Raiser" MAG-26 SAFETY/NATOPS) □

FIXED WING

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

BRANCH

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

Eight precautionary landings were reported.

T-41

2 PRECAUTIONARY LANDINGS ■ Propeller rpm increased from 2600 to 2800. Propeller lever was moved to high rpm position and landing was made. Caused by propeller linkage slipping. ■ Engine chip detector light came on. Cause unknown.

OV-1

2 PRECAUTIONARY LANDINGS ■ Gear would not retract after takeoff and was recycled to no avail. Caused by tripped dump valve in nosewheel well. *This continues to be a recurring problem. Caution maintenance and avionics personnel to be aware of this problem when working in the nose well!* ■ No. 1 engine chip detector light came on. All instruments remained normal and landing was made at home base. Fuzz was discovered on plug.

U-8

4 PRECAUTIONARY LANDINGS ■ Pilot noted "OFF" flag on attitude indicator and smelled smoke during takeoff. Caused by burned out reverse current relay. ■ Engine began to surge. Pilot adjusted prop lever to high pitch with negative results. Engine was secured. Caused by failure of propeller governor. ■ Right main gear indicated unsafe for landing. Gear was pumped down and tower stated gear appeared down. Gear handle light still indicated unsafe. Landing was uneventful. Suspect faulty micro sensitive switch. ■ Gear was recycled eight times before safe indication was received on left main. Horn blew as throttle was retarded on final. Go-around was initiated. After gear was manually lowered, landing was uneventful. Landing gear down-lock switch was out of adjustment. □

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ARMY AIRCRAFT MISHAP PREVENTION DATA

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ORVAL RIGHT
Chief Advisor on
Matters of Aviation

A USAAAVS PUBLICATION

VOL. 3, NO. 29 ■ 14 MAY 1975

mishaps for the period of 25 APRIL-1 MAY 1975

Flying in the Rain

How the refraction of light through a wet windscreen can distort your vision

Raindrops falling on your windshield and on the approaching terrain can cause visual distortions which may lead to mismanaged approaches to land. Several kinds of distortion errors are possible, including those due to refraction and diffusion.

Refraction here means the change of direction of light beams as they pass from one type of medium to another, as from air to water. Water slows up the passage of light and causes it to "bend," as in the familiar example of placing a stick in water. Also familiar is the experience of visualizing objects at the bottom of a pool as being at a shallower depth than their true depth, because of the refraction of light by the water.

In heavy rain, even though visibility may appear fairly good to the pilot, terrain contours or lights may seem lower than their actual elevation relative to the airplane. *Diffusion* (or "halo-ing") refers to the tendency of lights seen through moisture to spread apart and appear less intense—and therefore farther away than their actual distance. Conversely, diffusion, under other circumstances, may cause approach lights to appear larger, and hence nearer, than they are.

The National Transportation Safety Board has cited such visual distortions during instrument approaches made at night during rainfall as factors contributing to air crashes—including the recent 707 crash in Samoa which took the lives of 97 persons. The critical point is the moment when the pilot-in-command transitions from instruments to visual reference, mistakenly concludes that he is higher than normal, and permits a too-rapid descent to take place. The degree of distortion which can take place will vary in accordance with weather and terrain conditions, so that it is not possible to arrive at any rule of thumb for compensating for rain distortion. But awareness of the phenomenon should be enough to enable the alert pilot to avoid mishandling the approach.

Incidentally, the more effective your windshield wipers, the less distortion will occur, so a periodic check of wiper condition and performance is worth remembering—even if you are by habit a fair-weather flyer. You can never tell when those raindrops might start falling on your plane.

Reprinted from FAA Aviation News/April 1975.

WINDSHIELD RAIN REPELLENT HAZARD

Recently in Eighth Army an aircraft mission was interrupted when the crew detected fumes in the cockpit and made a precautionary landing. The fumes came from a leaking container of rain repellent, windshield, FSN 6850-139-5297. This substance has a low flash point (70° F.) and should be considered hazardous in an aircraft, in the air or on the ground.

Due to its low flash point, rain repellent, windshield, FSN 6850-139-5297, is classified as a class I flammable liquid and the rules that apply to the storage and handling of class I flammable liquids (Appendix A to EA Suppl 1 to AR 420-90, dtd 30 Aug 74) must be observed. Rain repellent, windshield, FSN 6850-139-5297, will not be placed in an aircraft at any time.

IT'S THAT TIME OF YEAR AGAIN. An alert maintenance man found this bird's nest on the fuel control of an AH-1G engine. The bird apparently entered the cowling at the opening around the exhaust pipe. The aircraft had been parked for two or three days. These nests can be built in a very short time, so be on the lookout.

UTILITY/ATTACK BRANCH

Fatalities: 0 ■ *Accidents:* 0
Injuries: 0 ■ *Estimated Costs:* $23,000

■ MAJ Charles E. Toomer, Chief
558-4198

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

UH-1

2 INCIDENTS ■ During NOE mission pilot initiated left turn and main rotor struck tree. One main rotor blade was damaged. ■ Engine did not respond during landing from test flight, and aircraft landed hard, spreading cross tubes. Suspect compressor stall. *This aircraft had just made a precautionary landing before this test flight for a hard left yaw in cruise flight.*

1 FORCED LANDING ■ During final approach to elevated landing pad, partial power loss occurred. Engine began surging and loud bangs were heard coming from engine. Aircraft descended below landing pad and pilot was able to avoid elevated area and land right of intended point of touchdown. WELL DONE to CPT Charles T. Nichols, Co A, 25th Avn Bn, Connecticut ARNG.

25 PRECAUTIONARY LANDINGS–following are selected briefs ■ Battery vent began squirting liquid on windshield during cruise flight. Caused by defective cell in battery. ■ Tail rotor chip detector light came on. Metal particles found on chip plug. Gearbox was flushed and aircraft released for flight. ■ During takeoff rpm bled to 6400 and egt rose to 600°. Inspection revealed inlet guide vane actuator failure. ■ Six engine chip detector light illuminations were reported. Two engines were replaced, two showed metal fuzz, one had a broken wire, and one cause was not reported. ■ As throttle was rolled on from flight idle to full on, transmission oil pressure warning light came on and transmission oil pressure gauge dropped to 10 psi. Aircraft was shut down and inspection revealed input quill housing was split 120° around case, 1 inch from flanges. Transmission was changed and sent for teardown. ■ Complete hydraulic failure occurred during climbout on night cross-country flight. Student pilot followed proper emergency procedures, returned to TAC site, and made running landing to unlighted runway. WELL DONE to WOC Jeffrey O. Hall, USAAVNC, Ft. Rucker, AL.

AH-1

3 INCIDENTS ■ During NOE takeoff, aircraft struck tree, damaging one main rotor blade 6 inches from tip. ■ Both main rotor blades were found damaged during postflight inspection. Aircraft was performing NOE flight. ■ Aircraft struck wire, damaging tail boom. Aircraft was on authorized and supervised NOE flight.

11 PRECAUTIONARY LANDINGS–following are selected briefs ■ Engine chip detector lights of two aircraft came on. Metal particles were found on both plugs. ■ Full power could not be attained during power recovery of autorotation. Suspect inlet guide vane actuator failure. ■ Engine oil temperature exceeded 130° for 6 minutes. Caused by failure of oil cooler fan. ■ Tail rotor chip detector light came on in flight. Metal shavings were found on 90° chip plug and oil sample was submitted. □

LOSS OF RESOURCES
FROM THIS WEEK'S MISHAPS

FATALITIES:	5
INJURIES:	0
AIRCRAFT LOSSES:	1
ESTIMATED COSTS:	$439,844

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
USAR Representative	558-6510/4714
After-duty tape recording of incoming calls to be returned following day (hours: 1615 to 0730)	558-6510
Commercial:	255-XXXX

Prepared from information compiled by the Directorate for Aircraft Accident Analysis & Investigation
Colonel Samuel P. Kalagian, Director

LOH/CARGO

Fatalities: 0 ■ *Accidents:* 1
Injuries: 0 ■ *Estimated Costs:* $68,000

BRANCH

■ MAJ Robert P. Judson, Chief
558-4202

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

OH-6

2 PRECAUTIONARY LANDINGS ■ Transmission chip detector light came on. Transmission was drained and flushed and filter replaced. Two days later, chip detector light came on again and transmission was changed.

OH-58

2 INCIDENTS ■ Right skid was on two sandbags when aircraft landed to avoid extreme dust conditions. As passenger exited, aircraft rocked back, digging stinger into sand. Resulting vibrations caused buckling of tail boom between attaching points and horizontal stabilizer. ■ During authorized and supervised NOE training, main rotor blades struck tree branches and were damaged.

15 PRECAUTIONARY LANDINGS ■ Five tail rotor chip detector light illuminations were reported. Three were caused by fuzz, one from corrosion, and one from dent in plug. ■ Two main transmission chip detector light illuminations were reported. Moisture and fuzz were found on one plug, and the other had small metal filing. ■ Hydraulic caution lights of three aircraft illuminated. Two were caused by malfunction of pressure switches (P/N's 206-076-365-1 and 206-076-404-1). The third was caused by improperly secured line which allowed fluid to escape. ■ Two malfunctioning fuel control units caused power to fluctuate. ■ Engine oil bypass light came on because of low oil level. ■ Low oil level caused transmission oil pressure warning light to come on. ■ During engine runup, engine oil bypass light illuminated, and engine oil and torque pressures fluctuated. Caused by failure of No. 2 compressor bearing seal which allowed oil to escape through accessory gearbox breather line and right exhaust stack. (ARNG)

TH-55

1 ACCIDENT ■ Tail rotor blades struck runway during deceleration phase of 180° autorotation, damaging tail rotor blades, gearbox, adapter assembly, landing gear assembly, drag struts, aft cross beam, tail rotor drive shaft, horizontal and vertical stabilizer, left tail boom strut, and tail skid.

CH-47

1 INCIDENT ■ Blade strike occurred in confined area while positioning for sling load in close vicinity of trees. There were only three crewmembers aboard to act as observers and provide clearance. Gusty wind conditions prevailed.

4 PRECAUTIONARY LANDINGS ■ Master caution and aft transmission chip detector lights came on during flight due to carbon residue on plug. ■ Forward transmission developed oil leak when output shaft seal malfunctioned. ■ Binding in cyclic developed during descending right turn due to worn pilot valve on lower dual boost actuator. ■ Hydraulic fluid was seen spraying from flight control closet and pressure drop occurred in No. 2 hydraulic flight boost pressure gauge. Inspection revealed cracked tube in second-stage flight boost system.

CH-54

1 PRECAUTIONARY LANDING ■ Transmission oil pressure caution light came on, voice warning system activated, and oil pressure gauge dropped to zero during sling load operations at hover. Large amount of steel chips and bronze were found on oil filter.

NOTICE: EIR SUBMITTERS

USAAVSCOM tells us that effective immediately, DA Form 2407, Equipment Improvement Recommendations (EIR's) should use this new address: Commander
U.S. Army Aviation Materiel Command
ATTN: AMSAV-FEN (EIR)
St. Louis, Missouri 63166

OH-6 STROBE TAIL ROTOR BALANCING AND TRACKING

Tracking and balancing the OH-6A tail rotor with a strobe light can be difficult if the control pedals are moved from the neutral position. USAAVSCOM has approved local manufacture and use of a simple

wooden block mounted between the pedals to keep them from moving. Check page 58, Issue 270, May 1975, of the Preventive Maintenance Monthly, for details of the wooden block.
Adapted from the Preventive Maintenance Monthly, Issue 270, May 1975. □

FIXED WING

Fatalities: 5 ■ *Accidents:* 1
Injuries: 0 ■ *Estimated Costs:* $348,844

BRANCH

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

One accident and seventeen precautionary landings were reported.

U-21

1 ACCIDENT ■ No. 2 engine failed just after liftoff from sod strip, causing aircraft to roll inverted and strike ground. Aircraft skidded into 5-ton vehicle parked beside runway. Both were consumed by fire. Accident investigation is in progress with USAAAVS participation.

6 PRECAUTIONARY LANDINGS ■ Gear failed to completely retract. After several recycling attempts, gear was manually lowered and landing was made. Landing gear motor failed. ■ Secondary flight idle light came on. Torque increased and rpm decreased. Propeller governor circuit breaker was pulled and landing was made. Secondary flight idle stop (NSN 5930-00-789-6121) failed. ■ Pilot feathered wrong engine after IP initiated simulated engine failure. Neither pilot noticed top torque reading of engine which had been inadvertently feathered. Suspect engine overtorque. ■ Right main gear would not retract. Inspection revealed broken gear actuator. ■ Rpm of No. 1 engine surged during takeoff and fluctuated 50 rpm on downwind and final approach. Cause of rpm fluctuation and corrective action were not reported. ■ Fuel was siphoning from left nacelle filler cap in flight. Caused by failure to properly secure cap on preflight. Transfer pump limit switch also failed, allowing fuel to continue to pump into nacelle.

OV-1

2 PRECAUTIONARY LANDINGS ■ Left gear would not give safe down indication. Tower stated gear appeared down and landing was successful. Gear down lock switch was replaced. ■ No. 2 propeller went to 1850 rpm on takeoff and could only be controlled by retarding power to flight idle. Single-engine landing was completed. Replaced propeller control assembly.

T-41

3 PRECAUTIONARY LANDINGS ■ Engine began running rough and landing was completed at first available airfield. Plugs were cleaned and aircraft released for flight. ■ Two engine chip detector light illuminations were caused by fuzz.

T-42

1 PRECAUTIONARY LANDING ■ Nose wheel indicator showed gear down but gear was up. Nut came off of landing gear position indicator link.

OTHER

5 PRECAUTIONARY LANDINGS ■ C-54 three, C-7 one, and U-3 one. □

DEPARTMENT OF THE ARMY
UNITED STATES ARMY
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FORT RUCKER, ALABAMA 36360

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DOD-314

ARMY AIRCRAFT MISHAP PREVENTION DATA

FLIGHT FAX

ORVAL RIGHT
Chief Advisor on
Matters of Aviation

A USAAAVS PUBLICATION

VOL. 3, NO. 3 ■ 23 OCTOBER 1974

mishaps for the period of 4-10 OCTOBER 1974

DIVIDED ATTENTION IN BLOWING SNOW

THE ACCIDENT

The pilot was told that he was to be the standby aircraft pilot, with a 0625 crank time. He was not told who his copilot would be, nor was he given an LZ briefing. The two pilots met at 0545, preflighted the UH-1H, and cranked at 0625. A communications check was performed and the pilots were told they would be flying Chalk 9 in a formation of 10 on a tactical training mission. The aircraft left the staging area one at a time due to weather conditions and the flight formed en route to the troop pickup zone (PZ). Upon arrival at the PZ, the infantry element was not ready for pickup. The flight returned to the staging area, refueled, and returned to the PZ. The passengers loaded their equipment. The flight remained in the PZ until the weather in the area of the LZ cleared sufficiently for the flight to continue. The aircrews were in the PZ for 2½ hours with the temperature at –35° F.

The flight departed the PZ at 1130. Time en route to the LZ was 50 minutes. Upon arrival at the LZ, the flight leader was requested to change landing direction to prevent overflying enemy positions. The flight leader then broke the flight into two flights, one of four and one of six, due to the size and shape of the LZ. The flight of four landed with no difficulties other than self-induced blowing snow. The blowing snow created a whiteout condition, which had not completely cleared when the flight of six prepared to land. The flight of six initiated their approach, but had to make a go-around for spacing. During the go-around, the flight leader split the flight of six into two flights of three each, the first three to go to the right of the LZ and the second three to the left side, with Chalk 8 as their flight leader.

Chalk 8 initiated his approach with Chalk 9 and 10 in a trail formation. On short final, Chalk 8 created a blowing snow condition, causing Chalk 9 to make his landing in a whiteout condition. The pilot of Chalk 9 continued his approach to his intended landing point, which had become obscured by blowing snow. About 20 to 30 feet agl, the pilot lost all visual ground reference and the aircraft struck the trees, then rolled to the left in a nose-low attitude. The crew and passengers of Chalk 9 were thrown around violently, but were able to exit the aircraft uninjured.

FINDINGS

Crew error was a factor. The pilot talked on the radios while attempting to land the aircraft in formation to a difficult landing zone with blowing snow.

Supervisory error was the major factor. The pilot of Chalk 9 lacked experience in formation flying and landing. His copilot's flight experience in this type environment was very limited. The pilot received no briefing other than the tail number of the aircraft he was to fly and the crank time. The mission was delayed for 2½ hours and the crewmembers were exposed to –35° F. temperatures for the entire period. The landing zone was not big enough to accommodate the entire flight of 10 aircraft. This caused the flight commander to break his formation into three flights at the LZ.

Communications was a contributing factor. The number of radio transmissions was abnormally high. This pilot received three radio calls on short final and he attempted to acknowledge these distracting calls while trying to land.

UTILITY/ATTACK

Fatalities: 0 ■ *Accidents:* 0
Injuries: 0 ■ *Estimated Costs:* $9,000

DIVISION

■ MAJ Charles E. Toomer, Chief
558-4198

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

UH-1

1 INCIDENT ■ Piece of wood blew into main rotor during landing, damaging one blade. (USA)

1 FORCED LANDING ■ Pilot entered autorotation during apparent engine failure. N1 stabilized at 40 percent and pilot placed governor in emergency. Operating rpm was regained and aircraft landed. (USA)

35 PRECAUTIONARY LANDINGS–following are selected briefs ■ Pilot felt control feedback through anti-torque pedals during cruise flight. Caused by failure of tail rotor servo. (USAR) ■ Right fuel boost caution light came on. Boost pump replaced. (ARNG) ■ Engine oil temperature rose rapidly to 100° during runup and 115° during shutdown. Caused by failure of oil cooler blower fan bearing. (USA) ■ During 20-minute flight, fuel quantity indicator dropped from 700 to 100 pounds. Suspect electrical short in fuel cell probe. (USA) ■ Pilot noticed smoke in cockpit during cruise flight. Caused by failure of battery relay which allowed battery to overheat. (USA) ■ Power was applied to avoid wires during night landing. Three loud bangs were heard from engine area, along with slight yaw and drop in rpm. Cause not reported. (USA)

AH-1

1 INCIDENT ■ During postflight inspection, crew noted large holes in tail rotor blades. Cause not reported. (USA)

3 PRECAUTIONARY LANDINGS ■ Cyclic control binding occurred during decelerative maneuver. Caused by ECU duct insulation freezing and expanding, causing cyclic control to bind. (USA) ■ No. 2 hydraulic light came on during takeoff. Cause not reported. (USA) ■ During rocket firing run, pilot heard noise, followed by illumination of No. 2 hydraulic caution light and failure of system. Caused by crack in hydraulic manifold assembly. (USA)

LOH

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

DIVISION

■ LTC David F. Stoutamire, Chief
558-4202

Nine precautionary landings were reported.

OH-58

8 PRECAUTIONARY LANDINGS ■ Transmission chip detector lights of three aircraft came on. Faulty chip plug caused one illumination and the other two were caused by normal fuzz. (USA) ■ Hydraulic pressure lights of two aircraft came on. Both were caused by failure of hydraulic pressure switch. (USA) ■ Tail rotor chip detector light came on. Normal fuzz found on plug. (USA) ■ Transmission oil hot light came on. Cause unknown. (USA) ■ Transmission oil pressure light illuminated. Suspect failure of pressure switch. (USA)

LOSS OF RESOURCES FROM THIS WEEK'S MISHAPS

FATALITIES:	0
INJURIES:	0
AIRCRAFT LOSSES:	0
ESTIMATED COSTS:	$10,200

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

OH-6

1 PRECAUTIONARY LANDING ■ Generator warning light came on. Cause under investigation. (ARNG)

THOUGHT FOR THE WEEK

EFAS, PMSV, WA/WAC, WS, PIREP??? Are you familiar with these acronyms? Maybe you don't need to know what they represent, but if you plan to leave the traffic pattern you should be thoroughly familiar with what en route services are available. Weather is a fleeting phenomenon at best, and weather information received during preflight frequently cannot be expected to remain as briefed during an entire flight. This is particularly applicable to continuation flight plans with en route stops.

More than 100 USAF pilot-to-Metro-service (PMSV) facilities are listed in the IFR supplement, and more than 300 flight service stations are identified on high and low en route charts which provide pilot to weather briefer and en route flight advisory service (EFAS). Additionally, all flight service stations (FSS) having voice facilities on VORs or NDBs broadcast weather reports, SIGMETS (WS), and AIRMETS (WA/WAC) at regular intervals when they pertain to the area within 100 NM of the FSS.

Don't forget those PIREPs either. Share your encounter of unforecast weather conditions with a friend. □

CARGO/SYSTEMS DIVISION

Fatalities: 0 ■ *Accidents:* 0
Injuries: 0 ■ *Estimated Costs:* $1,200

■ CW4 Richard D. Havenstrite, Chief
558-4202

One incident and four precautionary landings were reported.

CH-47

1 INCIDENT ■ Aircraft clamshell door came open in flight. Crew was notified of mishap by radio from a sister ship and landing was made. Investigation revealed one door completely missing and the other lodged between No. 2 engine and aft pylon. (USA)

4 PRECAUTIONARY LANDINGS ■ Aircraft was at hover when crew chief noticed hydraulic fluid coming from aft pylon area. Aircraft was landed and investigation revealed that system pressurization valve for No. 1 and No. 2 flight boost had failed. (ARNG) ■ Aircraft was in flight when crew chief noticed hydraulic fluid coming from control closet. Caused by ruptured hydraulic tube coming from No. 1 flight boost pressure reducer to SAS filter. (ARNG) ■ No. 2 engine chip detector light came on. Caused by metallic fuzz on plug. (USA) ■ No. 1 engine chip detector light came on during approach. Normal wear found on plug. (USA) □

FIXED WING DIVISION

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

■ LTC Howard D. Deane, Chief
558-3901

Ten precautionary landings were reported.

C-45

1 PRECAUTIONARY LANDING ■ No. 1 engine oil pressure dropped to zero during night service mission. Manifold pressure was reduced from 26.5 to 15 inches. Aircraft was landed at nearest airport where it was determined the intake valve on No. 1 cylinder had failed. Cylinder and piston are being changed. (USA)

T-41

1 PRECAUTIONARY LANDING ■ Chip detector light began to flicker during descent. Pilot leveled aircraft and noted all gauges were in the green. Light continued to flicker and pilot returned to home base. Retainer-coupling disc (P/N 352030) of alternator drive assembly had failed and fallen into oil sump. (USA)

T-42

1 PRECAUTIONARY LANDING ■ During ILS approach to landing, pilot detected smoke in cockpit. Emergency was declared, all unnecessary electrical equipment was turned off, and smoke began to dissipate. Suspect battery relay shorted internally. (USA)

U-8

4 PRECAUTIONARY LANDINGS ■ During each of two different test flights on same aircraft, No. 1 engine was shut down and could not be restarted. Aircraft is not accumulator-equipped. (USA) ■ Smoke began filling cockpit after 45 minutes of training flight. There was no visible fire but ATC was notified and

pilot cut off electrical gang switch and pulled all circuit breakers. After clearing cockpit of smoke, electrical power was applied and equipment turned back on one item at a time. When cigarette lighter circuit breaker was placed on, smoke started again. After landing at intermediate airport, it was determined the damage was limited to cigarette lighter wiring and resistor (FSN 5905-052-2493) which had come loose and shorted to No. 2 throttle cable. (USA) ■ No. 1 engine was shut down and could not be restarted during transition training flight. Attempted starts tripped starter relay circuit breaker. It was reset three times without success. Single-engine landing was made and it was determined the starter was weak. (USA)

U-21

3 PRECAUTIONARY LANDINGS ■ Approximately 15 minutes after takeoff as aircraft was being leveled to cruise, pilot noted fuel being siphoned from left nacelle tank filler cap. Landing was made at intermediate airport, and cap was removed, checked, and resecured. Aircraft continued its mission. Pilot had failed to insure a proper seal between cap and tank filler neck. (USA) ■ Fuel was seen siphoning from No. 1 nacelle tank in level flight. Mission was aborted and aircraft returned to home base. Examination of fuel cap and adapter assembly revealed the latter was damaged in the area where the fuel cap seats to the adapter. Suspect damage was caused by refueling nozzle. Damage allowed seal to be broken and fuel to siphon. Adapter assembly was straightened and fuel cap reinstalled. (USA) ■ IP shut down No. 2 engine for practice aborted takeoff. After completing rollout to departure end of runway, pilot cleared runway and restarted No. 2 engine. IP smelled something overheating and noticed smoke escaping from around battery compartment access panel. Pilot shut off battery switch and turned off all nonessential electrical equipment. Caused by battery failure. (USA) □

DEPARTMENT OF THE ARMY
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ARMY AIRCRAFT MISHAP PREVENTION DATA

FLIGHT FAX

ORVAL RIGHT
Chief Advisor on
Matters of Aviation

A USAAAVS PUBLICATION

VOL. 3, NO. 30 ■ 21 MAY 1975 mishaps for the period of 2-8 MAY 1975

Engine Air Restart Questionnaire

The U.S. Army Aviation Systems Command, which is responsible for airworthiness qualification of all Army aircraft systems, has requested that USAAAVS circulate this questionnaire on engine flameouts and attempted restarts. This information will be used to verify design and testing requirements for aircraft systems. If you have had an engine flameout since January 1973 please complete this questionnaire and forward it to Commander, USAAAVS, ATTN: IGAR-AE, Ft. Rucker, AL 36360.

1. Have you experienced an engine flameout?_____
2. What type of aircraft were you flying?_____
3. What was your altitude and airspeed?_____
4. Did you attempt a restart?_____
5. Was the restart attempt successful?_____
6. If the restart was unsuccessful, what were the engine indications?_____
7. What was the cause of the engine flameout?_____

Copies Needed

USAAAVS needs copies of AR 95-5 and AR 385-40 dated before June 1966. It doesn't matter what condition they're in. We're just interested in the contents. Please send any copies to: Commander, USAAAVS, ATTN: IGAR-P, Fort Rucker, Alabama 36360.

DOWN TO EARTH–NOE

Due to production delays, the NOE safety training film entitled "Down to Earth–NOE" was not released in April as scheduled. This film, TF 46-4920, is now scheduled for release through audio-visual support centers about mid-August 1975.

UTILITY/ATTACK BRANCH

Fatalities: 0 ■ *Accidents:* 0
Injuries: 0 ■ *Estimated Costs:* $338

■ MAJ Charles E. Toomer, Chief
558-4198

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

UH-1

2 INCIDENTS ■ Aircraft struck tree while landing in LZ, damaging left chin bubble. ■ While troops were being loaded for airmobile operation, one soldier ran into front of aircraft, sticking 90mm recoilless rifle through pilot's chin bubble. Crew chief was at rear of aircraft keeping troops away from tail rotor.

1 FORCED LANDING ■ Compressor stall occurred during low reconnaissance of landing site. Egt rose to 700 and rpm decreased to 5700. Landing was made with minimum power. Inspection revealed possible FOD to compressor.

20 PRECAUTIONARY LANDINGS–following are selected briefs ■ During cruise flight engine fuel pump caution light came on for three minutes and then went out. Caused by moisture in fuel pressure transmitter. (USAR) ■ While in left turn at 2,000 feet, aircraft began to roll left and nose pitched down. Pilot recovered aircraft to level flight and landed. Inspection revealed both stabilizer dampers were worn internally. ■ Four engine chip detector light illuminations were reported. Two were caused by metal fuzz and two by small metal slivers. ■ Transmission oil hot light came on. Caused by short in wire. ■ Battery overheated during cruise flight. Cause not reported. ■ Three aircraft were reported to have compressor stalls. One engine was changed, one was caused by FOD, and the third cause was unknown. *With the summer months approaching, we are receiving an increasing number of these reports. Pilots, take note and don't get caught short.*

AH-1

4 PRECAUTIONARY LANDINGS ■ Aircraft developed severe vertical vibration during cruise flight. Caused by failure of blade grip bearing. ■ Engine chip detector light came on. Caused by short in wire. ■ Transmission oil temperature rose to 115°. Suspect malfunction of transmission oil bypass. ■ No. 2 hydraulic warning light illuminated. Caused by failure of preformed O-ring. □

MAKE SAFETY A FACT, NOT JUST A SLOGAN.

LOSS OF RESOURCES
FROM THIS WEEK'S MISHAPS

FATALITIES:	0
INJURIES:	4
AIRCRAFT LOSSES:	0
ESTIMATED COSTS:	$41,239

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

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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USAR Representative	558-6510/4714
After-duty tape recording of incoming calls to be returned following day (hours: 1615 to 0730)	558-6510
Commercial:	255-XXXX

Prepared from information compiled by the Directorate for Aircraft Accident Analysis & Investigation
Colonel Samuel P. Kalagian, Director

LOH/CARGO

Fatalities: 0 ■ *Accidents:* 1
Injuries: 3 ■ *Estimated Costs:* $22,156

BRANCH

■ MAJ Robert P. Judson, Chief
558-4202

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

OH-58

1 ACCIDENT ■ On final approach for landing, pilot applied collective at about 50 feet and engine did not respond. Aircraft touched down hard, bounced, touched down again, and rolled over. Major damage to all components. Cause unknown pending results of investigation.

1 INCIDENT ■ During authorized and supervised NOE flight, main rotor blade at three o'clock position struck tree. Trailing edge of blade was damaged.

2 FORCED LANDINGS ■ Engine-out audio came on at about 1,100 feet in cruise flight. N1 dropped 40 percent and engine stopped. Autorotation was made to open field. Cause unknown pending analysis. WELL DONE to W1 Timothy A. McGee, 2nd Avn Co., 2nd Armd Div. ■ During climbout, low rpm audio came on. Pilot lowered collective and checked throttle full on. Rotor rpm bled off when collective was reapplied. Autorotation was continued to landing. Loss of power caused by fuel contamination. WELL DONE to CW2 Michael D. Ledbetter, Missouri Army National Guard. (ARNG)

7 PRECAUTIONARY LANDINGS ■ Hydraulic pressure caution lights of three aircraft came on. One was caused by malfunction of pressure switch. Two hydraulic caution lights were preceded by loud grinding noise. One was caused by cracked pressure line and the other by failure of tube assembly flange (P/N 206-076-383-1). ■ Loud bang was heard and pilot landed. Investigation revealed evidence of bird strike. No damage. (ARNG) ■ Main fuel filter caution light came on. Caused by contaminated and clogged filter. ■ Transmission oil pressure light illuminated during descent. Cause unknown pending investigation. ■ During climb to altitude, N2 decreased to 95 percent. Pilot entered autorotation and landed with power. Suspect malfunction of double check valve. (ARNG)

TH-55

1 INCIDENT ■ Hard touchdown during autorotative landing bent aft cross beam and stressed cluster bolts.

2 PRECAUTIONARY LANDINGS ■ Fluctuation of engine oil pressure was caused by malfunction of sending unit. ■ Main transmission oil pressure warning light illuminated. Caused by malfunction of oil pressure switch.

CH-47

5 PRECAUTIONARY LANDINGS ■ No. 1 engine oil pressure dropped to 45 psi on takeoff. Power was reduced to 70 percent and three minutes later oil pressure dropped to 10 psi. Engine was secured and aircraft retumed to home base. Oil pump relief valve was stuck in open position. (ARNG) ■ No. 2 engine transmission oil pressure dropped to 15 psi and then to 8 psi. Caused by failure of pressure transducer. ■ No. 2 engine chip detector light came on during short final. Caused by metal ring or washer in chip detector. ■ No. 1 engine chip detector light came on. Caused by metal slivers on chip detector. ■ Crew chief noted puff of smoke and noise like fog horn from No. 2 engine during start. Later, during hover, torque needles split, rotor rpm went to 258, and No. 2 engine chip detector light came on. Cause unknown pending teardown analysis at factory. □

FIXED WING

Fatalities: 0 ■ *Accidents:* 0
Injuries: 1 ■ *Estimated Costs:* $18,745

BRANCH

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

One incident and fourteen precautionary landings were reported.

OV-1

1 INCIDENT ■ Rock struck No. 2 propeller blade during takeoff roll. Fragments entered right side of aircraft at seven points. One fragment passed through plexiglass and many map folds before striking

technical observer on right arm, causing severe bruise. Propeller and entrance hatch were replaced and skin damage repaired.

1 PRECAUTIONARY LANDING ■ Partial loss of hydraulic pressure caused pilot to return for landing. Gear was lowered when all pressure was lost. Caused by broken flare of hydraulic line at brake attachment point. *Inspection of this line revealed it to be aluminum instead of steel. Watch those unauthorized substitutions!*

U-21

3 PRECAUTIONARY LANDINGS ■ Fuel was seen siphoning from left nacelle cap. Left transfer pump was shut off but fuel continued to siphon. Landing was made and inspection revealed refueler had failed to secure filler neck cap and crew failed to detect it. ■ No. 2 engine failed to start after intentional shutdown during training flight. Single-engine landing was made. Maintenance could find no discrepancies nor duplicate situation. ■ IP detected JP4 fumes after shutdown of No. 2 engine on training flight. Fuel was seen leaking from accessory exhaust vent. After about five minutes visual drainage stopped and engine was restarted. Two fuel drain lines vibrated loose from plastic "Y" fitting.

U-8

5 PRECAUTIONARY LANDINGS—following are selected briefs ■ No. 2 engine lost power twice during cruise flight. Power was reduced to prevent surging. Landing was completed at nearest airfield. Engine power idler rod (NSN 2915-00-485-0163) froze. Carburetor and two plugs replaced. (ARNG) ■ During test flight No. 1 engine surged and oil streamed over cowling. Engine was secured and successful landing completed. Caused by failure of No. 2 cylinder. ■ No. 2 engine surged and fuel pressure fluctuated and dropped to zero. Engine quit. Pilot switched tanks, but pressure remained zero. Single-engine landing was completed. Fitting connecting fuel line to carburetor failed.

T-41

4 PRECAUTIONARY LANDINGS ■ Engine began running rough, fuel pressure dropped to 7 psi, and cylinder head temperature redlined. After landing at nearest airfield, maintenance found No. 3 cylinder fuel injection line was broken forward of fitting at fuel injection distribution block. ■ Three chip detector light illuminations were caused by fuzz.

T-42

1 PRECAUTIONARY LANDING ■ No. 1 engine chip detector light came on. Caused by fuzz. □

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DOD-314

ARMY AIRCRAFT MISHAP PREVENTION DATA

FLIGHT FAX

ORVAL RIGHT
Chief Advisor on
Matters of Aviation

A USAAAVS PUBLICATION

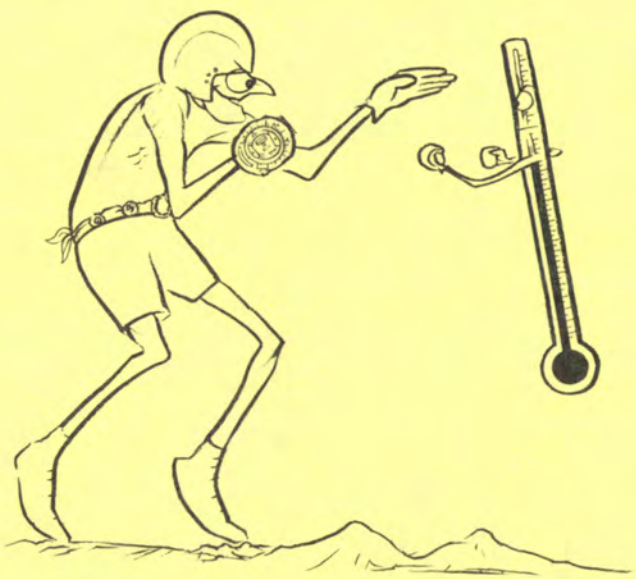
VOL. 3, NO. 31 ■ 28 MAY 1975

mishaps for the period of 9-15 MAY 1975

SDU-5/E Light Marker Distress

Shipment of Survival Kit, Individual: Vest Type (SRU-21/P), NSN 8465-00-177-4819, has been delayed due to the nonavailability of Light Marker Distress SDU-5/E, NSN 6230-00-938-1778. Commander, U.S. Army Support Center, Philadelphia, has directed requisitions for Survival Kit, Individual, be shipped without Light Marker Distress beginning approximately 1 May 1975. Unit cost of the survival kit will be automatically reduced by $10.10, the cost of the unavailable Light Marker Distress. Availability of the Light Marker Distress SDU-5/E and requisitioning guidance will be published in U.S. Army Support Center, Philadelphia, Supply Information Letter.

If you need assistance in securing life support equipment, contact Mr. A.B.C. Davis, U.S. Army Materiel Command Project Manager, Aviation Life Support Equipment, ATTN: AMCPO-LSE, P.O. Box 209, St. Louis, Missouri 63166.



HIGH TEMP

Cold weather problems have temporarily vanished, but a new set of hot weather hazards is about to take their place. The heavyweight champ is here again, challenging all comers. With his tricky style of sneaking up on his opponent after a cool morning, raising the DA, then following up with a KO punch, he lives up to his motto—"The heavier they are, the harder they fall." Don't let him floor you. Just a little extra thought when planning a flight can beat him at his own game. See "Beware! Temperature on the Rise," U.S. ARMY AVIATION DIGEST, June 1975.

THE GREAT DEBATE

Are practice touchdown autorotations really beneficial or should they be abolished? How do Army pilots feel about this matter? What is DA's policy concerning it, how did it come about, and what is it designed to accomplish? These questions are answered in "The Great Debate" in the June 1975 U.S. ARMY AVIATION DIGEST.

UTILITY/ATTACK BRANCH

Fatalities: 0 ■ *Accidents:* 2
Injuries: 1 ■ *Estimated Costs:* $137,250

■ MAJ Charles E. Toomer, Chief
558-4198

Two accidents, one incident, two forced landings, and twenty-seven precautionary landings were reported.

UH-1

2 ACCIDENTS ■ Tail rotor gearbox separated from aircraft during hover. Aircraft rotated to right and landed hard, damaging skids, underside of fuselage, and tail boom. Suspect fatigue failure of vertical fin structure. ■ On approach to confined area pilot attempted to hover at 60 feet. As collective pitch was applied, rotor and N2 rpm deteriorated. Aircraft landed hard, damaging skids and tail boom. Cause not reported.

1 FORCED LANDING ■ Engine inlet guide vane actuator failed during takeoff.

22 PRECAUTIONARY LANDINGS—following are selected briefs ■ Fire warning light came on. Wire from detector unit to cannon plug was pinched in cowling. ■ Indication on exhaust gas temperature gauge dropped to 150° C. Gauge failed. ■ Postflight inspection revealed 42° gearbox was dry of oil. Filler cap was improperly installed. ■ Pilot noticed hydraulic caution light, followed by stiffness in controls. Collective irreversible valve failed. ■ Engine chip detector light came on. Small sliver was found on magnetic plug. ■ Transmission oil pressure dropped to zero and caution light illuminated. Transmission quick disconnect pins were worn and union separated, allowing pressure to build up in transmission which blew out main seal. ■ While aircraft was on approach for firefighting demonstration at 200 feet agl, O-ring in cap of light water tank in right rear cargo compartment failed when tank was pressurized, causing light water to spray out and fill cockpit and cargo compartment with light water foam. It also covered pilot's visor, copilot's sunglasses, windshield, instruments, and radios. Pilot opened his door to obtain ground reference to land.

AH-1

1 INCIDENT ■ Postflight inspection revealed tree strike damage to both main rotor blades.

1 FORCED LANDING ■ During attempt to lift to hover, rpm deteriorated. Caused by fuel control malfunction.

5 PRECAUTIONARY LANDINGS ■ During acceleration to cruise airspeed low rpm audio sounded and rpm went to 5800. Pilot reduced power and landed. Suspect fuel control malfunction. ■ Compressor stall occurred during hover. Cause not reported. ■ Engine chip detector light came on. Fuzz was found on magnetic plug. ■ No. 1 hydraulic system failed when hydraulic pressure line fitting backed off at lower attaching area near reservoir. ■ Engine oil pressure light illuminated. Caused by loose wire on caution panel. □

LOSS OF RESOURCES FROM THIS WEEK'S MISHAPS

FATALITIES:	0
INJURIES:	1
AIRCRAFT LOSSES:	0
ESTIMATED COSTS:	$276,260

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
USAR Representative	558-6510/4714
After-duty tape recording of incoming calls to be returned following day (hours: 1615 to 0730)	558-6510
Commercial:	255-XXXX

Prepared from information compiled by the Directorate for Aircraft Accident Analysis & Investigation
Colonel Samuel P. Kalagian, Director

LOH/CARGO

Fatalities: 0 ■ *Accidents:* 1
Injuries: 0 ■ *Estimated Costs:* $139,010

BRANCH

■ MAJ Robert P. Judson, Chief
558-4202

One accident, one incident, one forced landing, and twenty-two precautionary landings were reported.

OH-6

2 PRECAUTIONARY LANDINGS ■ Engine oil bypass light came on. Investigation underway. (ARNG) ■ Engine chip detector light illuminated. Fuzz was found on plug. (ARNG)

OH-58

1 INCIDENT ■ During APU start, plug shorted internally, causing arc and burning small hole in aircraft skin.

1 FORCED LANDING ■ Gradual loss of power reduced N1 from 96% to 89% over a 10- to 15-minute period. Loud popping sound was then heard. Engine was secured and pilot autorotated to small hilly area surrounded by tall trees. WELL DONE to CW3 Thomas E. Allen, Texas ARNG. (ARNG)

12 PRECAUTIONARY LANDINGS ■ Two main transmission chip detector light illuminations were reported. It was the third illumination for one transmission. Transmission was replaced. (USAR) Small metal particles were found on the other plug. Oil sample proved negative, transmission was flushed, and aircraft released. Special oil samples are to be taken each 5 hours for next 25 hours. ■ Engine chip detector light came on. Caused by fuzz on plug. ■ Tail rotor chip detector light illuminated. Small metal particle was found on plug. ■ Heater switch malfunction (P/N AO 7032) caused front windshield to become fogged during attempted landing. Pilot experienced complete whiteout and made GCA to landing. Weather was marginal, 200 feet overcast and 3 miles visibility in snow. ■ Engine fluctuated during flight, N1 3-4%, N2 2%, while torque and TOT were constant. Maintenance could not duplicate conditions and aircraft was released. ■ Governor malfunction in cruise flight caused partial loss of power. ■ During cruise, pilot noted engine surges without fluctuation of instruments. Another pilot saw smoke emitting from engine, yet maintenance could not duplicate conditions. ■ Transmission oil hot light came on. Caused by loose wire. ■ Binding in cyclic was caused by misadjusted magnetic brake. ■ Binding in cyclic was caused by KY-28 cannon plug lodged between bulkhead and cyclic control torque tube. ■ Pilot smelled and saw electrical smoke from overhead console. Maintenance revealed short in inverter switch (P/N MS 350822).

TH-55

4 PRECAUTIONARY LANDINGS ■ Main transmission oil pressure and temperature warning lights illuminated due to malfunction of pressure switch (P/N 269A4576). ■ Rough running engine was caused by malfunction of fuel injector (P/N 76707). ■ Vibrations in left pedal were caused by tail rotor swashplate (P/N 269A6243). ■ Engine oil pressure dropped below 60 psi during flight. Caused by malfunction of sending unit (P/N 5654912).

CH-47

1 ACCIDENT ■ Aft yellow blade flexed down during shutdown, striking left side of fuselage and tunnel cover of aircraft. Caused by materiel failure of retaining bolts of fixed outboard droop stop.

4 PRECAUTIONARY LANDINGS ■ Master caution and transmission oil pressure warning lights came on. No. 2 engine transmission indicated zero pressure. Caused by deterioration of sealant at electrical connection which allowed moisture to accumulate around wiring terminals, resulting in short. ■ No. 1 engine chip detector light came on during takeoff. Caused by fuzz on plug. ■ In-flight ramp check revealed excessive hydraulic leak in utility pressure filter. Caused by defective O-ring in pressure filter. ■ Hydraulic oil cooler fan assembly disintegrated during flight. Cause of failure unknown. Fan, hydraulic motor assembly is being held for EIR exhibit.

MESSAGE RECEIVED

Maintenance advisory message for CH-47A, B, and C, DTG 201825Z May 1975 pertains to droop stop installations as outlined in TM 55-1520-209-20-2, change 4, dated 18 June 1974.

THOUGHT FOR THE WEEK

Sometime, somewhere, the words WISDOM, SKILL, and VIRTUE were assembled in a provocative manner. The thought expressed will form the heart of any healthy accident prevention program.

"WISDOM is knowing what to do next
"SKILL is knowing how to do it
"VIRTUE is doing it."

FIXED WING

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

BRANCH

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

Seven precautionary landings were reported.

U-21

2 PRECAUTIONARY LANDINGS ■ During cruise flight in IMC, No. 1 engine torque dropped 150 psi and fire detection light illuminated. Torque dropped another 100 psi, propeller began to surge, and engine was secured. Suspect icing of inlet screen and moisture on fire detection elements. ■ No. 2 engine began losing power during climbout and aircraft returned to departure point. Maintenance inspection revealed engine failed due to failed compressor turbine blades.

OV-1

1 PRECAUTIONARY LANDING ■ No. 1 engine surged and quit. Single-engine landing was successful. Maintenance revealed broken fuel manifold.

T-41

1 PRECAUTIONARY LANDING ■ Aircraft was cruising at 2,500 feet when it was struck by object. Landing was made and inspection revealed blood and tissue on top corner of windscreen. No damage.

OTHER

3 PRECAUTIONARY LANDINGS ■ 2 C-54, 1 C-7. □

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

OFFICIAL BUSINESS

POSTAGE AND FEES PAID
DEPARTMENT OF THE ARMY
DOD-314

ARMY AIRCRAFT MISHAP PREVENTION DATA

FLIGHT FAX

ORVAL RIGHT
Chief Advisor on
Matters of Aviation

A USAAAVS PUBLICATION

VOL. 3, NO. 32 ■ 4 JUNE 1975 mishaps for the period of 16-22 MAY 1975

FAA AVIATION SAFETY REPORTING PROGRAM

The Federal Aviation Administration has announced a new aviation safety reporting program. This program is designed to stimulate the free and unrestricted flow of information on any deficiencies and discrepancies in the National Air Transportation System involving the safety of aircraft operations, including departure, en route, approach and landing operations and procedures; air traffic control procedures; pilot/controller communications; the aircraft movement area of the airport and near midair collisions.

Previous experience indicated that the willingness of persons to submit a report depends to a large degree on the FAA's ability to preserve the anonymity of persons filing reports and persons named in those reports. Many incidents may not be reported because persons involved fear possible FAA enforcement action where violations of regulations have occurred. Even when an incident is reported, meaningful information has not always been furnished. Therefore, waiver of disciplinary actions in certain areas is provided.

The aviation safety reporting program will assess the elements of the National Air Transportation System as it exists today to provide a basis for improving current and future aviation systems.

Pilots, controllers, and other users of the airspace system, or any other persons should report discrepancies or deficiencies to the FAA on FAA Form 8020-12, Aviation Safety Report. If these forms are not available, any written report is acceptable. Forms may be obtained from FAA offices. To establish eligibility for waiver of disciplinary action, the completed form or written report must be delivered or postmarked within five calendar days of the incident unless that period is extended for good cause. Mail to Aviation Safety Reporting Study Group, ASA-10, 800 Independence Avenue, S.W., Washington, DC 20591.

Government, state, and organized industry groups may obtain forms in quantity by submitting requests to the Department of Transportation, Federal Aviation Administration, Aeronautical Center, Distribution Section, AAC-45C, P.O. Box 25082, Oklahoma City, Oklahoma 73125.

LOSS OF RESOURCES
FROM THIS WEEK'S MISHAPS

FATALITIES:	0
INJURIES:	0
AIRCRAFT LOSSES:	0
ESTIMATED COSTS:	$151,658

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

Commander	558-3410/3819
Technical Research and Applications	558-6404/6410
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After-duty tape recording of incoming calls to be returned following day (hours: 1615 to 0730)	558-6510
Commercial:	255-XXXX

Prepared from information compiled by the Directorate for Aircraft Accident Analysis & Investigation
Colonel Samuel P. Kalagian, Director

UTILITY/ATTACK

Fatalities: 0 ■ *Accidents:* 2
Injuries: 0 ■ *Estimated Costs:* $120,658

BRANCH

■ MAJ Charles E. Toomer, Chief
558-4198

Two accidents, eight incidents, and forty-six precautionary landings were reported.

UH-1

1 ACCIDENT ■ Student pilot made night approach to designated landing zone and brought aircraft to high unstable hover. Takeoff was attempted and at 200 feet agl, low rpm audio and warning light activated. SP elected to land and aircraft hit hard, resulting in rollover and major damage to all components. Investigation is in progress.

7 INCIDENTS ■ During touchdown from simulated antitorque failure, skids dug into sod, causing aircraft to rock up on nose. Chin bubble on pilot's side was broken. (USAR) ■ Main rotor blades struck tree during landing to field site. Crew's attention was focused on wires on opposite side of landing site. ■ Aircraft yawed right during cruise flight and low rpm audio sounded. Pilot elected to land on highway. After touchdown aircraft skidded and main rotor struck telephone pole. (USAR) ■ Aircraft struck tree during takeoff from confined area. Inspection revealed damage to one main rotor blade. Heavy rain and low ceilings were factors. ■ While in cruise flight aircraft struck duck, damaging fuselage. ■ During NOE flight aircraft drifted left and struck tree, damaging both main rotor blades. ■ Student pilot untied main rotor blade and left tiedown on main rotor. Aircraft was started and tiedown contacted and damaged tail rotor.

42 PRECAUTIONARY LANDINGS—following are selected briefs ■ Main rotor blade tip cap separated. EIR submitted. (USAR) ■ During short final tail rotor pedals froze with 2 inches of right pedal. Landing was aborted and antitorque control was regained. Caused by misaligned tail rotor chain guard. ■ Two aircraft had compressor stalls. One was caused by FOD and the second by improperly adjusted bleed band. ■ Engine chip detector light illuminated. Engine was changed due to internal failure. ■ Engine fuel pump light came on. Caused by fuel pump pressure switch failure. ■ Batteries of five aircraft overheated. One was caused by voltage regulator set too high and the causes of the other four were unknown. ■ Hydraulic control was lost in cruise flight. Caused by ruptured hydraulic line. ■ Tail rotor chip detector light came on. Metal chips were found on plug. Gearbox was changed.

AH-1

1 ACCIDENT ■ Aircraft slid 53 feet during autorotation and both cross tubes failed. Aircraft settled to ground with minor damage. Investigation is in progress.

1 INCIDENT ■ Tail rotor was found damaged during postflight inspection. Cause unknown. Tail rotor and 90° gearbox replaced.

4 PRECAUTIONARY LANDINGS ■ Pilot smelled oil vapors coming from ECU. Inspection revealed chafed oil line between oil bypass manifold and external oil filter. ■ No. 2 hydraulic caution light illuminated. Hydraulic line fitting to No. 2 pump found loose. ■ Cyclic control stiffened during cruise flight. Pilot landed and inspection revealed ECU ice had interfered with cyclic control. ■ No. 1 hydraulic caution light illuminated and pedals became stiff. Caused by failure of hydraulic O-ring seal. □

LOH/CARGO

Fatalities: 0 ■ *Accidents:* 1
Injuries: 0 ■ *Estimated Costs:* $31,000

BRANCH

■ MAJ Robert P. Judson, Chief
558-4202

One accident, one incident, and twenty-eight precautionary landings were reported.

OH-6

1 ACCIDENT ■ Engine stopped at approximately 30 feet agl during normal approach to landing. Upon touchdown, main rotor blades flexed down and severed tail boom. Investigation is underway. (ARNG)

5 PRECAUTIONARY LANDINGS ■ Engine chip detector light came on. Fuzz was found on plug. (ARNG) ■ Loud bang was heard during night cruise. Pilot entered autorotation, realized power was available, and landed in lighted parking lot. Inspection revealed bird strike. No damage. (ARNG) ■ Engine surged and aircraft yawed during cruise. Caused by high side governor malfunction. (ARNG) ■ Loud noise was heard during flight. One helical compression spring (P/N 369A6202) from fairing to right oleo strut failed. Fairing stuck down and after 35 minutes of flight snapped shut with a bang. ■ Transmission chip detector light came on. Plug was removed and cleaned.

OH-58

1 INCIDENT ■ During minimum power takeoff, one skid caught PSP when transitioning from asphalt helipad to PSP runway. Hard landing resulted with damage to landing light, pitot tube, UHF antenna, aft cross tube, and tail stinger.

14 PRECAUTIONARY LANDINGS ■ Hydraulic pressure lights of three aircraft came on. All were caused by malfunction of pressure switch (P/N 206076404-1). ■ Tail rotor chip detector lights of three aircraft came on. Causes were (1) not reported in one case, (2) malfunction of plug (P/N B3225C), and (3) metal fuzz sufficient to suspect internal breakdown. ■ Two main transmission chip detector light illuminations were reported. One case could not be duplicated, and chips and shavings sufficient to suspect internal breakdown were found in the other. ■ Two engine chip detector lights came on because of fuzz. ■ During takeoff, N_2 dropped from 103% to 90%. Condition could not be duplicated. ■ N_1, N_2, and TOT fluctuated excessively during landing. Cause not reported. ■ Loud noise from rear seat area was caused by fire extinguisher falling from faulty holder. ■ Loud pop during cruise flight was caused by main rotor blade safety weight coming loose and striking blade tip cap. (ARNG)

WELL DONE. A previous FLIGHTFAX reported a precautionary landing caused by a KY-28 cannon plug lodged between bulkhead and cyclic control torque tube. A solicited WELL DONE to CW2 Joseph L. Wittstroun, 4th Avn Co, Fort Carson, for his fine handling of this controls-binding mishap.

TH-55

2 PRECAUTIONARY LANDINGS ■ Pilot smelled something overheating. Caused by malfunctioning alternator (P/N ALV8403L5). ■ Engine and rotor tachometer failed when engine overspeed occurred during power recovery from straight-in autorotation.

CH-47

6 PRECAUTIONARY LANDINGS ■ Three engine chip detector light illuminations were reported. Causes of illuminations were fuzz and small metallic slivers in two engines and one engine transmission. (ARNG) ■ No. 2 engine transmission exceeded temperature limits during flight. Cause unknown. ■ No. 2 flight boost system developed leak during flight and pressure gauge fell to zero. Leak and pressure loss resulted from chafed metal tube assembly. ■ Low oil pressure warning light for No. 2 engine transmission came on. Transmission temperature was stable. Cause not reported.

CH-54

1 PRECAUTIONARY LANDING ■ Second-stage hydraulic system failed in flight. Servo and servo pressure light and voice warning activated and decrease in pressure was noted. Caused by cracked tee fitting on return line of second-stage flight control servo.

MESSAGE RECEIVED

Safety-of-flight message, DTG 221900Z May 75, one-time inspection of swiveling dual actuating cylinder installation in CH-47A aircraft, TB 55-1520-209-20-36. □

FIXED WING

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

BRANCH

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

One forced landing and eleven precautionary landings were reported.

U-8

1 FORCED LANDING ■ No. 2 engine backfired and lost power after takeoff at about 30 feet and 85 knots. IP took control and landed on remaining runway. Suspect camshaft failure.

3 PRECAUTIONARY LANDINGS ■ No. 1 engine backfired and lost power on downwind leg. Landing was completed. Inspection revealed lower plug with thread insert was blown from No. 4 cylinder. Suspect stuck intake valve. (ARNG) ■ During climb No. 1 engine oil temperature rose to 105° and pressure dropped to 60 psi. Landing was uneventful at home base. Oil pressure relief valve was cleaned of carbon deposit. ■ No. 2 engine began running rough. Aircraft was landed and spark plug changed.

U-21

3 PRECAUTIONARY LANDINGS ■ Light in gear handle failed to show gear "up" after three attempts. Gear was lowered manually and successful landing made. Landing gear motor assembly failed internally.

■ Gear failed to fully retract. After several unsuccessful attempts gear was lowered manually and landing was made. Landing gear activator assembly failed. ■ No. 2 generator was taken off line because of high reading of .6. No. 1 generator then read .8 on loadmeter. Visual check showed moisture coming from battery cover area. Battery switch was turned off and load dropped on both generators. After landing, maintenance determined battery had shorted out internally and replacement was installed. WELL DONE to CW3 Robert H. Curtis, Jr., the IP, for a professional response to an emergency condition.

T-41

2 PRECAUTIONARY LANDINGS ■ Engine chip detector light came on. Moisture was found on magnetic plug. ■ Engine chip detector light illuminated during climbout. Particle of 20-gauge safety wire was found on magnetic plug. (These two precautionary landings involved the same aircraft on successive flights about 40 minutes apart.)

OV-1

1 PRECAUTIONARY LANDING ■ No. 1 engine chip detector light illuminated after takeoff. Inspection revealed small amount of carbon on magnetic plug.

U-3

1 PRECAUTIONARY LANDING ■ Safe gear-down light could not be obtained. Gear was lowered manually and tower flyby verified gear was down. Maintenance could not duplicate situation.

C-7

1 PRECAUTIONARY LANDING ■ No. 2 engine chip detector light illuminated. Engine was changed due to excessive metal particles in oil. □

THOUGHT FOR THE WEEK

The clarity of reporting is sometimes befogging. "However, it is also the decision of this board to lay the full responsibility for the aversion of certain personnel injury and probable total loss of the aircraft on the recovery executed by the instructor at the instant the maneuver approached an unsafe envelope." Is this a compliment or censure? This 44-word sentence was extracted from an actual accident report.

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

OFFICIAL BUSINESS

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DOD-314

ARMY AIRCRAFT MISHAP PREVENTION DATA

FLIGHTFAX

ORVAL RIGHT
Chief Advisor on
Matters of Aviation

A USAAAVS PUBLICATION

VOL. 3, NO. 33 ■ 11 JUNE 1975

mishaps for the period of 23-29 MAY 1975

Changes To Guide To Aviation Resources Management

Make the following pen and ink changes to your fifth edition of the Guide to Aviation Resources Management for Aircraft Mishap Prevention.

■ Page 42, questions 14 and 15, add TM 5-678 as a reference.

■ Page 44, question 18, change to read: Are ground rods/electrodes installed at each parking and refueling point? Are they tested annually? Are they marked IAW TM 10-1101, change 1? FLIGHTFAX, 27 Sep-3 Oct 74, illustrates the correct markings for grounding rods.

■ Page 44, questions 19, 20, and 24, add TM 10-1101 as a reference.

■ Page 62, delete TM 11-2557-29 from question 10 and from references at bottom of page.

■ Page 64, question 2, delete AR 95-26, add TM 95-200.

■ Page 64, question 3, add TB 95-1 as reference.

■ Page 64, delete question 7.

■ Page 64, questions 9 and 10, change reference TM 11-2557-29 to FAA 7110.8.

■ Page 66, questions 44 and 45, add AR 95-21 as a reference.

■ Page 66, question 51d, change to 50 NM vice 200 NM.

■ Page 66, add AR 95-21, FAA 7110.8, and FAA 7110.9 to references at bottom of page and delete AR 95-23, TM 11-2557-29, and TM 11-2557-30.

■ Page 76, question 6, change TM 11-2557-29 to FAA 7110.8.

■ Page 76, delete AR 95-23, TM 11-2557-29, and TM 11-2557-30 from references at bottom of page and add FAA 7110.8 and FAA 7110.9.

■ Page 82, add AR 95-21, Security Control of Air Traffic and Air Navigational Aids.

■ Page 83, add FAA 7110.9, Enroute Air Traffic Control.

■ Page 85, delete TM 11-2557-29 and TM 11-2557-30.

FOD

Just as a T-38 military pilot gave the pull-chock signal, a young airman spotted leaking fluid on the nose gear steering unit. The pilot was given a hold signal, and the airman headed for the nose gear for a closer inspection. As the airman passed in front of and below the left engine air intake, the engine began to vibrate and stalled. The engine was shut down and the pilot deplaned. A first had occurred in engine foreign object damage. The airman was a young lady, and the foreign object that entered the engine air intake causing damages was her wig.

–AEROSPACE SAFETY

UTILITY/ATTACK

Fatalities: 0 ■ *Accidents:* 2
Injuries: 6 ■ *Estimated Costs:* $375,887

BRANCH

■ MAJ Charles E. Toomer, Chief
558-4198

Two accidents, four incidents, one forced landing, and thirty-four precautionary landings were reported.

UH-1

2 ACCIDENTS ■ At approximately 50 feet on short final, full left pedal was applied and aircraft started uncontrollable spin to right. Pilot reduced power and spin stopped, but aircraft settled hard on slope. Six people were injured. Investigation is in progress. (ARNG) ■ Aircraft lost power during landing and crashed on side of hill. Suspect engine failure.

2 INCIDENTS ■ Aircraft rolled abruptly to left during hover. Pilot attempted to counter with right cyclic, with no response. Pilot lowered collective and aircraft landed hard, damaging aft cross tube and right skid. Cause not reported. ■ Exhaust diffuser cover came off engine during landing and hit main rotor blade. Main rotor blade was damaged.

1 FORCED LANDING ■ Loud bang was heard from engine during final approach after successful test flight for compressor stall. Approach was continued and two more bangs were heard, with partial power loss. Aircraft was autorotated the last 30 feet with no damage. Investigation is in progress.

29 PRECAUTIONARY LANDINGS–following are selected briefs ■ Engine fuel pump warning light came on during cruise flight. Caused by failure of fuel pump pressure switch. ■ Engine chip detector light came on. Caused by internal failure of engine. Engine changed. ■ Right fuel boost caution light came on. Caused by failure of right fuel boost pump. ■ Pilot noticed smoke coming from battery vent. Caused by battery failure. ■ Aircraft was lead ship in a flight of two when trail aircraft noticed oil coming from lead aircraft's 42° gearbox. Filler cap on 42° gearbox was improperly secured.

AH-1

2 INCIDENTS ■ Aircraft hit hard during practice autorotation, damaging cross tubes. ■ Pilot lifted aircraft to hover and noted roll channel SCAS hardover. Main rotor blades struck the ground four times before pilot could recover. Both blades were damaged.

5 PRECAUTIONARY LANDINGS ■ Pilot noticed tail rotor pedals binding. Inspection revealed forced gradient was sticking. ■ During cruise flight pilot experienced restriction of right pedal travel and initiated emergency procedures. Inspection revealed bird nest in 90° gearbox area. Bird nest was removed and aircraft released for flight. *This is the second AH-1 mishap within the last 30 days which is "for the birds." As previously published in FLIGHTFAX it's that time of the year again, so let's be on the lookout.* ■ Pilot smelled odor of hydraulic fluid in flight. Investigation revealed No. 2 scupper drain clogged. Drain cleaned and aircraft was released. ■ During cruise No. 1 hydraulic light came on. Caused by failure of hydraulic pressure switch. ■ No. 2 hydraulic light came on in flight. Caused by loose hydraulic line fitting at firewall. □

LOSS OF RESOURCES
FROM THIS WEEK'S MISHAPS

FATALITIES:	0
INJURIES:	8
AIRCRAFT LOSSES:	0
ESTIMATED COSTS:	$400,905

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

Commander	558-3410/3819
Technical Research and Applications	558-6404/6410
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Commercial:	255-XXXX

Prepared from information compiled by the Directorate for Aircraft Accident Analysis & Investigation
Colonel Samuel P. Kalagian, Director

LOH/CARGO

Fatalities: 0 ■ *Accidents:* 1
Injuries: 2 ■ *Estimated Costs:* $23,000

BRANCH

■ MAJ Robert P. Judson, Chief
558-4202

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

OH-6

1 PRECAUTIONARY LANDING ■ Tail rotor chip detector light came on. Plug was cleaned and aircraft released. (ARNG)

OH-58

1 ACCIDENT ■ At 500 feet and 60 knots, aircraft entered nose-low descending attitude. Pilot was unable to correct with cyclic control movements and aircraft impacted nose low on right skid, bounced, and came to rest on right side. Cause unknown. Investigation is underway.

1 INCIDENT ■ At completion of maintenance test flight, first stage turbine wheel of engine disintegrated during hover. Turbine components ripped engine cover and penetrated engine deck and one main rotor blade, and fire started. Ground personnel extinguished fire. Investigation is in progress.

1 FORCED LANDING ■ Engine stopped when throttle was closed for practice forced landing. Autorotation was continued to touchdown. Investigation underway to find cause of engine stoppage. (ARNG)

11 PRECAUTIONARY LANDINGS ■ Tail rotor chip detector lights of two aircraft came on. Plugs were cleaned and aircraft released. ■ Main transmission chip detector light illuminated. Three small metal particles were found on plug and transmission was changed. (ARNG) ■ Engine chip detector light came on. Plug was cleaned and aircraft released. ■ Hydraulic pressure caution light came on due to malfunction of switch (P/N 206-076-404-1). ■ During cruise flight, ammeter showed 130 amps and pilot landed. Caused by thermal runaway of battery. ■ Engine lost power and N2 decreased to 90%. Caused by defective linear actuator. ■ Severe high frequency vibration developed during approach for landing. Inspection revealed that tail rotor hanger bearings, numbers 4, 5, 6, and 7, had failed. ■ Engine-out light came on and aircraft was autorotated to landing. Cause is under investigation. ■ Aircraft yawed right with fluctuation in fuel and torque pressures. Cause is under investigation. (ARNG) ■ Pilot heard popping noises from vicinity of engine. Suspect compressor stall.

TH-55

1 PRECAUTIONARY LANDING ■ Instructor pilot broke left pedal arm at base of horizontal shaft while applying abnormal pedal pressure to override incorrect input by student pilot.

CH-47

2 PRECAUTIONARY LANDINGS ■ Forward transmission chip detector light illuminated. Caused by fuzz on chip detector plug. ■ Pilot discovered binding in right cyclic control during approach. Caused by defective roll centering spring.

CH-54

1 PRECAUTIONARY LANDING ■ No. 2 engine flamed out due to fuel exhaustion. Caused by malfunction of aircraft aft fuel system. Investigation continues. (ARNG)

THOUGHT FOR THE WEEK

DID YOU KNOW that *alcohol* in any form dulls reflexes, impairs judgment, and makes you a prime candidate for an accident? Your vision—particularly peripheral vision—becomes affected. Add to this the false sense of confidence that alcohol tends to promote, and you imperil not only your own safety, but the safety of all others around you. *Reference AR 95-1, chapter 3, section 11, "Operational Standards," paragraph 3-18.* □

FIXED WING

Fatalities: 0 ■ *Accidents:* 1
Injuries: 0 ■ *Estimated Costs:* $2,018

BRANCH

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

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

T-42

1 ACCIDENT ■ Pilot touched down with right wing low and No. 2 propeller tip struck runway, damaging nose gear bulkhead. Nose gear bottomed out. Mishap under investigation. (ARNG)

T-41

1 FORCED LANDING ■ Engine quit during final. Pilot turned and attempted to land on another runway but touched down 250 feet short in corn field. Caused by fuel exhaustion after 3 hours and 16 minutes.

1 PRECAUTIONARY LANDING ■ Engine lost power during takeoff and takeoff was aborted. Fuel pump was replaced.

U-8

3 PRECAUTIONARY LANDINGS ■ Gear would not completely retract after takeoff. Gear was placed down and landing completed. Wire leading to switch actuator arm was broken during gear actuation. ■ Landing gear stopped after about one-fourth of its travel during transit to "up" position. Gear selector was returned "down" but gear would not move. Gear was manually lowered and landing completed. Cause unknown at this time. ■ Engine began to surge and misfire at 4,400 feet. Power and altitude were decreased and landing was uneventful. Engine ran smooth during and after landing. Carburetor was replaced. Past experience with this same aircraft indicated a malfunction of the altitude compensating device. (ARNG)

U-21

1 PRECAUTIONARY LANDING ■ No. 2 engine failed during climbout. Suspect failure of N1 section.

OV-1

1 PRECAUTIONARY LANDING ■ No. 2 engine chip detector light came on during instrument approach. Metal fuzz was found on magnetic plug. Oil sample was sent for analysis. □

DEPARTMENT OF THE ARMY
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FORT RUCKER, ALABAMA 36360

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ARMY AIRCRAFT MISHAP PREVENTION DATA

FLIGHT FAX

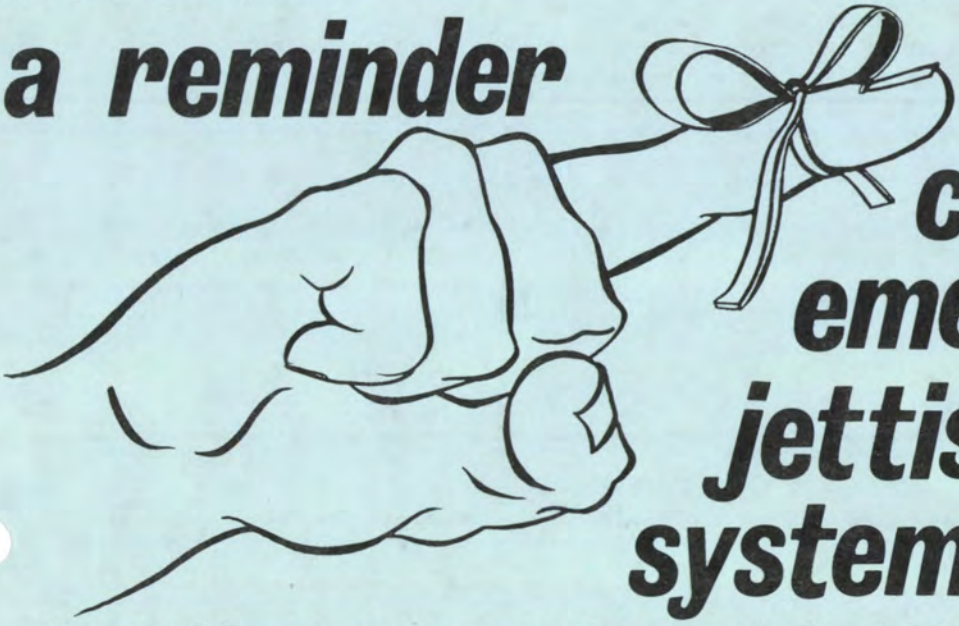
ORVAL RIGHT
Chief Advisor on
Matters of Aviation

A USAAAVS PUBLICATION

VOL. 3, NO. 34 ■ 18 JUNE 1975

mishaps for the period of 30 MAY-5 JUNE 1975

a reminder on the cobra emergency jettison system



In a recent Cobra mishap the emergency jettison system partially malfunctioned, pointing out the need for refresher information on jettison system maintenance procedures. These safety tips will serve as reminders to maintenance personnel involved in arming, servicing, and inspecting the external stores pylon and jettison system.

Remember–The ejector rack sway brace dispenser pads are uniformly torqued to 50/70 inch pounds. The 2.75-inch rocket systems are area weapons. Do not overtorque pads in an attempt to improve/retain boresight. Excessive torque along with improperly maintained ejector racks may prevent the shackles (J-hooks) from releasing the launcher during emergency jettison.

Remember–Ejection cartridge shelf life is 8 years. Service life is *1 year*. Upon opening the hermetically sealed metal cartridge container, mark the date on the container and cartridge. Mark the cartridge each time it is removed from the ejector rack. Replace after 10 removals. Never accept cartridges for which historical data is unknown.

Remember–Anytime the jettison system has functioned, the ejector racks must be cleaned.

Remember–The ejector rack jettison mechanisms must be cleaned daily when in use or after every second firing after use during the day (PMD).

Remember–Stores ejector racks must be *removed* at every third PMP and forwarded to Direct Support for disassembly and inspection, repair or replacement of defective parts as required.

Remember–Always refer to TM 55-1520-221-20/PMD/PMP manuals.

Remember–The Cobra has a single source jettison system. To insure desired emergency store jettison, the system must be properly maintained.

Remember–Record all actions performed.

Remember–If your jettison system is to fail, it will usually fail when most needed.

standard fuel

According to message from USAAVSCOM, 051354Z June 75, DA has determined that the Army will standardize on 100/130 AVGAS as Army standard fuel for piston engine aircraft in lieu of 115/145. TB 55-9150-200-25, Engine and Transmission Oils, Fuels, and Additives for Army Aircraft, dated Oct 71, will be changed accordingly.

UTILITY/ATTACK

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

BRANCH

■ MAJ Charles E. Toomer, Chief
558-4198

Thirty-one precautionary landings were reported.

UH-1

27 PRECAUTIONARY LANDINGS–following are selected briefs ■ Transmission oil pressure light came on. Caused by failure of oil filter gasket. ■ Engine chip detector light illuminated. Metal particles were found on magnetic plug. (ARNG) ■ Transmission oil pressure light came on and oil pressure indication dropped to 30 psi. Oil line ruptured. ■ On final approach for practice "hydraulics-off" approach, aircraft had cyclic hardover to left rear. Right lateral servo and irreversible valve were replaced. ■ Aircraft lost rpm during hover. Suspect low side governor failure. ■ Aircraft developed severe 1:1 vertical vibration. Caused by worn trunnion assembly. ■ Hydraulic pressure light illuminated. Caused by faulty hydraulic pressure switch. ■ Crew smelled fumes and saw high reading on loadmeter. Caused by internal short in battery.

AH-1

4 PRECAUTIONARY LANDINGS ■ Tail rotor gearbox chip detector light illuminated. Magnetic plug was cleaned and aircraft released. ■ Transmission oil bypass light came on and pressure went to zero during hover. Internal oil filter gasket failed. ■ Transmission oil hot and transmission oil bypass lights illuminated. Caused by failure of transmission input quill seal. ■ Engine chip detector light came on. Magnetic plug was improperly installed. □

LOH/CARGO

Fatalities: 0 ■ *Accidents:* 1
Injuries: 0 ■ *Estimated Costs:* $12,000

BRANCH

■ MAJ Robert P. Judson, Chief
558-4202

One accident, one incident, four forced landings, and twenty-three precautionary landings were reported.

OH-6

1 FORCED LANDING ■ During cruise, TOT, N1, N2, and torque began fluctuating excessively. Pilot entered autorotation, and N1 dropped to 4%. Cause of engine stoppage under investigation. WELL DONE to CW2 Richard D. Sellers, NJARNG. (ARNG)

3 PRECAUTIONARY LANDINGS ■ Pilot landed in open field because of deteriorating weather conditions (fog and low ceilings). (ARNG) ■ Main transmission chip detector light came on. Plug was cleaned and transmission flushed. (ARNG) ■ Strong odor of fuel in cockpit was caused by fuel leaking from left forward fuel vent seal (P/N 7100-5-8). (ARNG)

LOSS OF RESOURCES FROM THIS WEEK'S MISHAPS

FATALITIES:	0
INJURIES:	0
AIRCRAFT LOSSES:	0
ESTIMATED COSTS:	$24,000

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
USAR Representative	558-6510/4714
After-duty tape recording of incoming calls to be returned following day (hours: 1615 to 0730)	558-6510
Commercial:	255-XXXX

Prepared from information compiled by the Directorate for Aircraft Accident Analysis & Investigation
Colonel Samuel P. Kalagian, Director

OH-58

1 INCIDENT ■ Aircraft was at flight idle during engine cool-off for shutdown when another helicopter hovered nearby and blew engineering tape into rotor system. Pilot secured engine, but rotor coastdown was sufficient to wrap tape around mast and break one pitch change link and bend the other.

2 FORCED LANDINGS ■ During ferry flight, engine oil bypass light came on. Two and one-half minutes later, engine oil and torque pressures began fluctuating and engine stopped. Witnesses saw smoke coming from engine. Cause of stoppage is under investigation. WELL DONE to CW3 A. R. Kemmet, Ft. Lewis, WA. ■ During cruise at 3,500 feet, N2 dropped to 85%. Pilot entered autorotation and engine surged to 105%, with 50° yaw. Engine then quit. Suspect fuel control malfunction. WELL DONE to CW2 Jerome E. Granrud, Ft. Lewis, WA.

14 PRECAUTIONARY LANDINGS ■ Tail rotor chip detector lights of two aircraft came on. One plug was cleaned and aircraft released. The other had excessive metal particles and gearbox was changed. ■ Main transmission chip detector light came on from undetermined cause. Investigation continues. ■ Hydraulic pressure caution lights of two aircraft came on. One was caused by malfunction of switch (P/N 206-076-404-1) and the other by malfunction of relief valve (P/N 206-076-036-1). ■ Three transmission oil pressure caution light illuminations were reported. Two were caused by switch malfunctions (one USAR) and one by loose oil line. ■ Transmission oil temperature lights of two aircraft illuminated. One was caused by malfunction of regulating valve (P/N 8527855) and the other by restricted oil flow. ■ Engine oil bypass caution light illuminated when oil filler cap came off in flight and low oil level resulted. ■ Engine oil pressure rose to 140 psi due to misadjustment. ■ Suspected compressor stall occurred due to in-flight vibration of flapper pin within ram air grill. (ARNG) ■ Cyclic control binding during landing was caused by passenger's boot heel restricting cyclic lever movement with cyclic stick removed.

TH-55

1 ACCIDENT ■ Engine started overspeeding during hover while pilot was demonstrating operation of engine antioverspeed device. Suspect throttle stuck in full open position and pilot reached across with left hand to secure mixture control and engine. Aircraft settled to ground hard, damaging landing gear assembly, skid, struts, and center section frame. Investigation is underway.

1 FORCED LANDING ■ Engine quit at initiation of power recovery from simulated forced landing. Inspection showed rough running engine on right mag and rich mixture.

1 PRECAUTIONARY LANDING ■ Low engine oil pressure resulted from malfunction of sending unit.

CH-47

5 PRECAUTIONARY LANDINGS ■ Aircraft developed airframe vibration during flight. Caused by restricted fore and aft movement of synch shaft splined adapter at combining transmission. Restriction was caused by lack of lubrication of adapter spline. (ARNG) ■ No. 1 engine chip detector light came on. Caused by small metal splinter on engine chip detector plug. (ARNG) ■ Transmission hot light illuminated. Caused by failure of transmission temperature rotary selector switch. ■ Copilot door assembly came off during flight. Cause undetermined. ■ No. 2 engine PTIT went to 1,046° during flight and engine was shut down. Cause unknown. Investigation continues.

THOUGHT FOR THE WEEK

OH-58 pilots, beware of the boot—the *boot* of that nonrated passenger in the left seat, that is. With the left cyclic control removed for liaison type missions, the OH-58 is very vulnerable to cyclic control binding. During the passenger briefing most pilots tell the passenger in the left front seat to keep his feet away from the antitorque pedals. As a result the passenger keeps his feet against the front seat support bulkhead. With left cyclic removed, the cyclic stick lever (P/N 206-0001-383-3) protrudes far enough out of the bulkhead to permit the lever to contact the passenger's boot heel, thus causing a binding of the cyclic control. □

FIXED WING

Fatalities: 0 ■ *Accidents:* 1
Injuries: 0 ■ *Estimated Costs:* $12,000

BRANCH

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

One accident and three precautionary landings were reported.

U-8

1 ACCIDENT ■ After 19-minute flight, aircraft landed with gear in well. *USE YOUR CHECKLIST! It can save a lot of embarrassment and money.*

T-42

1 PRECAUTIONARY LANDING ■ Total electrical failure occurred. Pilots operated on battery until it was discharged. Gear was lowered manually. Maintenance replaced faulty wire at battery cable connection to No. 2 alternator.

T-41

2 PRECAUTIONARY LANDINGS ■ Both were engine chip detector light illuminations because of fuzz on magnetic plug. □

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ARMY AIRCRAFT MISHAP PREVENTION DATA

FLIGHT FAX

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Chief Advisor on
Matters of Aviation

A USAAAVS PUBLICATION

VOL. 3, NO. 35 ■ 25 JUNE 1975 mishaps for the period of 6-12 JUNE 1975

FOD

The following message from USAAVSCOM was sent to all aviation units, 281310Z May 75, subject: Interim Change to Preventive Maintenance Cards to Reduce FOD.

"1. This message represents a positive effort by all concerned to reduce accidents caused by foreign object damage (FOD). The directions contained in this message should be performed at all aviation units.

"2. Directions—Annotate the lower center portion of each page of the PMD, PMI, PMP, and PMS card that contains inspection instructions with the following note:

NOTE: For reminder, check work area for tools and parts after completion of maintenance and inspections.

"3. This note may be added to the PM cards by either of two methods:

a. The note may be written with a ball point pen having red ink, on tape pressure sensitive adhesive, FED Spec L-T-90, ¾-inch wide, 36 yards long (e.g. Scotch magic transparent tape, NSN 7510-00-551-9825, P/N 810, FMC 76381) or equivalent.

b. Units may locally manufacture or purchase sensitive labels, printed in red, to attach to PM cards.

"4. Compliance with the above notation will aid in reminding all maintenance and inspection personnel of the importance of sound aviation maintenance safety practices concerning FOD.

"5. This direction will be in effect until PM cards are received with the note preprinted."

CH-47 Test Flight Handbook

A major change to the CH-47 Test Flight Handbook is presently being printed and will be available to CH-47 test flight graduates about 15 July 1975. This handbook will be available to test flight graduates only and will be issued against a roster. Those interested in receiving this handbook should send their current unit address or permanent home address to:

Director
Aviation Maintenance Training Department
Test Flight Division
ATTN: CH-47 Track
Fort Eustis, Virginia 23604

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REVISED FY 76 SCHEDULE OF USAAAVS SAFETY CLASSES

Aviation Accident Prevention Course (AAPC-Officer)		Aviation Accident Prevention Management Course (AAPMC-NCO)	
No.	Dates	No.	Dates
Class scheduled for 21 Jul-1 Aug 75 has been cancelled.		76-1	7-18 Jul 75
76-1	18-29 Aug 75	76-2	4-15 Aug 75
76-2	15-26 Sep 75	76-3	1-12 Sep 75
76-3	29 Sep-10 Oct 75	76-4	13-24 Oct 75
76-4	10-21 Nov 75	76-5	27 Oct-7 Nov 75
76-5	5-16 Jan 76	76-6	19-30 Jan 76
76-6	2-13 Feb 76	76-7	16-27 Feb 76
76-7	1-12 Mar 76	76-8	15-26 Mar 76
76-8	29 Mar-8 Apr 76	76-9	12-23 Apr 76
76-9	26 Apr-7 May 76	76-10	10-21 May 76

Holidays: 1 September—Labor Day
13 October—Columbus Day
27 October—Veterans Day
16 February—Washington's Birthday
24 May—Memorial Day

UTILITY/ATTACK

Fatalities: 0 ■ *Accidents:* 0
Injuries: 0 ■ *Estimated Costs:* $13,900

BRANCH

■ MAJ Charles E. Toomer, Chief
558-4198

Six incidents, two forced landings, and fifty-five precautionary landings were reported.

UH-1

4 INCIDENTS ■ Aircraft drifted laterally during takeoff from confined area. Main rotor struck tree, damaging one blade. ■ Engine was started with main rotor tiedown attached. Tiedown wrapped around tail boom, causing damage. ■ Main rotor struck tree during confined area takeoff, damaging one blade. ■ While hovering on ridgeline to discharge passengers, aircraft moved forward and down, causing tail boom to strike ground. Incident damage to tail boom 2 feet forward of synchronized elevator.

1 FORCED LANDING ■ Engine failed during practice autorotation. Cause not reported.

49 PRECAUTIONARY LANDINGS—following are selected briefs ■ During cruise aircraft developed severe 1:1 vertical vibration. Main rotor blade top skin separated about 5 feet from tip. Cause not reported. ■ Aircraft was landed after crew detected odor in flight. Caused by internal failure of gyromagnetic compass which was smoking. ■ Pilot heard loud noise from engine area. Caused by dirt built up in first stage compressor due to oil from main rotor grip leak. ■ During instrument climb pilot noticed engine and transmission oil temperature gauges were inoperative. Caused by circuit breaker failure. ■ Pilot landed because of deteriorating weather conditions. ■ Engine chip detector light came on. Cause unknown pending result of special oil analysis. ■ During formation flight hydraulic caution light illuminated and pedals stiffened. Caused by tail rotor servo failure. ■ Pilot exceeded torque limits during formation landing to LZ. ■ Crew heard loud bangs from engine during cruise. Caused by unidentified foreign object damage to engine.

AH-1

2 INCIDENTS ■ Pilot misjudged distance and aircraft struck small tree, damaging tail rotor blades. ■ Cross tube cuff failure was found on postflight. Cause undetermined.

1 FORCED LANDING ■ Tail rotor control was lost during night landing. Birds placed 12-inch segment of rope in vertical fin which caused silent chain to slip off sprocket.

6 PRECAUTIONARY LANDINGS ■ Engine chip detector light came on. Engine was replaced. ■ Ammeter reading rose to 300 and strong odor of fumes entered cockpit. Caused by clogged battery vent line. ■ Engine rpm fluctuated between 5000 and 7000. Ground personnel saw 4-foot flames from tail. Engine was changed. ■ Engine oil bypass light illuminated. Engine oil reservoir was filled and aircraft ground checked. ■ Tail rotor 90° gearbox chip detector light came on. Fuzz was found on plug. ■ Pilot noticed engine rpm dropping through 6200 during final approach. Pilot lowered collective to regain rpm, then landed. Suspect underspeeding governor malfunction. □

LOSS OF RESOURCES
FROM THIS WEEK'S MISHAPS

FATALITIES:	0
INJURIES:	0
AIRCRAFT LOSSES:	0
ESTIMATED COSTS:	$35,882

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

Commander	558-3410/3819
Technical Research and Applications	558-6404/6410
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Management Information System	558-4200/2920
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USAR Representative	558-6510/4714
After-duty tape recording of incoming calls to be returned following day (hours: 1615 to 0730)	558-6510
Commercial:	255-XXXX

Prepared from information compiled by the Directorate for Aircraft Accident Analysis & Investigation
Colonel Samuel P. Kalagian, Director

LOH/CARGO

Fatalities: 0 ■ *Accidents:* 1
Injuries: 0 ■ *Estimated Costs:* $21,982

BRANCH

■ MAJ Robert P. Judson, Chief
558-4202

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

OH-58

1 ACCIDENT ■ Unusual shudder resulted in hovering autorotation to 14° slope where aircraft rolled over. Right skid and tail boom were broken and mast and main rotor separated. Investigation is underway.

1 INCIDENT ■ During authorized and supervised NOE flight at 3- to 4-foot hover, aircraft began to shudder, banging noise was heard, nose pitched down, and pilot made hovering autorotation. Right skid and both cross tubes were damaged. Inspection revealed that flare parachute had gone through main rotor system.

1 FORCED LANDING ■ During cruise flight, engine chip detector light came on, loud bang was heard, oil bypass light came on, and N_2 dropped to zero. Engine is being analyzed. WELL DONE to 1LT Keith E. Smalley, Fort Lewis, WA, for a successful autorotation.

22 PRECAUTIONARY LANDINGS—following are selected briefs ■ Tail rotor chip detector light came on. Caused by short circuit. ■ Main transmission chip detector light came on. Caused by metal particles. ■ Engine chip detector light illuminated. Plug was cleaned and aircraft released. (ARNG) ■ Main transmission low oil pressure warning light illuminated. Caused by malfunction of pressure switch (P/N 76198-1). (ARNG) ■ Hydraulic pressure light came on. Caused by failure of servo actuator seal (P/N 206-078-831-11). ■ Aircraft was landed to avoid thunderstorms. (USAR) ■ N_2 dropped to 98% during flight. Double check valve was sticking. (USAR) ■ Fuel filter caution light came on in flight. Caused by clogged filter. (USAR) ■ Electrical fumes and smoke were caused by battery malfunction. D.C. amp gauge indicated maximum.

TH-55

3 PRECAUTIONARY LANDINGS ■ Engine and rotor tachometer dropped off during approach. Caused by malfunction of tachometer. ■ Low fuel pressure in flight resulted from malfunction of fuel pressure sending unit. ■ High engine oil pressure during approach resulted from malfunction of pressure sending unit.

CH-47

5 PRECAUTIONARY LANDINGS ■ Right fuel boost pump failed. ■ Lateral cyclic response was very poor during takeoff. Maintenance inspection revealed magnetic brake had failed internally. ■ Pilot noted loss of utility hydraulic pressure. Caused by malfunction of utility hydraulic pump. ■ No. 1 engine oil temperature suddenly indicated 150° C. Suspect electrical malfunction. ■ No. 2 engine beep would not operate in a.c. or d.c. Cannon plug to N_1 actuator was found to be loose.

THOUGHT FOR THE WEEK

To minimize flight hazards during summer operations, flight commanders should insure that the following items are continually emphasized:

■ The effects of high density altitudes relating to the reduced efficiency of aircraft engines and helicopter rotor systems.

■ Reduced efficiency of the aircrew resulting from high temperature/humidity conditions.

■ Probability of inducing incipient fatigue due to a combination of longer daylight hours, higher temperatures, and increased physical activity.

■ Turbulence and gusting winds resulting from thermal convective activity.

■ Hazards associated with increased thunderstorm activity, including turbulence, shifting and gusting winds.

■ Reduced visibility and low ceilings due to the prevalence of slow moving, stationary, or occluded air masses.

■ Reduced visibility due to haze, pollen, or dust.

■ Instructor pilots' reduced margin for error when executing practice autorotations during high density altitude conditions, especially with loaded aircraft.

Weather briefings, daily flight briefings, and monthly safety meetings are forums for getting the word out.

—Courtesy of Safety Director, Doss Aviation, Inc., Fort Rucker, AL

FIXED WING

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

BRANCH

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

One forced landing and eleven precautionary landings were reported.

U-21

1 FORCED LANDING ■ Crew ascertained smoke in cockpit was coming from battery. Smoke continued after turning off battery switch. Windows and vents were opened and emergency landing was successful. Nickel cadmium battery failed.

3 PRECAUTIONARY LANDINGS ■ Oil was detected flowing from right nacelle cowling. Aircraft was landed and inspection revealed that loose oil cap permitted 3 quarts of oil to siphon. Oil filler cap had been improperly secured. ■ Sparks and smoke were coming from pneumatic pressure gauge and five AMP circuit breakers popped. Inspection revealed printed circuit failed. ■ No. 2 engine would not start after intentional shutdown. Inspection, after landing, revealed two loose connectors on main bus in right wing.

T-41

3 PRECAUTIONARY LANDINGS ■ Fuel flow decreased and fumes entered cockpit. Liquid was seen flowing from top center of engine cowl. Landing was made at nearest airport. Inspection revealed split in fuel injection line from separator to No. 6 cylinder. ■ Engine chip detector lights of two aircraft came on because of normal fuzz.

U-8

2 PRECAUTIONARY LANDINGS ■ No. 1 engine would not start after feathering on test flight. Accumulator not installed. ■ Gear would not retract after takeoff. Gear handle was placed in down position and tower flyby indicated safe condition. Landing gear bulb and relay circuit in gear selector handle shorted out due to apparent incorrect installation.

OV-1

1 PRECAUTIONARY LANDING ■ Complete loss of hydraulic pressure was noted on both No. 1 and No. 2 gauges. Hydraulic line to No. 2 engine ruptured.

U-6

1 PRECAUTIONARY LANDING ■ Engine started backfiring and running rough during climbout after takeoff. No. 1 cylinder poppet valve stuck in open position.

C-54

1 PRECAUTIONARY LANDING ■ White smoke was seen streaming from No. 4 engine. Feathering pump pressure line "B" nut failed. □

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ARMY AIRCRAFT MISHAP PREVENTION DATA

FLIGHT FAX

ORVAL RIGHT
Chief Advisor on
Matters of Aviation

A USAAAVS PUBLICATION

VOL. 3, NO. 36 ■ 2 JULY 1975

mishaps for the period of 13-19 JUNE 1975

U. S. ARMY PARTICIPATION IN FAA AVIATION SAFETY REPORTING PROGRAM

The Federal Aviation Administration (FAA) has published Advisory Circular number 00-46, dated 9 May 1975, to establish the FAA Aviation Safety Reporting Program (see *Flightfax*, 4 June 1975). The scope of this program involves the National Air Transportation System, e.g. the federal airways, air traffic control and aircraft operation.

The FAA is seeking complete and frank reporting of specific information on any discrepancies or deficiencies in the National Transportation System involving the safety of aircraft operations, including departure, en route, approach, and landing operations and procedures; pilot/controller communications; the aircraft movement area of the airport; and midair collisions. The FAA will preserve the anonymity of persons filing reports to the fullest extent allowed by law. Anonymity must be requested by the reporter.

The FAA administrator will waive the taking of disciplinary action against any person involved in a violation except with respect to reckless operations, gross negligence, willful misconduct and aircraft accidents, provided a written report is made to the FAA within 5 calendar days of the event.

The military services, as users of the National Air Transportation System, have been asked to support and participate in this effort to improve the safety of the airways. FAA representatives have interpreted the circular to mean that they will accept reports in any format.

AR 95-5, paragraph 5-5, establishes the U.S. Army's Operational Hazard Reporting System (OHR). AR 95-30 provides the authority to exchange aviation safety information with the FAA. Army commanders, aviation safety officers, and aviators are encouraged to support and participate in the FAA's program to improve the safety of the National Air Transportation System. They are encouraged to do so by submitting Army Operational Hazard Report forms (DA Form 2696) to Army operations offices or aviation safety offices. Reporters must be specific in the description portion of the form.

Commanders and aviation safety officers are requested to forward copies of OHR's that meet the criteria listed in the first paragraph to the Aviation Safety Reporting Program Study Group ASA-10, FAA, Washington, DC 20591.

LIFE PRESERVER CYLINDER

For your information, cylinder, carbon dioxide, for inflation of pneumatic life preservers, MIL-C-25369B, gross weight 1390 grams, NSN 4220-00-543-6693, will fit the LPU-2/P, LPU-3/P, and LPU-10/P life preservers. Two cylinders are required for each life preserver.

LOSS OF RESOURCES
FROM THIS WEEK'S MISHAPS

FATALITIES:	0
INJURIES:	0
AIRCRAFT LOSSES:	1
ESTIMATED COSTS:	$2,136,982

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
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Commercial:	255-XXXX

Prepared from information compiled by the Directorate for Aircraft Accident Analysis & Investigation
Colonel Samuel P. Kalagian, Director

UTILITY/ATTACK

Fatalities: 0 ■ *Accidents:* 1
Injuries: 0 ■ *Estimated Costs:* $101,582

BRANCH

■ MAJ Charles E. Toomer, Chief
558-4198

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

UH-1

1 ACCIDENT ■ Engine failed during cruise flight. Aircraft was autorotated to wooded area and struck trees. Major damage to skid gear and tail boom. Cause of engine failure is unknown. (USAR)

3 INCIDENTS ■ Aircraft landed hard during simulated stuck left pedal antitorque failure. ■ Both main rotor blades struck tree during authorized NOE training. ■ One main rotor blade struck small limb while aircraft was hovering near riverbank.

2 FORCED LANDINGS ■ Aircraft developed severe one-to-one vibration during normal descent. Bonding on main rotor blade failed, allowing skin to peel back on top side. ■ Aircraft was in cruise flight when loud bang was heard from engine, followed by power loss. Pilot made 180° autorotation to plowed field with no damage to aircraft.

13 PRECAUTIONARY LANDINGS—following are selected briefs ■ Transmission chip detector light came on. Moisture was found on wire where it connects to magnetic plug. (USAR) ■ Engine fuel pump caution light illuminated during takeoff. Pressure switch malfunctioned. ■ Crew saw smoke coming from battery vent. Battery overheated. Voltage regulator readjusted. ■ During level-off, aircraft developed severe one-to-one vibration. Inspection revealed 6-inch crack in inboard portion of one main rotor blade. ■ Pilot noticed rapid rise in oil temperature to 145°. Oil cooler fan bearing failed. ■ Transmission oil pressure caution light came on and transmission oil pressure gauge indication went to zero psi. Oil loss was caused by failure of main transmission oil filter gasket. ■ Pilot noticed chatter in antitorque pedals, followed by pedal lockup. Partial use of pedals was regained with hydraulics off. Tail rotor servo failed internally.

AH-1

1 INCIDENT ■ During forward hover, rotorwash picked up artillery flare and parachute. Flare rose and was pulled into main rotor disc. One main rotor blade and both tail rotor blades were damaged.

4 PRECAUTIONARY LANDINGS ■ Engine chip detector light illuminated. Caused by short circuit. ■ Skids hit wire at 15 feet agl and 10 knots; no damage. ■ Tail rotor gearbox chip detector light came on. Caused by carbon on magnetic plug. ■ Master caution light came on. Master caution relay switch malfunctioned.

MESSAGES RECEIVED

Headquarters, AVSCOM, message 161605Z June 75, is a safety-of-flight message requiring a one-time inspection of AH-1/TH-1 cross tubes; reference TB 55-1520-221-20-9. □

LOH/CARGO

Fatalities: 0 ■ *Accidents:* 1
Injuries: 0 ■ *Estimated Costs:* $2,034,994

BRANCH

■ MAJ Robert P. Judson, Chief
558-4202

One accident, four incidents, and twenty-four precautionary landings were reported.

OH-6

3 PRECAUTIONARY LANDINGS ■ Aircraft had high TOT. Tee fitting, tube to boss (P/N 369A8083) was replaced. ■ Three days later, same aircraft was reported to have had engine oil bypass caution light illumination and failure of No. 1 bearing oil feed line. Engine changed. ■ Pilot heard abnormal engine noise during climbout and engine-out warning light came on. Pilot landed with power. Suspect wiring malfunction. (ARNG)

OH-58

3 INCIDENTS ■ Just after takeoff, pilot saw wires at 15 feet. Aircraft hit wires and was brought to hover and backed out from wires. Main rotor blades and right windshield were damaged. ■ Front skid cross tube was found bent beyond limits during PMD. Suspect damage resulted from unreported hard landing. Investigation is in progress. (ARNG) ■ During authorized and supervised NOE training, main rotor blades hit tree branch during hover, damaging rotor blade tips.

17 PRECAUTIONARY LANDINGS ■ Main transmission chip detector lights of five aircraft came on. One plug was cleaned and aircraft released. Another had metal flakes and was cleaned; aircraft released. Third plug had metal particles and will be under special oil sampling. Fourth plug had fuzz. Aircraft is grounded pending results of special oil sample. Fifth plug indicated internal failure. Transmission is being changed. ■ Five tail rotor chip detector light illuminations were reported. Three plugs had fuzz and one was oil soaked. The fifth plug had metal chip. Aircraft was grounded pending results of special oil sample. (ARNG) ■ Engine chip detector lights of two aircraft came on. One plug contained carbon and moisture, and the other fuzz. Both were cleaned and aircraft released. ■ Main transmission oil hot lights of two aircraft illuminated. One switch contained moisture (ARNG), and the other illumination was caused by oil cooler duct hose being filled with water and blocking air passage to radiator. ■ Main transmission oil pressure warning light came on because of switch malfunction (P/N 7G198-1). ■ Hydraulic warning light illuminated. Caused by malfunction of pressure switch. ■ Excessive TOT during cruise flight resulted from unknown causes.

TH-55

1 INCIDENT ■ At 1,000 feet and 60 knots during medium bank to right, the right plexiglass windshield started breaking up.

CH-47

1 ACCIDENT ■ Aircraft was in cruise flight with internal load of class C explosives when No. 2 engine exploded, followed by fire in aft right pylon area. Crew attempts to extinguish fire were unsuccessful. Aircraft was landed hard and consumed by fire. Cause unknown. Accident is being investigated.

1 PRECAUTIONARY LANDING ■ Aft transmission chip detector light came on during preflight check. Cause unknown. Suspect internal failure of aft transmission.

CH-54

3 PRECAUTIONARY LANDINGS ■ No. 1 engine fuel boost caution light came on, followed by flicker of No. 1 generator failure light along with smoke from No. 1 electrical system. Caused by failure of voltage regulator. (ARNG) ■ Chip detector light came on during hover. Accumulation of water in main gearbox chip detector cannon plug caused system short. (ARNG) ■ Main transmission oil pressure rose to 150 kg during flight. Caused by failure of transmission temperature bulb.

THOUGHT FOR THE WEEK

As night NOE training begins to take an upswing, we are faced with a new problem—*parachute flares*. The parachutes from expended flares are landing along NOE courses and are then being blown through the rotor systems of aircraft flying the course. A little extra *CAUTION* must be exercised when these flares are used for night NOE training. □

FIXED WING

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

BRANCH

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

Nine precautionary landings were reported.

OV-1

2 PRECAUTIONARY LANDINGS ■ During IFR climb, aircraft yawed to right. Instrument check revealed loss of No. 2 engine. Single-engine landing was successful. Cause unknown at this time. ■ No. 1 engine chip detector light came on. Oil pressure and torque pressure dropped to zero. Engine was secured and aircraft landed. Cause unknown. (ARNG)

U-8

3 PRECAUTIONARY LANDINGS ■ Aircraft was at 11,000 feet when fuel pressure fluctuated. Electric boost was turned on and fuel selector was switched to main tanks with no effect. Pressure dropped to about 6 psi and rpm dropped to 1600. With power lever on No. 2 in idle, engine surged to 2800 rpm and then dropped. Landing was completed with No. 2 engine at zero power. Nos. 2 and 5 cylinders were separating from engine and through bolts on No. 5 cylinder were broken. Engine is being changed. ■ Smoke in cockpit was caused by power transformer short in ADF. ■ Pilot smelled fuel fumes and noticed fuel streaming from right main tank cap. Caused by faulty seal on fuel cap assembly.

U-21

2 PRECAUTIONARY LANDINGS ■ During IMC approach, left engine fire warning light and warning horn activated. No. 1 engine was secured and landing was made. Moisture caused short in fire warning system

at quick disconnect on firewall. ■ Pilot noticed fuel siphoning from left nacelle tank filler cap. Transfer pump was shut off, to no avail. Crew failed to properly secure cap during preflight.

T-42

1 PRECAUTIONARY LANDING ■ Passenger door came open after 1½-hour flight. Landing was made to close door.

T-41

1 PRECAUTIONARY LANDING ■ Engine chip detector light came on during climbout. Aircraft was on special 25-hour flight period since previous chip detector light illumination. Results pending.

NOTE FOR U-21 AVIATORS

Did you know that the A through D models of the U-21 do not have a battery vent line to eliminate from the cockpit toxic fumes from the nickel cadmium battery in case it fails. These fumes could prove fatal to anyone subjected to them for an extended period. AVSCOM is aware of this situation and is working with Beech to publish an MWO to vent all battery boxes. Reference TM 55-1510-209-34P, fig. 20, items 138 through 148, for proper vent line installation on U-21 E, G models. □

MAINTENANCE MISHAPS

Fatalities: 0 ■ *Accidents:* 0
Injuries: 0 ■ *Estimated Costs:* $406

One incident and five precautionary landings were reported.

AH-1

2 PRECAUTIONARY LANDINGS ■ Crew heard noise from hydraulic pump. Fluid loss was caused by improperly installed O-ring. ■ No. 1 hydraulic system failed during cruise. Hydraulic line to T fitting on collective lockout valve assembly was loose, allowing fluid loss.

CH-47

1 PRECAUTIONARY LANDING ■ Aircraft developed hydraulic leak in flight control closet. Caused by chafed return line from lower roll dual boost actuator.

OV-1

1 INCIDENT ■ Right hatch blew open on takeoff. Hatch locking lugs were out of adjustment.

1 PRECAUTIONARY LANDING ■ Pilot noted gradual loss of hydraulic pressure on both gauges and confirmed loss with windshield wipers. Caused by missing O-ring between hydraulic pump and line.

U-8

1 PRECAUTIONARY LANDING ■ Gear would not extend for landing. Emergency dash 10 procedures were used to lower gear. Landing was uneventful. Connector screw to landing gear control down limit switch (P/N MS 25026-1) had fallen out. □

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ARMY AIRCRAFT MISHAP PREVENTION DATA

FLIGHT FAX

ORVAL RIGHT
Chief Advisor on
Matters of Aviation

A USAAAVS PUBLICATION

VOL. 3, NO. 37 ■ 9 JULY 1975

mishaps for the period of 20-26 JUNE 1975

CLEANING AND REPAIR OF NOMEX

Nomex flight clothing, NSN 8415-00-935-4891 series and NSN 8415-00-935-4878 series, should be cleaned by washing and thorough rinsing to retain its high temperature resistant quality. Starch is not to be used as it reduces flame resistance, as do grease and cleaning solvents. Do not dry clean.

When laundry facilities are used, items should be processed in accordance with Formula I, TM 10-280, or Formula E, TM 10-354, or by contract with private industry strictly in accordance with one of the foregoing formulas.

Information has been received that laundry personnel have starched the garments when laundering them. The garments subsequently are destroyed in the mistaken belief that they were rendered useless by starching. This conclusion is erroneous.

Starch will burn, thus reducing the fire retardant property of the Nomex garments and endangering the wearer. However, the garment is not rendered useless if starched. Should starch be used in laundering the Nomex clothing, a thorough rinsing will remove it and the garments will be restored to their high temperature resistant quality.

Guidance for repair of Nomex shirt and trousers is contained in chapter 7, Change 1 to TM 10-8400-201-23, General Repair Procedures for Clothing and Individual Equipment dated 24 June 1970. Nomex clothing is sewn with thread having the same low flammability as the material. Rips or tears should be repaired with OD shade S-1 (66022) soft cord filament thread, 3 ply size E, NSN 8310-00-492-8397.

REPLACEMENT OF CUFFS, WAISTBANDS, AND/OR COLLARS FOR FLIGHT JACKETS

Supply Information Letter No. 1-75, U.S. Army Support Center, Philadelphia, PA, lists the following guidance for replacement of cuffs, waistbands, and/or collars for flight jackets, NSN 8415-00-817-0597 (S), 8415-00-818-9133 (S), and 8415-00-270-0367 (S).

As requirements materialize, submit funded MILSTRIP requisitions to the Defense Personnel Support Center (RIC S9T).

Item	NSN	UI	U/P
Cuffs	8315-00-275-2870	EA	.51
Waistbands	8315-00-275-6195	EA	1.21

Two collars can be fabricated from above waistband.

When replacing any one of the three items, rip the seam, remove the old item, and replace with the new item using the same stitch that was originally applied. Make certain the stitch overlaps the old stitch by 1½ inches on each side of the collar. For cuffs and waistband, back stitch 1½ inches to assure it does not ravel.

NSN's OF APPLICABLE REPAIR ITEMS NOT LISTED IN TM 10-8400-201-23

NOMENCLATURE	NSN	APPLICABLE SPEC
BUCKLE, TONGUELESS	5340-00-157-7987	MIL-B-543, Type II, Class 3, Style 3
FASTENER, SLIDE, INTERLOCKING	5325-00-159-3759	V-F-106d, Type I, Style 7, Size M, 8½" long
	5325-00-159-3764	V-F-106d, Type I, Style 23, Size M, 10" long
	5325-00-159-3748	V-F-106d, Type I, Style 15, Size M, 6¾" long
	5325-00-159-3753	V-F-106d, Type I, Style 15, Size M, 7¼" long
	5325-00-159-3755	V-F-106d, Type I, Style 15, Size M, 7¾" long
	5325-00-159-3757	V-F-106d, Type I, Style 15, Size M, 8¼" long
	5325-00-159-3761	V-F-106d, Type I, Style 15, Size M, 8¾" long
	5325-00-159-3762	V-F-106d, Type I, Style 15, Size M, 9¼" long
	5325-00-159-3763	V-F-106d, Type I, Style 15, Size M, 9¾" long
	5325-00-159-3722	V-F-106d, Type I, Style 7, Size M, 5" long
	5325-00-159-3723	V-F-106d, Type I, Style 8, Size M, 20" long

These repair items may be requisitioned through normal supply channels.

–Supply Information Letter No. 1-74, U.S. Army Support Center, Philadelphia, PA

UTILITY/ATTACK

Fatalities: 0 ■ *Accidents:* 0
Injuries: 0 ■ *Estimated Costs:* $805

BRANCH

■ MAJ Charles E. Toomer, Chief
558-4198

One incident and thirty-seven precautionary landings were reported.

UH-1

1 INCIDENT ■ Pilot heard small explosion and fire warning light came on during hover. Aircraft was landed, engine was shut down, and crew chief extinguished fire. Suspect 2-inch hole in starter was caused by arcing, which also ruptured fuel line.

37 PRECAUTIONARY LANDINGS—following are selected briefs ■ Aircraft yawed right during landing. Pilot noticed N2 was 6300 rpm. Fuel was contaminated with water. ■ During cruise flight N1 dropped to 65 percent and low rpm audio activated. Pilot suspected low side governor failure and switched to emergency governor. Rpm was restored and aircraft was landed. ■ Transmission chip detector light came on. Moisture was found on magnetic plug terminal. ■ Pilot heard loud bang from engine compartment, and aircraft pitched nose high with right yaw. High rpm light came on with initial attitude change and pilot lowered collective and beeped rpm down to 6400. Landing was made. During shutdown engine seemed to hang at 40 percent. Investigation is in progress. (ARNG) ■ Tail rotor chip detector light came on. Inspection revealed wire to 90° gearbox chip plug was frayed. □

LOH/CARGO

Fatalities: 0 ■ *Accidents:* 2
Injuries: 0 ■ *Estimated Costs:* $54,552

BRANCH

■ MAJ Robert P. Judson, Chief
558-4202

Two accidents, two incidents, three forced landings, and fifteen precautionary landings were reported.

OH-6

1 ACCIDENT ■ Main transmission low pressure light came on during cruise flight and was accompanied by loud clanking noise from transmission area. No apparent response to collective pitch pull resulted at bottom of approach. Aircraft hit hard and rolled on side, damaging left side of fuselage, main rotor blades, tail boom, and right skid. Investigation is underway. (ARNG)

2 PRECAUTIONARY LANDINGS ■ Main transmission chip detector light illuminated. Inspection revealed large metal chips. Transmission was sent to CCAD. (ARNG) ■ Engine chip detector light came on. Engine was changed because of high time.

OH-58

1 ACCIDENT ■ During night approach for landing, pilot turned on landing light and had radio failure, generator-out light, and engine-out light. Pilot initiated autorotation which terminated in severed tail boom and damaged main rotor and fuselage. Investigation is underway.

2 INCIDENTS ■ During authorized and unsupervised NOE training, main rotor blades struck trees. Damage was discovered during postflight. ■ Aircraft went IMC in blowing sand and dust from rotorwash during approach for landing. Damage to both tail rotor tips resulted when they struck a small rock. (ARNG)

3 FORCED LANDINGS ■ During hover autorotation demonstration, engine stopped when throttle rolled to flight idle. Investigation is continuing. (ARNG) ■ Engine chip detector light came on and was followed by engine oil bypass light and fluctuating torque. TOT remained normal. On final, torque fluctuated between 50 and 60 psi, TOT was 850, engine oil pressure was zero, and N2 was at 87%. Investigation is in progress. ■ Aircraft was in level flight at 800 feet when low rpm light and audio came on. N2 dropped to 60% and pilot autorotated to open field. Fuel was contaminated with water and sediment from first batch of fuel from recently serviced refueler.

UNITED STATES ARMY AGENCY FOR AVIATION SAFETY, FORT RUCKER, ALABAMA 36362
Prepared from information compiled by the Directorate for Aircraft Accident Analysis and Investigation
Colonel Samuel P. Kalagian, Director

10 PRECAUTIONARY LANDINGS ■ Tail rotor chip detector lights of two aircraft came on. One was cleaned and released. The other could not be duplicated. (ARNG) ■ Engine chip detector light came on, plug was cleaned, and aircraft released for flight (aircraft later had forced landing from engine problems). ■ Hydraulic pressure lights of two aircraft illuminated. One was caused by malfunction of pressure switch (ARNG) and the other by malfunction of pump (P/N 206-076-030-3). ■ Transmission oil hot light came on. Caused by faulty temperature switch. ■ Engine oil bypass light came on during landing and oil pressure went to zero. Investigation is in progress. ■ Engine tachometer went to zero during cruise because tachometer malfunctioned. (USAR) ■ TOT fluctuated during cruise. Condition could not be duplicated. Investigation is continuing. (ARNG) ■ N_2 would not beep above 103% during start, and aircraft was hovered for 20 minutes before takeoff. During takeoff N_2 dropped to 97% and flight was aborted. Inspection revealed that aircraft was started with fuel shutoff valve handle in off position. *AVSCOM is researching this problem and corrective action is forthcoming.*

TH-55

1 PRECAUTIONARY LANDING ■ Incorrect throttle response occurred because of malfunction of throttle cable assembly.

CH-47

2 PRECAUTIONARY LANDINGS ■ No. 2 engine oil pressure increased to 120 psi and No. 2 engine chip detector light came on intermittently. Caused by faulty oil pressure sending unit and chafed electrical wire. ■ Transmission chip detector light illumination was caused by small metal sliver on aft vertical shaft chip detector plug.

MESSAGE RECEIVED

Safety of flight message, DTG 262300Z Jun 1975, pertains to inspection of T55-L-11A engine compressor for FOD and first- and third-stage compressor blades for proper assembly.

THOUGHT FOR THE WEEK

Two mishaps involving fuel contamination were reported this week. Both were caused by improper fuel inspection techniques. Investigations revealed that in both cases the refueling tankers were contaminated with water. It appears that the general instructions contained in TM 10-1113 are not being followed during daily inspections of some refueling vehicles. Remember, water is to drink, not to burn. □

FIXED WING

Fatalities: 0 ■ *Accidents:* 0
Injuries: 0 ■ *Estimated Costs:* $7.74

BRANCH

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

One incident and six precautionary landings were reported.

U-21

1 INCIDENT ■ Bird struck left landing light and broke lens.

2 PRECAUTIONARY LANDINGS ■ Copilot noted oil on No. 2 engine cowling in cruise flight. Landing was made and investigation revealed failed prop seal. ■ Fuel began siphoning from right inboard fuel cap. Inspection after landing revealed cap was replaced improperly after preflight inspection. *Let's not get complacent, gang.*

U-8

1 PRECAUTIONARY LANDING ■ Unusual vibration was felt and blue smoke was seen coming from No. 2 exhaust. Engine was secured and landing was successful. Exhaust valve in No. 2 cylinder failed. (ARNG)

U-3

1 PRECAUTIONARY LANDING ■ No. 2 engine lost power, rpm dropped from 2300 to 1900, and engine began running rough. Engine was secured and landing completed. Caused by failure of prop governor. (USAR)

T-41

1 PRECAUTIONARY LANDING ■ Engine chip detector light illuminated. Caused by fuzz on magnetic plug.

C-7

1 PRECAUTIONARY LANDING ■ Airstair door opened in flight. Door locking device was rerigged and aft hinge was replaced. □

MAINTENANCE MISHAPS

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

One forced landing and five precautionary landings were reported.

OH-58

1 FORCED LANDING ■ IP rolled off throttle for simulated forced landing and engine stopped shortly afterward. Maintenance checked aircraft and released it for one-time flight to home base. During shutdown, 1-3 minutes into cool-down, engine stopped again. Bolt in throttle linkage was installed backwards.

1 PRECAUTIONARY LANDING ■ Transmission low oil pressure light illuminated from deteriorated garlock seal. Aft freewheeling bearing garlock seal was installed incorrectly.

UH-1

4 PRECAUTIONARY LANDINGS ■ Antitorque pedal vibration was detected in cruise flight. Caused by tail rotor slider assembly being out of adjustment. ■ Misalignment and overtorque of hydraulic fitting caused hydraulic line to break. ■ Hydraulic odor was detected in flight. Caused by chafed hydraulic line. ■ Right pedal stuck during final approach to landing zone. Tail rotor bearing was incorrectly shimmed.
Supervision does extend beyond operations to the maintenance line!

CRASHWORTHY FUEL SYSTEM

USAAVSCOM Message 251600Z Jun 75, subject: Maintenance Advisory UH-1/AH-1 Aircraft, Crashworthy Fuel System (UH-1-75-6 and AH-1-75-8).

1. UH-1/AH-1 aircraft having crashworthy fuel systems installed at Fort Bliss, TX, weœ found to have loose internal fuel lines and connectors.

2. Those units which have received aircraft from Fort Bliss with newly installed crashworthy fuel cells should perform an internal fuel cell inspection to determine if loose fuel line connections at the B nuts or loose connectors are evident. Those units that have recently performed this inspection need not perform the inspection again.

3. All other units employing aircraft with crashworthy fuel systems, regardless of place of installation, should perform an internal fuel cell inspection for loose fuel line connections at the B nut or loose connectors during their next scheduled maintenance.

4. On completion of the inspection, it is requested that an EIR be submitted to AVSCOM with the results of the inspection. One EIR may be submitted for all aircraft inspected by a unit providing serial numbers of discrepant aircraft inspected are listed in the text with discrepancies noted for each. □

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ARMY AIRCRAFT MISHAP PREVENTION DATA

FLIGHT FAX

ORVAL RIGHT
Chief Advisor on
Matters of Aviation

A USAAAVS PUBLICATION

VOL. 3, NO. 38 ■ 16 JULY 1975

mishaps for the period of 27 JUNE-3 JULY 1975

From FLIGHT COMMENT

Flying Time Is Precious- DON'T WASTE IT

Each time the financial belt tightens, one of the areas usually affected is the flying time allotted to air training and operations. An immediate and often emotional response is that our operational capability will be degraded and flight safety will be compromised.

Such a reaction is understandable when well established values are changed but are we being as honest with ourselves and the system as we should be? The answer is not simple nor are there any absolutes. There are so many variables that each situation has to be assessed objectively in relation to our collective experience with that weapons system, its role and the expertise of the people involved.

Provided we do our homework well at all levels and recognize that the variables are constantly changing, then we should be able to counter any adverse effect on operational standards and flight safety. The most important factor in this exercise is a constant awareness that while headquarters assigns the tasks and commands set the basic standards, it is at the squadron level that the flying time allotted will or will not be effectively utilized. In fact, it is the individual pilot, or crew, who carries the greatest responsibility for getting the maximum benefit out of each and every sortie.

By our own arguments each minute is important, so there can be no question of wasting time on unproductive flying. This means that we can no longer afford to do some of those things that are taken for granted in times of relative plenty nor can we allow pilots or crews to decide when they can relax. Our capability and credibility depend on flying records reflecting how good we are—not how good we should be. **–COL R. D. Schultz, Director of Flight Safety, Canadian Army Aviation.**

PRELIMINARY REPORT OF AIRCRAFT MISHAPS (CRASH FACTS MESSAGES)

Crash facts messages, reports control symbol (CSOIG-11(min)), are being received by USAAAVS up to four days subsequent to many aircraft accidents. AR 95-5, dated 1 July 1975, respecifies that crash facts messages regarding accidents, incidents, missing or abandoned aircraft must be submitted within eight duty hours from time of occurrence.

Request all addressees advise USAAAVS telephonically, autovon 558-3913 or 558-4202 (during duty hours) and 558-6510 (after duty hours), when an aircraft mishap occurs where fatalities or serious injuries are involved or when USAAAVS investigative assistance is or may be required.

PASSENGER DISPOSABLE OXYGEN MASKS FOR AIRPLANES

Paragraph 3-30, AR 95-1, prescribes the use of supplemental oxygen aboard Army aircraft. Oxygen mask assembly, NSN 1660-00-902-5308, contains a plastic face mask, connecting hose, coupler and oxygen flow indicator. This assembly connects into the aircraft oxygen system. USAAAVS recommends the plastic face mask, NSN 1660-00-592-5497, a component of the oxygen mask assembly, NSN 1660-00-902-5308, be removed after use in flight and replaced by a new plastic face mask, NSN 1660-00-592-5497. 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 system.

UTILITY/ATTACK BRANCH

Fatalities: 0 ■ *Accidents:* 0
Injuries: 0 ■ *Estimated Costs:* $13,533

■ CPT James M. Klina, Jr., Acting Chief
558-4198

Four incidents and thirty precautionary landings were reported.

UH-1

4 INCIDENTS ■ Foreign object of unknown origin damaged one main rotor blade and both tail rotor blades. ■ Chin bubble struck tree during acceleration after NOE quick stop. ■ Tree strike occurred during demonstration of unmasking procedures. ■ While on recovery mission for crashed OH-13, aircraft landed on piece of wreckage, damaging underside of aircraft.

22 PRECAUTIONARY LANDINGS–following are selected briefs ■ Crew detected smoke in cockpit during autorotation. Battery overheated. (ARNG) ■ Engine chip detector light came on during approach. Chip and fuzz were found on engine magnetic plug. ■ Main transmission oil temperature increased from 93° to 112° C. during final instrument approach. Caused by malfunction of oil cooler. (ARNG) ■ Tree strike occurred during NOE training. No damage. (USAR) ■ Aircraft flew into wake turbulence and pilot made power-off landing to open field. (ARNG) ■ Aircraft developed severe vibration in level flight. Cause not reported. ■ At 300 feet on climbout, aircraft yawed to left as if bumped by turbulence. Crew chief heard popping noise from engine. Suspect compressor stall. ■ Tail rotor chip detector light illuminated. Caused by loose wire on magnetic plug of 42° gearbox. ■ Engine chip detector light came on and, during approach to auxiliary field, all tail rotor control was lost. IP increased airspeed to streamline aircraft, proceeded to where crash rescue equipment was available, and made antitorque failure landing with no damage. Caused by failure of internal splines of tail rotor quill housing plus internal failure of engine. Engine oil filters and screens contained excessive amount of metal chips. WELL DONE to CW3 Leroy Wall, Oklahoma National Guard.

AH-1

8 PRECAUTIONARY LANDINGS–following are selected briefs ■ Voltage regulator failure caused d.c. generator light to come on. ■ Cyclic control was binding to the extent that both pilots were required to move cyclic. Ice buildup on ECU duct interfered with cyclic movement. ■ Battery overheated during NOE training. Cause not reported. ■ Lateral cyclic became extremely stiff and pilot made running landing. Cause of stiffness reported as crack in ECU duct. ■ Tail rotor chip detector light illuminated while aircraft was at hover. Metal slivers were on magnetic plug. □

LOSS OF RESOURCES
FROM THIS WEEK'S MISHAPS

FATALITIES:	0
INJURIES:	0
AIRCRAFT LOSSES:	0
ESTIMATED COSTS:	$19,561

UNITED STATES ARMY AGENCY FOR AVIATION SAFETY
FORT RUCKER, ALABAMA 36362
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
USAR Representative	558-6510/4714
After-duty tape recording of incoming calls to be returned following day (hours: 1615 to 0730)	558-6510
Commercial:	255-XXXX

Prepared from information compiled by the Directorate for Aircraft Accident Analysis & Investigation
Colonel Samuel P. Kalagian, Director

LOH/CARGO

Fatalities: 0 ■ *Accidents:* 1
Injuries: 0 ■ *Estimated Costs:* $5,000

BRANCH

■ MAJ Robert P. Judson, Chief
558-4202

One accident, two forced landings, and nineteen precautionary landings were reported.

OH-6

1 PRECAUTIONARY LANDING ■ Main transmission chip detector light came on. Cause not reported. (ARNG)

OH-58

1 ACCIDENT ■ During practice of simulated tail rotor malfunction, skid contacted object on ground and both cross tubes were broken. Damage resulted to left skid and underside of fuselage. (USAR)

2 FORCED LANDINGS ■ During cruise at 500 feet, aircraft yawed and low rpm audio and visual warning came on. N_2 fell to 80% and pilot entered autorotation. During autorotation, engine surged to 112% N_2 and stabilized at 103% just before touchdown. Cause of engine malfunction is unknown. Investigation continues. ■ Partial power loss occurred during climb. Collective was lowered and power was restored. About 10 seconds later engine stopped and pilot entered autorotation. Suspect fuel contamination as cause of engine malfunction.

11 PRECAUTIONARY LANDINGS–following are selected briefs ■ Main transmission chip detector light came on. Inspection revealed small metal particles. Special oil sample was taken and aircraft is grounded pending results. (ARNG) ■ Tail rotor chip detector light came on. Water was found in cannon plug. ■ Engine chip detector light came on. Fuzz was cleaned from plug and aircraft released. ■ Main transmission low oil pressure warning light illumination was caused by malfunction of switch (P/N 70198-1). ■ Engine TOT exceeded 749° during hover. Investigation continues.

CH-47

4 PRECAUTIONARY LANDINGS ■ Transmission oil pressure dropped to 17 psi during systems check and transmission oil pressure light came on. Pressure transmitter malfunctioned. ■ During cruise flight, crew chief saw smoke and aircraft was landed. Fire was not evident, but blue smoke was emitting from No. 1 generator. Malfunction was caused by bad bearing. (USAR) ■ No. 2 engine chip detector light illuminated and engine was secured. Inspection revealed broken chip detector wire. ■ No. 2 generator dropped off line. Crew chief smelled burning wires and reported generator smoking. Engines were shut down. Generator was changed.

CH-54

3 PRECAUTIONARY LANDINGS ■ Main gearbox chip detector light came on. Small metal particles were found on magnetic plug. Plug was cleaned, oil sample taken, and aircraft returned to airfield for maintenance check. ■ Crew heard unusual whining noise. Main rotor blade tip target had come loose in flight. Tip target was removed and flight continued. ■ Main transmission chip detector light came on. Small metal particles were found on plug. Plug was cleaned, oil sample taken, and aircraft returned to home station.

THOUGHT FOR THE WEEK

NEVER THE TWAIN SHOULD MEET. Mechanics are cautioned that cadmium-plated tools should not be used on titanium parts, particularly if the parts are mounted near the engine and subject to heat. Small cadmium deposits which may be left on such parts will react with titanium when heated, resulting in brittleness and possible cracks. Lead, zinc, and tin react in a simular manner with titanium at tempera-

tures above 250° F. Unless you are sure that your tool surface will not come in contact with titanium hardware, *use nickel-plated or unplated tools.* **–FAA Aviation News/June 1975**

FIXED WING

Fatalities: 0 ■ *Accidents:* 0
Injuries: 0 ■ *Estimated Costs:* $1,028

BRANCH

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

One incident and seven precautionary landings were reported.

T-42

1 INCIDENT ■ Student pilot pushed yoke forward after bouncing during landing in gusty crosswind condition, striking right prop on runway.

U-8

2 PRECAUTIONARY LANDINGS ■ No. 2 engine would not start after shutdown on test flight. Single-engine landing was completed. During attempted ground start, smoke was seen in nacelle. Cause undetermined. ■ No. 1 engine failed after 2+10 hours of operation on auxiliary tank. Maintenance cannot determine cause for fuel exhaustion.

OV-1

1 PRECAUTIONARY LANDING ■ Right main gear would not indicate "safe" for landing. Landing was uneventful after emergency extension. Right main gear down switch was replaced.

U-21

1 PRECAUTIONARY LANDING ■ During climb from short field takeoff at about 100 feet and 80 KIAS, No. 2 engine torque dropped to 300 pounds and aircraft yawed to right. IP raised flaps and increased airspeed to 120 KIAS. IP elected to land with power as needed on the good engine and partial on No. 2. No. 2 engine completely failed during taxi operation. Fuel pump and fuel control unit were both contaminated with water. WELL DONE to CW2 Phillip Powell (IP) and CPT Gregory Smith (P) for successfully recovering from a potentially hazardous situation.

C-7

3 PRECAUTIONARY LANDINGS ■ Crew noticed hydraulic leak from nose gear section. Fluid was replaced and nose wheel steering shut off. Hydraulic pressure held and aircraft returned home, landing without nose wheel steering. Caused by failure of nose wheel steering line. ■ No. 1 engine backfired several times during takeoff. Engine was secured and landing was successful. Cause unknown at this time. ■ No. 1 engine began backfiring, followed by loss of power. Engine was secured and landing completed. Exhaust valve seat failed on No. 13 cylinder. □

MAINTENANCE MISHAPS

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

One forced landing and six precautionary landings were reported.

AH-1

1 PRECAUTIONARY LANDING ■ Stiffness in pedal during cruise flight was caused by chafing hydraulic hose.

UH-1

1 PRECAUTIONARY LANDING ■ Crew detected hydraulic odor in cruise flight. Inspection revealed right cyclic servo pressure line burst due to chafing caused by clamp.

OH-58

1 PRECAUTIONARY LANDING ■ During test flight for engine replacement, collective movement resulted in partial loss of power. Fuel control was found to be improperly adjusted.

T-41

1 FORCED LANDING ■ Pilot saw fuel bubbling from oil cap access door. Engine coughed and stopped. Mixture was placed in full rich position and engine caught, but ran rough. Aircraft was landed without incident. Fuel injector line (P/N 630659) on engine was broken. This was the first flight after test flight for PMP inspection completed on same day as forced landing.

OV-1

2 PRECAUTIONARY LANDINGS ■ Pilot noticed hydraulic pressure gauge fluctuating. Landing gear would not cycle down fully and emergency gear extension system was used. Aircraft was landed without incident. Ruptured hydraulic line was caused by cracked flare. Suspect possible overtorque or misalignment during installation. ■ During descent to landing, speed boards were activated with no reaction noted. No hydraulic pressure on either gauge was noted. Emergency gear extension system was used and aircraft was landed without incident. Hydraulic supply line (P/N 134H10014-260-LGU-6) to right main gear cracked. Suspect improper installation.

U-3

1 PRECAUTIONARY LANDING ■ Landing gear down light did not illuminate when gear was lowered. Microswitch was out of adjustment. □

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ARMY AIRCRAFT MISHAP PREVENTION DATA

FLIGHT FAX

ORVAL RIGHT
Chief Advisor on
Matters of Aviation

A USAAAVS PUBLICATION

VOL. 3, NO. 39 ■ 23 JULY 1975 mishaps for the period of 4-10 JULY 1975

NEW AR 95-5

The new AR 95-5, Aircraft Accident Prevention, Investigation, and Reporting, dated 1 July 1975, is off the press and in distribution. If you have not received a copy, requisition it now. Significant changes to the AR include:

■ The Army staff supervision and control of USAAAVS has been transferred to The Inspector General and Auditor General.

■ The concept of the Army aviation safety program has been expanded to more clearly portray the elements of the aviation safety program (i.e., mishap cause factors, human factors, program implementation).

■ The chapter on command responsibility has been improved and expanded guidance is given pertaining to SOP's, implementation of safety recommendations, and conduct of safety reviews.

■ Responsibilities of the aviation safety officer and flight surgeon have been expanded.

■ Increased emphasis is placed on aviation safety and command responsibility for the Operational Hazard Report and aviation safety education.

■ Command responsibility for investigation and reporting of mishaps has been expanded. Chapter 7 lists the composition of aircraft accident/mishap investigation boards. Provisions have been made to use ARNG and USAR full-time technicians with officer status on aircraft accident investigation boards.

■ Preaccident planning has been expanded to clarify the requirement of technical assistance.

■ Chapter 8 of the old AR pertaining to collateral investigations has been removed from the body of the regulation and appears with changes as Appendix F.

■ Techniques of investigation have been updated in the area of witness interviews to expand on the moral and legal aspects. This includes a change to the offer of confidentiality. Requests for Corpus Christi Army Depot (CCAD) analysis include further guidance for the requestor. Requirements for analysis of life support equipment have been expanded. Laboratory analysis of life support equipment has been expanded to clarify property accountability.

■ The chapter on medical factors is now titled "Human Factors Investigation" and has been completely revised to prescribe procedures for investigation and reporting of human cause factors in aircraft mishaps.

■ Reporting procedures have been changed to extend suspense dates for channel copies of accident reports to 40 working days. The title of the crash facts message report has been changed to Preliminary Report of Aircraft Mishap. Requirements for elements of the reporting system have been changed to include human factor mishaps.

■ Instructions for the completion of the Preliminary Report of Aircraft Mishap have been changed to show addressees required by reorganization of the Army staff. Changes also include information

Continued on back page

MAKE THE FOLLOWING PEN AND INK CHANGES TO THE NEW AR 95-5:

- Par. 12-2d(2), add the word "series" after DA Form 2397
- Par. 13-1, page 13-1, delete item a(3)
- Par. 13-2, page 13-1, (3), add (DAMO-ODA)
- Par. 13-2, page 13-1, (7), change AMCSF-H to AMCSF-A
- Par. 13-2b, page 13-2, for cargo and personnel handling equipment include (8) CDR, USAAVSCOM, STL MO, as an addressee
- Appendix E, page E-0, subject, change CSGPA-459 (MIN) to CSOIG-11 (MIN)

UTILITY/ATTACK BRANCH

Fatalities: 0 ■ *Accidents:* 2
Injuries: 1 ■ *Estimated Costs:* $198,200

■ CPT James M. Klina, Chief
SP6 Roland L. Allen, Jr.
558-4198

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

UH-1

1 INCIDENT ■ During ground run of practice autorotation, IP saw aircraft was approaching arresting cable. IP increased throttle and collective simultaneously to clear cable, but aircraft landed hard during touchdown.

15 PRECAUTIONARY LANDINGS–following are selected briefs ■ Transmission oil pressure light came on and transmission oil pressure gauge dropped to 10 psi during climbout. Inspection revealed failure of transmission internal oil filter gasket. ■ Engine chip detector light came on. Inspection revealed wire to chip detector plug was loose. ■ During instrument training flight IP was giving unusual attitude recovery when fire warning light came on. Cause unknown. ■ Hydraulic caution light came on in flight with control response normal. Caused by malfunction of hydraulic pressure switch.

AH-1

2 ACCIDENTS ■ While night firing from hover, aircraft yawed right and struck ground. Crew exited unassisted. Investigation is in progress. ■ Aircraft landed to assist crew of previous AH-1 accident. Copilot had exited aircraft to render assistance. Pilot also exited and aircraft rolled on right side. Pilot sustained broken collar bone. Investigation is in progress.

4 PRECAUTIONARY LANDINGS ■ Compressor stall occurred during final approach. Wingman saw flames coming from tail cone. Maintenance is changing engine and 90° gearbox. ■ Tail rotor chip detector light came on. Caused by short in wiring. ■ Engine chip detector light came on. Fuzz was found on plug and oil sample was submitted. ■ Inverter caution light came on. Caused by failure of inverter. □

LOH/CARGO BRANCH

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

■ MAJ Robert P. Judson, Chief
SFC D. T. Farrar/SFC R. G. Farris
558-4202

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

OH-6

1 PRECAUTIONARY LANDING ■ Engine chip detector light came on. Metal fuzz was found on chip detector. (ARNG)

LOSS OF RESOURCES
FROM THIS WEEK'S MISHAPS

FATALITIES:	0
INJURIES:	1
AIRCRAFT LOSSES:	0
ESTIMATED COSTS:	$243,278

UNITED STATES ARMY AGENCY FOR AVIATION SAFETY
FORT RUCKER, ALABAMA 36362
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
USAR Representative	558-6510/4714
After-duty tape recording of incoming calls to be returned following day (hours: 1615 to 0730)	558-6510
	Commercial: 255-XXXX

Prepared from information compiled by the Directorate for Aircraft Accident Analysis & Investigation
Colonel Samuel P. Kalagian, Director

1 FORCED LANDING ■ Power began fluctuating during straight and level flight. Aircraft then yawed violently to right 45-60°. Aircraft was autorotated to landing. Suspect fuel control malfunction. (ARNG)

OH-58

1 ACCIDENT ■ Aircraft was damaged during touchdown from practice autorotation. Tail boom was bent at No. 4 hanger bearing.

9 PRECAUTIONARY LANDINGS ■ Engine oil bypass light came on. Crew chief had pulled oil sample and failed to replace cap, and pilot failed to properly preflight aircraft. ■ Engine chip detector light illuminated. Fuzz was found on chip detector. ■ Tail rotor gearbox chip detector light came on. Metal sliver was found on plug. ■ Engine chip detector light illuminated. Normal fuzz was found on plug. ■ Severe vibration developed during approach. Excessive play was found in swashplate and support assembly. ■ Hydraulic caution light illuminated. Hydraulic pressure switch was replaced. ■ Transmission oil hot light came on during test flight. Aircraft was landed and trailered back to home station. Cause unknown. (ARNG) ■ Transmission chip detector light came on. Aircraft was grounded pending oil sample results. (ARNG) ■ Tail rotor chip detector light illuminated. Caused by normal wear fuzz.

CH-47

4 PRECAUTIONARY LANDINGS ■ No. 1 engine chip detector light came on. Caused by metal sliver on plug. (ARNG) ■ Forward transmission oil pressure gauge indicated 100 psi. Caused by failure of oil pressure transducer. (ARNG) ■ Combining transmission developed oil leak. Caused by defective seal between transmission case and reservoir. ■ No. 2 engine chip detector light illuminated. Caused by fuzz on plug.

CH-54

1 PRECAUTIONARY LANDING ■ Main transmission gearbox chip detector light came on. Caused by small metal particles on plug.

THOUGHT FOR THE WEEK

DO YOU HAVE GAS PAINS? An OH-58 pilot, flying at max gross with doors off, ran out of fuel. He flew over 3 hours yesterday and today he ran out of fuel in only 2½ hours. What this pilot failed to realize is that fuel consumption is a function of power required. Aircraft weight, altitude, aircraft configuration, atmospheric conditions, airspeed, etc., all determine power required and, in turn, cause fuel consumption to fluctuate. This is generally true for any aircraft. So when you fly in an OH-58 with four persons on board and doors off, don't expect your flying time to be the same as when you fly by yourself in a clean configuration. If you always compute your flying time in accordance with the dash 10, you will most likely avoid a "gas pain." Always believe the low fuel caution light! An OH-58 at altitude without fuel, at less than orbital velocity, according to the existing laws of gravity, has only one place to go. □

FIXED WING

Fatalities: 0 ■ *Accidents:* 0
Injuries: 0 ■ *Estimated Costs:* $24,078

BRANCH

■ MAJ William G. Daly, Jr., Chief
SFC J. M. Terrell
558-3901

Two incidents and one precautionary landing were reported.

OV-1

1 INCIDENT ■ Gear retracted after takeoff but immediately extended again. Pilot confirmed gear was down by mirror reference and accompanying aircraft agreed. Hydraulic pressure indicated normal. Gear indicators showed nose wheel down and main gear with barber pole. Main gear slowly collapsed after touchdown, with incident damage. After aircraft was lifted by crane, gear was then blown down with emergency air bottle and taxied to line. Cause unknown at this time. *When there is a doubt about the safety of your landing gear, blow it down in the air. Don't wait until you are on the ground!*

SUPERVISION + SAFETY = A WINNING TEAM

U-8

1 INCIDENT ■ Pilot encountered hail in clouds for 30 seconds during IFR mission. Both landing lights, strobe light, and wing leading edges were damaged.

U-21

1 PRECAUTIONARY LANDING ■ Gear handle light remained on after gear retraction. Gear was recycled and light went out. Condition could not be duplicated by maintenance. □

MAINTENANCE MISHAPS

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

No maintenance mishaps were reported during this period.

MAINTENANCE TYPES, BEWARE: After receipt of UH-1 aircraft from overhaul, crew was towing aircraft into hangar for acceptance inspection. In the process of moving, the right ground handling wheel assembly came off the skid, puncturing skin of aircraft. Investigation revealed that the rear skid tube eye bolt (P/N 204-050-143-3) was installed 180° from the proper position and was not properly torqued. □

Continued from front page

required for the human factors mishap. Specified times for submission of Preliminary Report of Aircraft Mishap are listed as: (1) Accidents, incidents, missing, or abandoned aircraft—within 8 duty hours from time of occurrence. (2) Forced landings, precautionary landings, human factor mishaps, cargo and personnel handling equipment (functional group 17) failure/malfunctions—within 24 duty hours from time of occurrence.

■ The chapter on guidelines for completion of DA Form 2397 series has been revised and expanded.

■ Information concerning revised DA Forms 2397-6 and -18 is listed under "Notice" in the front of the AR.

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ARMY AIRCRAFT MISHAP PREVENTION DATA

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Chief Advisor on
Matters of Aviation

A USAAAVS PUBLICATION

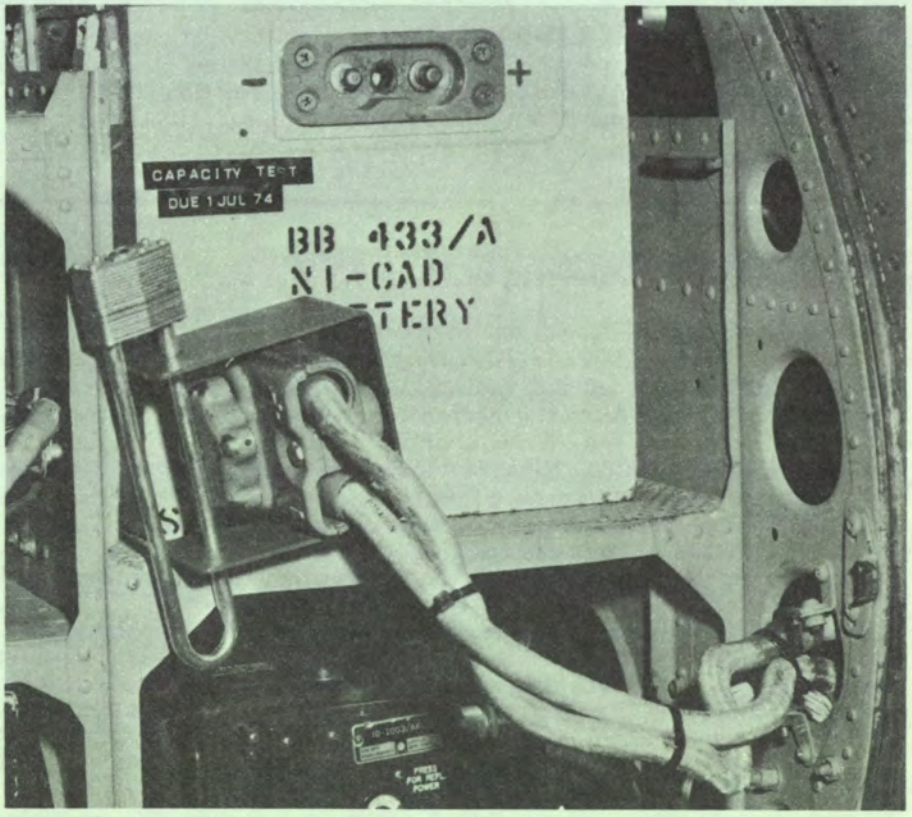
VOL. 3, NO. 4 ■ 30 OCTOBER 1974

mishaps for the period of 11-17 OCTOBER 1974

GOOD IDEA

Ways to secure aircraft, particularly helicopters, when they must be parked on a civilian ramp, continue to be a matter of concern. This picture shows a procedure we observed during a recent assistance visit with the Wisconsin National Guard. An NCO came up with this idea, which has been implemented.

The locking device is made of aluminum strapping (or similar metal) approximately 12 inches long, 3 inches wide, and .030 inches thick. It is bent to 90-degree angles 4 inches from each end. A hole is drilled in the center section the size of the male guide stud on the battery connector. After inserting the male guide stud in the center hole, holes are then drilled in each end close enough to the connector to prevent removal after a bicycle lock is inserted.



CHANGE TO U-8D, RU-8D, AND U-8G OPERATORS MANUAL

The following change to TM 55-1510-201-10/4 is forthcoming:

Chapter 2, page 2-34, par. 2-123—Change second sentence to read: After silencing the warning horn, the horn will remain silent until both throttles are advanced and then one or both are retarded below 16 inches manifold pressure or until landing gear is lowered.

Add at end of paragraph 2-123:

CAUTION: During single engine operation (zero thrust set) the retarded throttle may be below the warning horn microswitch setting. If the horn is silenced, retarding the opposite throttle will not reactivate the warning horn.

UTILITY/ATTACK

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

DIVISION

■ MAJ Charles E. Toomer, Chief
558-4198

Twenty-five precautionary landings were reported.

UH-1

22 PRECAUTIONARY LANDINGS–following are selected briefs ■ Pilot noticed slight 1:1 vertical vibration during cruise flight. Postflight inspection revealed failure of inboard mixing lever bearing. (USA) ■ Pilot heard loud bang during takeoff, followed by high frequency vibration in antitorque pedals. Caused by failure of 90° gearbox. (USA) ■ Fuel filter caution light came on during cruise flight at night in heavy rain. Caused by moisture in fuel filter cannon plug. (ARNG) ■ While departing airport traffic area at night, IP saw bird which appeared to strike underside of aircraft. Inspection during daylight revealed blood and feathers on main rotor blades and radio antennas. (ARNG) ■ Hydraulic fluid odor was detected in flight. Caused by chafed hydraulic tube. (USAR) ■ Severe compressor stall occurred during test flight. Cause not reported. (USA) ■ Engine chip detector light came on. Evidence of normal wear found on magnetic plug. (USA)

AH-1

3 PRECAUTIONARY LANDINGS ■ No. 2 hydraulic light came on during aerial firing at night. Caused by failure of hydraulic pressure switch. (USA) ■ Engine oil pressure light came on and oil pressure fluctuated between 30 and 90 psi during climb. Suspect malfunction of engine oil pump. (USA) ■ Transmission oil bypass light came on. Master caution panel replaced. (USA) □

LOH

Fatalities: 0 ■ *Accidents:* 2
Injuries: 2 ■ *Estimated Costs:* $44,000

DIVISION

■ LTC David F. Stoutamire, Chief
558-4202

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

OH-58

2 ACCIDENTS ■ After completing night approach to tactical "T," aircraft started to drift right and roll. Aircraft then impacted skid first and rolled on right side. Passenger sustained minor head injury. Cause unknown. (USA) ■ Aircraft was seen on ground in slightly sloping field. As aircraft started to pick up to hover, piece was seen leaving aircraft. Aircraft yawed 90° to right, main rotor blades struck ground, and aircraft rolled on side. Main rotor blades and head separated from aircraft. Pilot sustained minor injury. Investigation is in progress. (USA)

1 INCIDENT ■ Aircraft was cruising at 2,500 feet when main rotor blade struck bird. Pilot could not see or feel any damage. Aircraft was landed and maintenance personnel released it for one-time flight to home base. (USA)

5 PRECAUTIONARY LANDINGS ■ Transmission chip detector light came on. Chip detector wire was broken. (USA) ■ Hydraulic caution light came on and pilot made running landing. Hydraulic line into filter module failed. EIR submitted. (USA) ■ Engine chip detector light came on during takeoff. Oil and chip detector plug changed. Aircraft test flown and released for flight. (USA) ■ Pilot increased collective during cruise flight and noted N2 bleeding off. Pilot lowered collective, regained rpm, and landed. Maintenance

LOSS OF RESOURCES
FROM THIS WEEK'S MISHAPS

FATALITIES:	0
INJURIES:	2
AIRCRAFT LOSSES:	0
ESTIMATED COSTS:	$58,214

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
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After-duty tape recording of incoming calls to be returned following day (hours: 1615 to 0730)	558-6510
Commercial:	255-XXXX

personnel could not duplicate condition. Aircraft was test flown and released for flight. (USA) ■ Tail rotor chip detector light came on. Wire on chip detector vibrated loose. (USA)

OH-6

1 FORCED LANDING ■ During local test flight, engine-out audio signal activated. Engine and rotor rpm were decaying and pilot entered autorotation. Engine failed and autorotative landing was completed without incident. WELL DONE for a successful power-off emergency landing goes to MAJ Stanley D. Arnold, U.S. Army Aviation Test Board, Fort Rucker, AL.

TH-55

1 PRECAUTIONARY LANDING ■ Engine oil temperature exceeded red line. Engine oil temperature sending unit failed. (USA)

THOUGHT FOR THE WEEK

A TACK'R–A SEE'R. The aviation safety officer is an interdisciplinary expert. He is the one who interfaces the MAN-MACHINE-ENVIRONMENT for aircraft accident prevention–a jack of all trades! The job of ASO is more than just tacking or stapling posters to the wall, holding monthly safety meetings, or distributing safety literature. It involves constant thinking and conjuring to increase safety awareness among all individuals and activities.

Help the commander with his responsibility to conserve aviation assets and resources by keeping your EYES open and your HEAD out of the office. Visibility is credibility. Be SEEN! □

CARGO/SYSTEMS

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

DIVISION

■ CW4 Richard D. Havenstrite, Chief
558-4202

One incident and three precautionary landings were reported.

CH-47

1 INCIDENT ■ Aircraft was descending from 6,000 feet when engine torque needles split. Loud noise was heard from No. 1 engine area, followed by chip detector light, drop in N1 speed, and sharp rise to 840 in PTIT. No. 1 engine was brought to ground position and noise stopped. Crew chief reported no fire, but indicated that sparks were coming from tail cone of No. 1 engine. Running landing was made. Engine was T55-L-11A. (USA)

3 PRECAUTIONARY LANDINGS ■ Forward transmission chip detector light came on during landing. Caused by normal wear of transmission. (ARNG) ■ Aircraft was in straight and level flight when pilot felt "input" in flight controls. This was followed by loss of No. 1 flight boost hydraulic system and illumination of master caution light. Caused by failure of hydraulic pump. (USA) ■ Pilots noticed split in engine torque during hover. Attempt to match engine torques was made, with no effect. After landing, engine bleed band popping was heard, followed by steady increase in PTIT of No. 1 engine. Engine was shut down. Cause of failure unknown. Engine inlet guide vane was retrieved several feet in front of aircraft. Engine was T55-L-11A. (USA) □

FIXED WING

Fatalities: 0 ■ *Accidents:* 0
Injuries: 0 ■ *Estimated Costs:* $214

DIVISION

■ LTC Howard D. Deane, Chief
558-3901

One incident and ten precautionary landings were reported.

U-21

1 INCIDENT ■ Following instrument training flight during which expedited low approach was made and gear was admittedly extended at above published maximum airspeed, nose gear doors were discovered to be warped. It is reportedly suspected that gear door damage occurred prior to this flight and that the damage was not found by maintenance personnel during scheduled inspections. (USA)

4 PRECAUTIONARY LANDINGS ■ Safe indication light for left main gear was not received when gear was extended. After three recycles of the system with the same results, low pass of tower was made for visual check of gear. Tower reported all appeared normal and landing was made. Down-lock indicator microswitch was stuck. (USA) ■ During IFR service flight, crew saw marked increase in No. 2 engine oil temperature and decrease in engine oil pressure and torque. As engine oil temperature approached maximum allowable, No. 2 engine was secured and landing was made at intermediate airport. Suspect failure of internal oil seal

pending detailed examination. (USA) ■ Pilot was preparing to perform stalls in landing configuration at 9,000 feet during standardization ride. Gear failed to extend when gear switch handle was placed in down position. Recycl of gear switch handle and circuit breakers failed to correct the condition. Crew manually extended gear and landed at home base. Examination revealed electrical wire between landing gear motor and down-limit switch had become detached from down-limit switch. (USA) ■ IP noticed oil on No. 2 engine nacelle emitting from propeller spinner during flight. Caused by failure of preformed packing (O-ring) on propeller hydraulic cylinder. (USA)

C-7

1 PRECAUTIONARY LANDING ■ Landing gear would not retract after takeoff. Pilot remained in traffic and landed. Examination revealed electrical harness to nose wheel weight switch was shorted due to moisture. (USA)

C-47

2 PRECAUTIONARY LANDINGS ■ During IFR service flight, while climbing to altitude, No. 1 engine dropped 100-150 rpm and returned to normal climb rpm. Fuel boost pump was turned on and mixture set to auto-rich. Approximately 5-6 minutes later, after leveling with cruise power, No. 1 engine rpm again fluctuated 100-150 and returned to normal. Aircraft was returned to home base (34 miles) and landed. Points on right magneto of No. 1 engine were out of adjustment, causing points to open beyond normal setting. (USA) ■ Deicer boots inflated on both wings after takeoff with selector in off position and zero indication on gauge. Aircraft returned to home base (33 miles) and landed. Deicer boot exhaust lines needed cleaning and bleeding. (USA)

OV-1

2 PRECAUTIONARY LANDINGS ■ Approximately 20 minutes after takeoff, aircraft was at flight level 100, VMC on top, when attitude indicators and navigation instruments started to fluctuate and flags of primary and standby attitude indicators, course indicator, and BDHI became unmasked. No master caution or annunciator lights illuminated. Pilot moved inverter switch to emergency position, which resulted in masking of flags and stabilization of attitude instruments and navigation instruments. After completion of mission, while en route to home base at flight level 100, VMC on top, pilot tried to isolate his problem by turning inverter switch back to normal. Approximately 5 minutes later primary attitude indicator tumbled, and the auto-pilot followed, causing aircraft to become inverted and enter IMC. Pilot regained control of aircraft on needle and ball while performing split S maneuver in which aircraft exceeded airspeed, roll, and g force limitations. Aircraft was in near vertical climb when it broke out on top at 59 knots indicated and flight level 100. Aircraft then stalled, descending back into clouds. Pilot turned inverter switch back to emergency position and regained his attitude instruments. He climbed back to VMC on top received clearance from ATC to descend through hole in clouds to VMC, and returned to home base. Examination revealed 750 VA inverter had failed. Inverter was replaced, airframe was given a 100 percent technical inspection, and aircraft was released for flight. (USA) ■ No. 1 engine chip detector warning light came on. Caused by metal flakes on plug. Oil sample was submitted and aircraft released for flight. (ARNG)

U-8

1 PRECAUTIONARY LANDING ■ Fuel was seen leaking from right wheel well during training flight in traffic pattern. Caused by loose fuel fitting. (USA) □

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ARMY AIRCRAFT MISHAP PREVENTION DATA

FLIGHT FAX

ORVAL RIGHT
Chief Advisor on
Matters of Aviation

A USAAAVS PUBLICATION

VOL. 3, NO. 40 ■ 30 JULY 1975

mishaps for the period of 11-17 JULY 1975

TO PREVENT COMPRESSOR STALL

Care and Cleaning of Lycoming T53 Series Engines

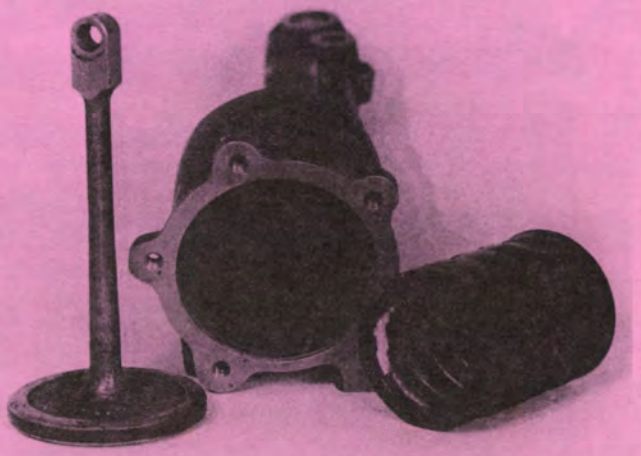
T53 series engines should be cleaned in accordance with TM 55-2840-229-24, page 7-3, par. 7-15 (rotary wing), and TM 55-2840-233-24, page 7-3, par. 7-15 (fixed wing), with strict adherence to each step listed.

Thanks to CW3 W. J. Old, aviation maintenance officer at Ft. Bliss, TX, USAAAVS has learned that a large number of T53 compressor stalls are caused by the bleed band actuator sticking. This is especially true after the engine has been cleaned with the bleed band open using B&B 3100 compound. The B&B 3100 is entering the bleed band actuator and collecting on top of the piston. This sticky compound collects dirt and will soon cause binding of the bleed band actuator piston. When this happens during a fast power change, the bleed band cannot react as fast as normal and compressor stall results.

USAAAVS recommends that all T53 bleed band actuators be checked visually during engine run-up. If operation is sluggish and slow, replace the actuator.

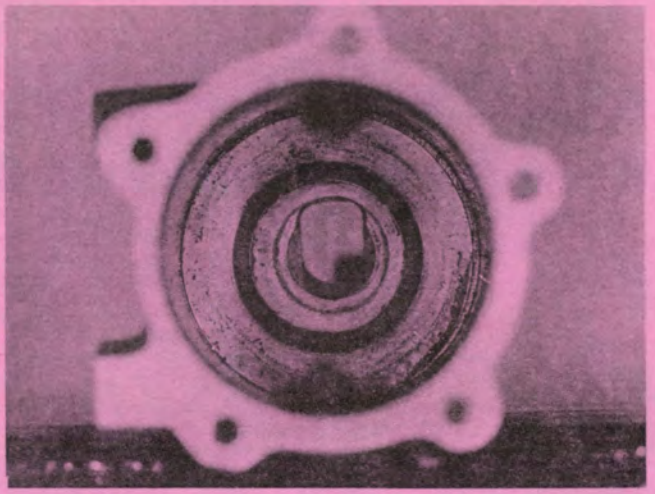
To prevent recurrence, insure that the area around the piston rod is well protected when washing the engine. When flushing the engine with water, be sure that only a spray enters the engine—never a solid stream. A solid stream of water can induce stress in the compressor blades that may cause failure.

Last but not least, *never* spray anything into a running engine. Spraying of cleaning solvents and water should be done while the engine is being motored with the starter only.



▲ Sticky B&B compound collects on top of piston, holds dirt, and causes piston to bind and score cylinder.

▲ Close-up showing compound and dirt collected inside return spring and cylinder.



►

UTILITY/ATTACK BRANCH

Fatalities: 0 ■ *Accidents:* 3
Injuries: 1 ■ *Estimated Costs:* $180,000

■ CPT James M. Klina, Jr., Chief
SP6 Roland L. Allen, Jr.
558-4198

Three accidents, one incident, one forced landing, and twenty-three precautionary landings were reported.

UH-1

2 ACCIDENTS ■ Aircraft lost tail rotor control during cruise flight. Pilot attempted a shallow turn back to airport. Aircraft started spinning and pilot entered autorotation. Aircraft landed hard in left side slip. Suspect No. 1 hanger bearing failure. ■ Aircraft crashed into dry lake bed during turn from downwind to base leg at night. Suspect pilot disorientation due to lack of visual cues outside aircraft. Pilot received minor injuries.

1 INCIDENT ■ Aircraft entered rotorwash of lead aircraft during takeoff from PZ. Aircraft settled and rotor blade struck tree.

1 FORCED LANDING ■ Aircraft yawed left and rpm deteriorated to 5900 during cruise flight. N1 decreased to 72 percent and aircraft was autorotated to open field. Suspect governor malfunction.

21 PRECAUTIONARY LANDINGS–following are selected briefs ■ Egt rose to 620° and engine oil temperature increased during cruise flight. Inspection revealed de-ice air valve failure. ■ Tail rotor chip detector light came on in flight. Metal fuzz found on detector plug. Aircraft was MOC'd and released for flight. (ARNG) ■ Transmission oil hot light came on in flight. Inspection revealed transmission oil temperature hot switch had failed. ■ Engine chip detector light came on in flight. Metal fuzz was found on chip plug and oil sample was submitted for analysis. (ARNG) ■ Twenty-minute fuel light and left fuel boost pump light came on in flight. Fuel gauge indicated 425 lbs. Aircraft was landed and inspection revealed electrical short in caution panel segment light box. ■ Fire warning light came on in flight. Caused by loose wire in fire detector warning system.

AH-1

1 ACCIDENT ■ Main rotor blade struck 40-foot tree causing loss of control and hard landing during NOE flight. Main rotor system, both transmission mounts, drive train, right wing, synchronized elevator, and skids were damaged. *Believe it or not, the only injuries were to one 40-foot beech tree and five fir seedlings.*

2 PRECAUTIONARY LANDINGS ■ Engine chip detector light came on during hover. Metal fuzz was found on chip plug. Special oil sample was submitted. ■ Tail rotor chip detector light came on in flight. Metal fuzz found on plug; oil sample submitted. □

SUPERVISION + SAFETY = A WINNING TEAM

LOSS OF RESOURCES
FROM THIS WEEK'S MISHAPS

FATALITIES:	0
INJURIES:	1
AIRCRAFT LOSSES:	0
ESTIMATED COSTS:	$180,000

UNITED STATES ARMY AGENCY FOR AVIATION SAFETY
FORT RUCKER, ALABAMA 36362
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
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After-duty tape recording of incoming calls to be returned following day (hours: 1615 to 0730)	558-6510
Commercial:	255-XXXX

Prepared from information compiled by the Directorate for Aircraft Accident Analysis & Investigation
Colonel Samuel P. Kalagian, Director

LOH/CARGO

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

BRANCH

■ MAJ Robert P. Judson, Chief
SFC D. T. Farrar/SFC R. G. Farris
558-4202

Twenty-four precautionary landings were reported.

OH-6

1 PRECAUTIONARY LANDING ■ Chip detector light came on during flight (component not identified). Investigation pending.

JOH-6

1 PRECAUTIONARY LANDING ■ Engine-out warning light and audio came on during flight. All instruments and gauges were within normal operating ranges. Tachometer generator was changed.

OH-58

18 PRECAUTIONARY LANDINGS–following are selected briefs ■ Low rotor rpm light and engine-out audio came on during cruise flight, and N_2 tachometer bled down to 80 percent. Collective pitch was lowered to full down position and engine and rotor rpm returned to normal range. Caused by double check valve failure. (ARNG) ■ Engine oil temperature rose rapidly to 140° C. during flight. Oil temperature bulb replaced. ■ Aircraft was being flown on an artillery observation mission. While hovering to a new position, transmission oil hot light came on. Caused by grass in transmission oil cooler. ■ Transmission oil pressure light came on on short final due to transmission oil pressure switch failure. ■ Pilot noticed surging of N_2 while performing DER check during test flight. Aircraft yawed left and right. Maintenance is trouble-shooting engine to determine cause. ■ Fuel filter caution light came on during flight. Fuel filters clogged. ■ Engine oil bypass light illuminated on short final. Oil line leak was found and repaired. ■ Popping sound, followed by hissing sound, was heard in cruise flight. TOT rose to 750° C. and aircraft was auto-rotated to civilian airport. Before touchdown, pilot returned power and made a power-on landing. TOT of 840° to 860° C. was recorded for approximately 2 seconds during landing. Inspection revealed that a fitting had blown out of schroll assembly diffuser, creating a large bleed air leak and increases in TOT. (ARNG)

CH-47

3 PRECAUTIONARY LANDINGS ■ No. 1 engine chip detector light came on during flight. Caused by metal fuzz on plug. ■ No. 2 engine would not respond to a.c. or d.c. control during flight. Cause unknown. ■ No. 2 engine transmission chip detector light came on during flight. Caused by metal fuzz on plug.

CH-54

1 PRECAUTIONARY LANDING ■ Main transmission chip detector light came on during flight. Caused by electrical short of transmission cannon plug wire.

THOUGHT FOR THE WEEK

A superior pilot may be defined as one who stays out of trouble by using his superior judgment to avoid situations which might require the use of his superior skill. **—AEROSPACE SAFETY**

FIXED WING

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

BRANCH

■ MAJ William G. Daly, Jr., Chief
SFC John M. Terrell
558-3901

Six precautionary landings were reported.

U-21

4 PRECAUTIONARY LANDINGS ■ IP noticed oil from top in-board generator air intake. Inspection revealed oil cap O-ring was badly worn. System pressure caused oil leak around cap. ■ No. 2 engine made loud noise and stopped, and single-engine landing was made. Cause of engine failure unknown. ■ Gear partially extended and stopped during test flight. Attempts to raise or lower gear were unsuccessful. Circuit breaker was reset and gear recycled. Grinding noise was heard from nose area. Tower confirmed gear down on fly-by and aircraft was landed. Inspection revealed worn bearing assembly, NSN 1620-00-938-3090, and shaft assembly activator, NSN 1620-00-351-2626. ■ Pilots smelled burning odor, and noticed slight amount of gray smoke coming from inspection panel on copilot side. Cockpit filled with smoke at approximately 5,000 feet. Emergency procedures for electrical fire were followed and aircraft was landed. Battery was burned up internally. (Reference FLIGHTFAX, 13-19 Jun 75. Be cautious of U-21's without battery vent lines.)

T-42

1 PRECAUTIONARY LANDING ■ Pilot noticed fuel siphoning from left main cap. Landing was made and cap properly secured.

C-47

1 PRECAUTIONARY LANDING ■ No. 1 engine surged, rpm and manifold pressure fluctuated, and engine was secured. Landing was uneventful. Suspect failure of No. 3 cylinder. □

MAINTENANCE MISHAPS

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

Two forced landings and one precautionary landing were reported.

AH-1

1 FORCED LANDING ■ Compressor stall occurred during hover. After-landing inspection revealed improperly adjusted bleed band.

UH-1

1 FORCED LANDING ■ When pilot retarded throttle during autorotation, throttle passed flight idle position to full off and engine failed. Caused by improper adjustment of flight idle solenoid.

1 PRECAUTIONARY LANDING ■ Battery overheated in cruise flight. Voltage regulator was adjusted too high.

DETECTOR KIT

Water detector kit, NSN 6640-00-244-9478, is to be used to detect free water in POL bulk storage and transporters. It may also be used to detect water in samples taken from the aircraft fuel cell.

The kit is a local purchase item and should be ordered on a basis of *one* per aviation company, detachment, aircraft facility, etc., but not one per aircraft.

For more information, contact the U.S. Army General Materiel Petroleum Activity (USAGMPA), Petroleum Field Office East, Bldg. 85-3, New Cumberland Army Depot, New Cumberland, PA 17070 (autovon 977-6857), or USAGMPA, Petroleum Field Office, Lab Bldg. 247, Defense Depot Tracy, Tracy CA 95376 (autovon 466-9575), or USAGMPA, STSGP-FT, New Cumberland Army Depot, New Cumberland, PA 17070 for overseas activities. □

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ARMY AIRCRAFT MISHAP PREVENTION DATA

FLIGHT FAX

ORVAL RIGHT
Chief Advisor on
Matters of Aviation

A USAAAVS PUBLICATION

VOL. 3, NO. 41 ■ 6 AUGUST 1975

mishaps for the period of 18-24 JULY 1975

RECORD NOBODY WANTS

From 1 through 31 July 1975, the Army had three AH-1, eight UH-1, one OH-6, and two OH-58 accidents. We also had 14 incidents. Eight people were killed and nine were injured. These accidents and incidents cost more than $1 million. If this trend continues, FY 76 may become a record year—but who wants that kind of record! The loss of even one aircraft or one crew is more than the acceptable standard.

Zero accidents is the goal.

UTILITY/ATTACK

Fatalities: 3 ■ *Accidents:* 3
Injuries: 1 ■ *Estimated Costs:* $541,695

BRANCH

■ CPT James M. Klina, Jr., Chief
SP6 Roland L. Allen, Jr.
558-4198

Three accidents, two incidents, two forced landings, and thirty-two precautionary landings were reported.

UH-1

3 ACCIDENTS ■ Crew chief, with no authorized pilot aboard, attempted to fly aircraft. Aircraft reached 15-foot hover and descended until left skid struck ground. Aircraft rolled left, coming to rest on right side. Investigation is in progress. ■ Aircraft spun into lake from 120-foot hover and submerged in 35 feet of water. Two crewmembers and four passengers were on board. One crewmember and two passengers drowned. Suspect aircraft was overgross and pilot attempted to hover downwind in winds 18 knots gusting to 30 knots. ■ Aircraft was in cruise flight at 500 feet when engine failed. Pilot entered autorotation and landed aircraft in canal. One passenger jumped clear of aircraft before rotor contact with water and was struck by main rotor, breaking his back and pelvis. Investigation is in progress.

2 INCIDENTS ■ Engine oil cooler fan disintegrated in flight. EIR submitted. ■ Aircraft landed in grassy LZ and began to rock back due to small knoll hidden in grass. Pilot recovered aircraft but landed hard, bending right cross tubes. (ARNG)

2 FORCED LANDINGS ■ During takeoff, at 75 feet, engine rpm decreased to 1000. Pilot autorotated to POV parking lot. WELL DONE to CPT Joseph W. Bowas, Co B, 1/17 Cav, Fort Bragg, NC, for a successful emergency landing. ■ Aircraft turned right onto taxiway during hover. When left pedal was applied to stop turn, pedals would not move. Aircraft began to spin, throttle was reduced to stop spin, and aircraft was landed. Inspection revealed two broken links in tail rotor chain assembly. Chain was chafing tail rotor sprocket guard. EIR submitted.

30 PRECAUTIONARY LANDINGS–following are selected briefs ■ Aircraft struck small wire on takeoff. Small scratch was found on windshield. ■ Engine oil temperature rose to 140° and oil pressure fluctuated. Inspection revealed failure of No. 2 bearing seal in engine. ■ Fire warning light came on. Caused by failure of fire detection harness. ■ Right fuel boost pump caution light came on. Caused by failure of right fuel boost pump flow switch. ■ Engine chip detector light came on. Inspection revealed fuzz on plug. Plug was cleaned and reinstalled. ■ Pilot noticed severe vertical vibration in flight. Inspection revealed teflon lining had come out of white drive link trunnion bearing.

AH-1

2 PRECAUTIONARY LANDINGS ■ Engine fuel pump light came on. Inspection revealed loose wire on fuel control. ■ After landing, battery was found to be boiling over. Cause not reported. □

LOH/CARGO

Fatalities: 0 ■ *Accidents:* 1
Injuries: 4 ■ *Estimated Costs:* $29,000

BRANCH

■ MAJ Robert P. Judson, Chief
SFC D. T. Farrar/SFC R. G. Farris
558-4202

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

OH-6

1 ACCIDENT ■ Aircraft struck ground while in steep left turn during service mission, damaging main rotor blades, rotor head, upper pylon, and left side of fuselage. Left skid was sheared from aircraft and tail boom was severed. Accident is under investigation.

OH-58

2 FORCED LANDINGS ■ Engine stopped when pilot initiated practice autorotation. Cause undetermined. ■ Loss of power was noted during cruise flight and power-on autorotation was made. Suspect malfunction of power turbine governor. (ARNG)

9 PRECAUTIONARY LANDINGS ■ Main transmission chip detector lights of three aircraft came on. All had fuzz on plugs. (one ARNG) ■ Tail rotor chip detector lights of two aircraft came on. One plug was cleaned and aircraft released. The other light resulted from broken wire. ■ Engine chip detector light

illumination was caused by small metal particles. ■ Main transmission oil pressure warning light came on. Caused by malfunction of pressure switch, P/N 7G198-1. (ARNG) ■ Hydraulic pressure caution light illuminated and feedback through cyclic was noted. Oil sample was submitted and system flushed. ■ Main transmission oil hot light came on because of broken temperature sensing switch.

CH-47

6 PRECAUTIONARY LANDINGS ■ Crew smelled battery fumes and saw high loadmeter readings during flight. Caused by thermal runaway of battery. (ARNG) ■ No. 2 engine oil temperature went to 150° during flight. Corrosion was found on temperature bulb cannon plug receptacle and defective temperature bulb was listed as cause. (ARNG) ■ No. 1 engine chip detector light illuminated during simulated engine failure. Caused by fuzz on chip detector plug. ■ No. 1 engine egt varied between 405° and 620° with rapid fluctuations. Caused by instrument malfunction. ■ No. 1 engine transmission lost oil pressure during flight. Caused by internal malfunction of pressure transducer. ■ Crew smelled fumes and noted rise in No. 1 loadmeter. Suspect internal battery malfunction.

CH-54

1 PRECAUTIONARY LANDING ■ Main transmission chip detector light came on. Preliminary indications were possible electrical short, but fuzz was found on plug. □

FIXED WING

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

BRANCH

■ MAJ William G. Daly, Jr., Chief
SFC J. M. Terrell
558-3901

Twelve precautionary landings were reported.

OV-1

5 PRECAUTIONARY LANDINGS ■ Hydraulic pressure dropped to zero. Pilot returned home, blew down gear, and successfully performed a no-hydraulics landing. Line ruptured at flared fitting end at hydraulic filter. (ARNG) ■ Crew detected JP4 fumes with gear down during instrument approach. IP declared emergency and made visual approach to landing. Fumes were strong and reverse thrust was not used on rollout. Engine was secured during rollout. Nut of forward fitting tube assembly came loose from check valve. ■ No. 1 torque pressure dropped to zero. Chip detector, fuel pressure, and generator lights illuminated. Engine was secured and successful single-engine landing was completed. Cause unknown. (ARNG) ■ No. 2 chip detector light came on. Maintenance found normal fuzz on magnetic plug. ■ Aircraft yawed to right and No. 2 chip detector and generator lights illuminated. Engine was secured and aircraft was landed. Inspection revealed failure of No. 3 and 4 bearing package, causing N_2 shaft to shear and N_1 to lock. (Late ARNG report from 28 June)

U-21

2 PRECAUTIONARY LANDINGS ■ Pilot was executing flat turns during test flight when trim wheel backed off with full right trim induced. Caused by trim wheel screw backing off. ■ Gear would not retract after takeoff. Manual gear extension procedure was used. Tower and another aircraft reported gear appeared down. Landing was uneventful. Spring was stretched in emergency input lever assembly.

T-42

1 PRECAUTIONARY LANDING ■ Door was not properly secured before takeoff. Landing was made to close door.

T-41

1 PRECAUTIONARY LANDING ■ Engine chip detector light came on during climbout. Metal flakes were found on magnetic plug of new engine.

U-3

1 PRECAUTIONARY LANDING ■ Gear would not extend and was lowered manually with safe indication. Caused by loose wire on down limit switch. (ARNG)

C-7

1 PRECAUTIONARY LANDING ■ After lowering gear for landing, hydraulic failure occurred. Main gear was locked down but emergency procedures were used for safe nose gear indication. Caused by failure of right uplock tube assembly.

C-54

1 PRECAUTIONARY LANDING ■ No. 1 engine surged and rpm dropped. Engine was secured. Intake valve seat of No. 3 cylinder failed. □

MAINTENANCE MISHAPS

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

Three precautionary landings were reported.

U-21

1 PRECAUTIONARY LANDING ■ After takeoff on maintenance test flight for completion of PMP No. 9, gear was retracted and intransit light in gear handle stayed on, indicating gear in transit. Gear was extended and indicated down and locked. After second retraction, lights in handle still stayed on. Gear was confirmed as up by another aircraft. Gear was then extended with three in the green and landing was made. During PMP No. 9, landing gear activators were removed, inspected, and reinstalled. Retraction test and inspection were performed with no problems. Nose gear and left main gear switch were out of adjustment (NSN 5930-00-992-5364, P/N 1CH25).

UH-1

2 PRECAUTIONARY LANDINGS ■ Two mishaps were caused by voltage regulators being set too high, causing batteries to overheat.

CHANGES TO T55-L-11A INLET GUIDE VANE RIGGING PROCEDURES

Make the following changes to TM 55-2840-234-24/2, page 5-41:

a. Disconnect inlet guide vane clevis assembly (10, figure 5-22, sheet 1) from inlet guide vane actuator assembly (1) by removing cotter pin (14), washer (13), and clevis pin (8).

aA. Deleted.

CAUTION

Prior to installation of feedback linkage tube assembly in following step b, insure that an equal amount of threads are engaged at both rod ends.

b. Secure rod end (37) to actuating arm with bolt (21), washer (36), and nut (35). Secure rod end (30) to feedback lever with bolt (29), washer (31), and nut (32). Tighten nuts (32 and 35) to 30 to 40 pound-inches torque. Install cotter pin (33 and 34).

NOTE

Ensure locking devices (24 and 26) are pointing outboard and are clear of piping and accessories throughout range of rod travel.

bA. Deleted.

c. Traverse actuating arm (see figure 5-22, sheet 2) to the closed position.

d. On fuel controls being reinstalled, centerline of feedback lever on the inlet guide vane control assembly must align with scribed mark on the indicator plate as noted before removal. (Refer to paragraph 5-39.)

e. On replacement fuel controls, centerline of feedback lever on the inlet guide vane control assembly must align with scribed mark on the indicator plate. (See figure 5-22, sheet 2.)

f. If it is necessary to adjust feedback linkage tube assembly (25, figure 5-22, sheet 1), loosen nut (22) and locking devices (23 and 24). At other end of the tube, loosen nut (28) and locking devices (26 and 27).

g. With inlet guide vane pointer at the closed position, adjust feedback linkage by rotating tube to align feedback lever on fuel control with scribe mark on indicator plate.

NOTE

Check for inlet guide vane actuator piston open position overtravel by moving tube assembly (25, figure 5-22, sheet 1) until actuating arm pointer is beyond the open scribe line on sleeve plate. There should be approximately 1/16 inch overtravel of pointer. (See figure 5-22, sheet 2.)

CAUTION

Prior to tightening nuts in following step h, ensure locking devices (24 and 26, figure 5-22, sheet 1) are pointing outboard and are clear of piping and accessories throughout range of rod travel.

h. Tighten nuts (22 and 28) to 30-40 pounds-inches torque. Lockwire each nut to rod end locking devices (24 and 26).

i. Bottom out inlet guide vane actuator in the open position by pushing piston rod into actuator housing.

j. With actuator bottomed in open position and pointer on open scribe mark on sleeve plate, adjust actuator piston rod end so that hole in rod end aligns with hole in clevis. Secure with clevis pin (8, figure 5-22, sheet 1), washer (13) and cotter pin (14).

k. Tighten nut on actuator piston rod end and lockwire.

l. Extend piston toward closed position until it bottoms.

m. Observe where actuating arm pointer is positioned on sleeve plate; then scribe a line and letter "S" on plate under pointer to indicate inlet guide vane travel STOP position. (See figure 5-22, sheet 2.) (If necessary obliterate old "S" on sleeve plate.)

NOTE

Scribe line 0.020 inch wide by 0.380 inch long by 0.010 inch deep and fill with yellow epoxy paint (item 34A, table 2-2). Scribe letter "S" 0.090 inch high and fill with suitable yellow epoxy paint.

■ ■ ■

LOSS OF RESOURCES
FROM THIS WEEK'S MISHAPS

FATALITIES:	3
INJURIES:	5
AIRCRAFT LOSSES:	2
ESTIMATED COSTS:	$570,695

UNITED STATES ARMY AGENCY FOR AVIATION SAFETY
FORT RUCKER, ALABAMA 36362
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
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Commercial:	255-XXXX

Prepared from information compiled by the Directorate for Aircraft Accident Analysis & Investigation
Colonel Samuel P. Kalagian, Director

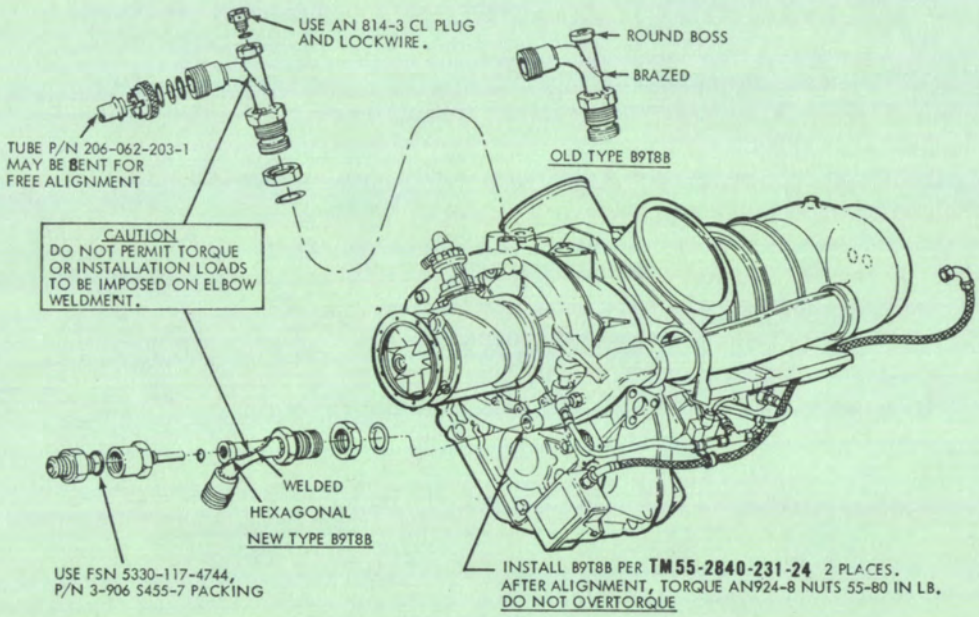
From USAAVSCOM's "MAINTENANCE MATTERS" (June 1975)

OH-58 ELBOW ASSEMBLY

Twenty-two failures of the bleed air elbow assembly (P/N B9T8B) have occurred in the last 3 years. Investigation reveals that the part installed on early manufacture aircraft has no provision to prevent fitting installation torque from being imposed on the thin-wall brazed elbow construction. Careful adherence to proper installation procedures is required to prevent damage and subsequent failure.

The following figure provides the necessary information. Recommend dye penetrant inspection of B9T8B elbows at next periodic inspection interval. If cracking is detected at the periodic, request a report be submitted to USAAVSCOM.

TM 55-1520-228-34 is being changed to provide detailed bleed air elbow installation procedures. TM 55-1520-228-20P and -34P are being changed to show the corrected parts list and assembly illustration.



GENERAL NOTES:
1. LUBRICATE ALL PACKINGS WITH ENGINE OIL OR PETROLATUM.
2. INSPECT B9T8B ELBOW ASSYS. USING DYE-PENETRANT KIT. FSN 6850-826-0981
3. TIGHTEN KNURLED NUTS MAXIMUM HAND-TIGHT AND LOCKWIRE.

OH-58A Bleed Air Elbow Installation

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ARMY AIRCRAFT MISHAP PREVENTION DATA

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ORVAL RIGHT
Chief Advisor on
Matters of Aviation

A USAAAVS PUBLICATION

VOL. 3, NO. 42 ■ 13 AUGUST 1975

mishaps for the period of 25-31 JULY 1975

SUPERVISION + SAFETY = A WINNING TEAM

We all know that teamwork is a necessity for success in sports, and that it is equally necessary for safety in Army aviation. What happens when we don't get it? This accident provides one answer.

When a UH-1 pilot lifted his aircraft to hover for a maintenance test flight, the aircraft began to roll to the right. The pilot applied left cyclic and rolled off throttle, but the aircraft continued an uncontrolled roll to the right, settling on its right side. A ground observer was injured by flying debris. The cause? A bolt from the lateral cyclic linkage was missing. Sabotage? Not at all. Let's look at the facts.

An inexperienced mechanic was told to disconnect the lateral magnetic brake as corrective action for a sticking forced trim. The mechanic's regular supervisor was called away from the flight line and was not present when the work was performed. Unfortunately, the mechanic disconnected the wrong linkage and failed to reinstall the bolt. Since the magnetic brake was not considered a part of the primary flight controls, no red-X symbol entry on the dash 13 was deemed necessary and no tech inspector checked the completed work. But despite the mechanic's error, the discrepancy could still have been detected by the pilot had he properly performed a tip path plane check. But he didn't.

There you have it. Lack of training, inspection, supervision, and proper crew procedure all teamed up to produce a major accident. Let's prevent other mishaps from these causes. All it takes is teamwork—the **right kind of teamwork!**

AR 95-5 CHANGES

FLIGHTFAX, Vol. 3, No. 39, dated 23 July 1975, told you to make pen and ink changes to the new AR 95-5. One change was listed as par. 13-2, page 13-1, (3), add (DAMO-ODA). This should have read par. 13-2(5), page 13-1, add (DAMO-ODA).

LOSS OF RESOURCES
FROM THIS WEEK'S MISHAPS

FATALITIES:	5
INJURIES:	3
AIRCRAFT LOSSES:	1
ESTIMATED COSTS:	$435,778

UNITED STATES ARMY AGENCY FOR AVIATION SAFETY
FORT RUCKER, ALABAMA 36362
AUTOVON NUMBERS

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Prepared from information compiled by the Directorate for Aircraft Accident Analysis & Investigation
Colonel Samuel P. Kalagian, Director

UTILITY/ATTACK BRANCH

Fatalities: 5 ■ *Accidents:* 3
Injuries: 2 ■ *Estimated Costs:* $424,550

■ CPT James M. Klina, Jr., Chief
SP6 Roland L. Allen, Jr.
558-4198

Three accidents, one incident, and twenty-eight precautionary landings were reported.

UH-1

3 ACCIDENTS ■ Main rotor separated from aircraft during IFR training flight and aircraft crashed inverted. Thunderstorms and turbulence were reported in area. Aircraft was destroyed with five fatalities. Investigation conducted with USAAAVS participation. ■ Engine failed during climbout. Aircraft was autorotated to football field. Cross tubes and skids collapsed, causing damage to underside of aircraft. (USAR) ■ Short shaft failed during IFR training mission. Aircraft crashed into trees. IP and one student received minor injuries.

1 INCIDENT ■ During sighting of XM-21 system, one gun fired a burst at full depression, causing concrete fragments to strike main rotor blade.

25 PRECAUTIONARY LANDINGS–following are selected briefs ■ Engine oil temperature rose to 145° during approach. Inspection revealed oil cooler fan had partially seized. ■ Engine fuel pump segment light came on. One element of engine fuel pump failed. (ARNG) ■ Transmission oil pressure dropped to zero during approach. Caused by failure of transmission internal oil filter gasket. ■ Engine oil temperature rose to 120° during takeoff. Caused by failure of thermostat flow control. ■ Pilot noticed smoke coming from battery vent. Caused by overheating of battery. ■ Engine chip detector light came on. Inspection revealed fuzz on plug.

AH-1

3 PRECAUTIONARY LANDINGS ■ Tail rotor chip detector light came on during takeoff. Caused by metal fuzz on plug. ■ No. 1 hydraulic caution light came on. Caused by failure of hydraulic servo O-ring. ■ Fuel filter caution light came on during approach. Small red and black rubber particles were found in fuel filter.

LOH/CARGO BRANCH

Fatalities: 0 ■ *Accidents:* 1
Injuries: 1 ■ *Estimated Costs:* $11,228

■ MAJ Robert P. Judson, Chief
SFC D. T. Farrar/SFC R. G. Farris
558-4202

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

OH-58

1 ACCIDENT ■ During practice autorotation, student abruptly leveled aircraft and applied excessive left pedal. Aircraft yawed left, touched down, and continued to turn left approximately 180°. IP could not correct yaw because of strong pedal control inputs by student. Severe spike knock was encountered and damage resulted to engine mount, transmission mount, and drive train and drag pin assemblies.

1 INCIDENT ■ During authorized NOE flight, with airspeed less than 5 knots, aircraft started to spin right. Left pedal would not stop spin. Tail rotor struck yucca plant and tail rotor drive shaft was sheared. Hovering autorotation was made following two 360° turns. Investigation is underway.

1 FORCED LANDING ■ Engine chip detector light illuminated and engine-out light and audio signal came on. N_2 and torque readings dropped to zero. Pilot entered autorotation and landed in field surrounded by trees. Cause of engine stoppage is unknown pending investigation.

12 PRECAUTIONARY LANDINGS ■ Main transmission chip detector lights of three aircraft illuminated. Special oil samples were taken and analyzed, and aircraft were released for flight. ■ Tail rotor chip detector lights of two aircraft came on. One had fuzz on plug. The other aircraft was grounded pending maintenance inspection as this was a second occurrence in two days. ■ Engine chip detector light came on. Metal

particles were found on plug. ■ N_2 began to drop during authorized unsupervised NOE flight. Lowering of collective pitch regained rpm and landing was made. Cause of N_2 deterioration is under investigation. ■ Zero reading of engine oil temperature resulted from faulty indicator. EIR was submitted. ■ Hydraulic pressure warning light came on due to malfunction of switch, P/N 206076404-1. ■ Pilot reported strong odor of burning rubber during flight. A 3.5-hour test flight failed to reproduce conditions and aircraft was released for flight. ■ During cruise flight, pilot noted binding in cyclic control and, shortly afterward, feedback in cyclic. Cyclic control conditions worsened during descent and main rotor mast began rocking fore and aft after landing. Rocking continued until engine was secured and then ceased. Caused by failure of transmission isolation mounts. ■ During ground runup with full operating rpm, whining noise was followed by high frequency vibration. Caused by defective No. 8 hanger bearing which froze and caused tail rotor drive shaft to fracture. EIR was submitted.

TH-55

2 INCIDENTS ■ Engine did not develop power when throttle was applied for power recovery from 180° practice autorotation. Forward cross beam was broken and right forward landing gear damper destroyed during touchdown. Engine was reported to be running very rough after touchdown. Cause is under investigation. ■ Pilot entered straight-in autorotation from crab which was corrected to a slip. At about 35 feet, deceleration was initiated with little apparent effect on rate of descent. Collective pitch was applied at about 6 feet and aircraft touched down hard and level. Aft crossbar was bent beyond tolerances.

1 FORCED LANDING ■ Engine quit during hover. Cause unknown.

CH-47

1 INCIDENT ■ Sheet metal damage occurred to left side of aircraft when contact was made with windsock mounting pole. Crew was attempting to unfurl tangled windsock when mishap occurred.

8 PRECAUTIONARY LANDINGS ■ Copilot's jettisonable door came off in flight. Cause unknown. (USAR) ■ No. 2 engine was shut down during flight because of low oil pressure light illumination. Caused by failure of oil filter assembly. (USAR) ■ Aft transmission oil pressure exceeded 100 psi indication during flight. Caused by failure of oil pressure transducer. (ARNG) ■ Pilot's cockpit door came off during flight. Cause unknown. Message indicated design deficiency. ■ No. 2 engine chip detector light came on. Caused by faulty electrical wire. ■ Pilots heard strange noise from forward transmission. Caused by internal failure of transmission. ■ No. 2 engine chip detector light illuminated. Fuzz was found on chip detector plug. ■ No. 1 engine chip detector light came on. Caused by powerplant bearing package malfunction. (USAR) □

THOUGHT FOR THE WEEK

HOW TO KILL A BIRD–An OH-6 was brought into a hangar for a 300-hour PMS inspection. The aircraft was "unbuttoned" and the inspection progressed throughout the day. That evening, the "kill for fun troops" broke out their air guns and started to clean up the "feathered" birds within the hangar. The next morning a DS mechanic with a sharp eye discovered a BB in the plenum chamber, ready to roll into the compressor. Granted, the BB probably bounced or fell into the chamber, which makes the act completely unintentional. But that's the story with all FOD–completely unintentional, but still happening every day.

FIXED WING

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

BRANCH

■ MAJ William G. Daly, Jr., Chief
SFC J. M. Terrell
558-3901

Five precautionary landings were reported.

U-8

3 PRECAUTIONARY LANDINGS ■ No. 1 engine began running rough. Aircraft returned to land with reduced power. Intake valve seat failed on No. 3 cylinder. ■ Two engine chip detector light mishaps were attributed to fuzz on magnetic plug.

U-21

1 PRECAUTIONARY LANDING ■ No. 1 engine could not be restarted after intentional shutdown. Single-engine landing was successful. Caused by internal failure of voltage regulator.

OV-1

1 PRECAUTIONARY LANDING ■ Compressor stall in No. 2 engine caused egt to rise to 800° C. Power was reduced and egt dropped to 620° C., but attempts to add power increased egt. Engine was secured and landing was made. Engine was replaced.□

MAINTENANCE MISHAPS

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

Five precautionary landings were reported.

UH-1

2 PRECAUTIONARY LANDINGS ■ Fuel odor was detected in flight. Caused by fuel manifold lines not properly torqued. ■ Hydraulic caution light came on. Hydraulic lines were chafing, causing loss of hydraulic fluid.

CH-47

1 PRECAUTIONARY LANDING ■ Maintenance pilot heard unusual noise in forward transmission during flight. Forward swashplate was excessively hot due to lack of lubrication. (USAR)

CH-54

1 PRECAUTIONARY LANDING ■ Transmission chip detector caution light came on because of loose wire.

U-8

1 PRECAUTIONARY LANDING ■ Main landing gear (NSN 1620-00-087-7948) would not retract after takeoff due to misalignment of actuator assembly. Field maintenance had worked on actuator approximately 25 flight hours before this mishap. Clutch assembly was also found to have been packed with grease.

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ARMY AIRCRAFT MISHAP PREVENTION DATA

FLIGHT FAX

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A USAAAVS PUBLICATION

VOL. 3, NO. 43 ■ 20 AUGUST 1975

mishaps for the period of 1-7 AUGUST 1975

MISSION COMPLETE, RELAX

An AH-1G pilot and copilot were flying at about 75 feet and 80 knots. They had just completed their part of an NOE fire suppression demonstration mission and were returning home, trying to stay out of sight of the demonstration area. Both were listening to a commercial station on the ADF radio.

As they were approaching a ridge which would require a slight climb, the engine tachometer dropped to zero. The copilot first noticed the low engine rpm audio and warning light. He glanced at the instrument panel and saw the engine rpm tachometer on zero. He looked at the N1 gas producer tachometer but could not tell how much engine power was being produced.

The copilot then used the VHF radio to transmit "engine failure." He awaited instructions from the pilot, expecting to be told to switch to emergency fuel control. But the pilot said nothing. The copilot transmitted again and prepared for touchdown.

The pilot, hearing the low rpm audio, saw the engine tachometer at zero and the engine rpm warning light on. He had just noted a forced landing area which was now to his right rear. At the copilot's first transmission of "engine failure," the pilot immediately initiated an autorotative turn to this area. During the turn, he again verified the engine tachometer reading but did not verify this against the N1 gas producer tachometer.

Two-thirds of the way around the turn and 20 to 30 feet agl, the pilot turned off the engine fuel control switch. At the same time the helicopter encountered a high sink rate and the pilot used his remaining collective pitch to cushion the landing. The helicopter came to rest on its right side and the copilot sustained minor injuries.

■ **The crew was not mentally prepared to react to an emergency while flying low level.**

■ The copilot interpreted instrument readings to be a complete loss of power.

■ Both crewmembers failed to properly evaluate engine power available indications and the true nature of the emergency (e.g., partial versus total power loss). This can be attributed to the copilot's anxiety and his hasty radio transmission and the pilot's acceptance of the copilot's statement without verifying his engine instrument readings and his failure to follow proper emergency procedures.

■ A 180° turn at low level was initiated and completed. Partial power was used to accomplish this maneuver, but available power was then negated when the pilot shut the main fuel switch off. He knew a forced landing area was to his rear and flew the aircraft, unknowingly using power, part of the way through the turn.

Air discipline starts on the ground. Unit SOP's must establish specific flight altitudes to and from NOE training areas. And crews should use the ADF radio only for its intended purpose—navigation.

SUPERVISION + SAFETY = A WINNING TEAM

LOSS OF RESOURCES
FROM THIS WEEK'S MISHAPS

FATALITIES:	3
INJURIES:	0
AIRCRAFT LOSSES:	1
ESTIMATED COSTS:	$411,624

UNITED STATES ARMY AGENCY FOR AVIATION SAFETY
FORT RUCKER, ALABAMA 36362
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
USAR Representative	558-6510/4714
After-duty tape recording of incoming calls to be returned following day (hours: 1615 to 0730)	558-6510
Commercial:	255-XXXX

Prepared from information compiled by the Directorate for Aircraft Accident Analysis & Investigation
Colonel Samuel P. Kalagian, Director

UTILITY/ATTACK BRANCH

Fatalities: 3 ■ *Accidents:* 2
Injuries: 0 ■ *Estimated Costs:* $367,624

■ CPT James M. Klina, Jr., Chief
SP6 Roland L. Allen, Jr.
558-4198

Two accidents, two incidents, and twenty-four precautionary landings were reported.

UH-1

2 ACCIDENTS ■ Tail rotor struck ground and separated from aircraft during touchdown from practice autorotation. ■ Aircraft was returning to base field at night because of deteriorating weather when it crashed, under power, into heavily wooded area. There were three fatalities. Investigation is in progress.

2 INCIDENTS ■ During liftoff to hover, engine and rotor rpm bled off. Postflight inspection revealed that inlet cover had not been removed before engine start. Firewall collapsed. ■ Main rotor blade struck 2-inch pine tree during NOE flight. (ARNG)

20 PRECAUTIONARY LANDINGS–following are selected briefs ■ Tail rotor chip detector lights of five aircraft came on. Metal particles were found on three tail rotor gearbox magnetic plugs. Fuzz was found on two. ■ Main transmission oil filter seal failed. Aircraft landed with power. (ARNG) ■ Transmission oil pressure light came on. Caused by malfunction of caution panel. ■ During liftoff to hover series of loud bangs were heard from rear of aircraft and moderate airframe vibrations were encountered. MOC duplicated problem. Cause of engine malfunction is unknown. ■ Engine lost power during formation flight and governor was placed in emergency position. Power-on landing was made. ■ At 100 feet agl and 60 KIAS aircraft flew between two hills and pitot tube struck single strand of wire. Wire broke and there was no damage to aircraft. ■ Engine chip detector lights of two aircraft came on. Caused by fuzz on plug. ■ Transmission chip detector light illuminated. Fuzz was found on plug.

AH-1

4 PRECAUTIONARY LANDINGS ■ Engine chip detector light came on. Fuzz was found on magnetic plug. ■ Engine rpm decreased to 6200. Suspect overspeed governor malfunction. ■ Transmission chip detector light illuminated. Caused by water on connector. ■ Metal patch on tail rotor pylon came loose in flight. Crew landed because of unusual vibration. □

LOH/CARGO BRANCH

Fatalities: 0 ■ *Accidents:* 1
Injuries: 0 ■ *Estimated Costs:* $43,000

■ MAJ Robert P. Judson, Chief
SFC D. T. Farrar/SFC R. G. Farris
558-4202

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

OH-6

1 ACCIDENT ■ Aircraft spun several times to right during takeoff and struck ground in near skid-level attitude. Fuselage, landing gear, main rotor, tail rotor and drive train were damaged. Accident is under investigation. (ARNG)

OH-58

10 PRECAUTIONARY LANDINGS ■ Tail rotor chip detector lights of three aircraft came on. One plug was cleaned and aircraft released. Another was caused by nut which backed off. The third resulted in change of gearbox. ■ Main transmission chip detector lights of two aircraft illuminated. One was cleaned and aircraft released. The second was caused by a corroded switch terminal. ■ Engine chip detector lights of two aircraft came on. One had excessive particles and aircraft was recovered to home base for inspection. The second was cleaned and aircraft released by maintenance officer. Five minutes into homeward flight, chip detector light came on again and inspection revealed high metal content. Engine is being changed. ■ Main transmission high oil temperature light illuminated from suspected malfunction of sensing unit. ■ Pilot noted hydraulics malfunction. Fluid was lost because nut to hydraulic pump hose assembly

(P/N M587028E0125C) backed off. ■ Low rpm audio caused pilot to enter autorotation and terminate with power. Engine was surging during descent and running normal at touchdown. Check valve was replaced. (ARNG)

TH-55

1 PRECAUTIONARY LANDING ■ Inoperative fuel pressure gauge during flight was caused by internal malfunction of gauge. Gauge was replaced.

CH-47

1 INCIDENT ■ Driver of 3/4-ton truck failed to follow crew directions to stop during internal loading maneuver. Vehicle slipped off ramp and slid into side of aircraft, causing sheet metal damage.

3 PRECAUTIONARY LANDINGS ■ No. 2 engine lever was moved from ground position to flight upon completion of simulated engine failure. Egt rose to 900° C. and engine was shut down. Cause unknown. ■ Engine chip detector light illuminated during flight. Fuzz was found on plug. ■ Aft transmission chip detector light came on. Metallic residue was found on plug.

OH-58 SPIKE KNOCK

A recent OH-58 accident investigation indicated that sometime before the accident, the aircraft had encountered spike knock. No writeup of spike knock could be found. Page 8-1 of TM 55-1520-228-10 requires that a maintenance inspection and writeup on DA Form 2408-13 be completed before further flight whenever spike knock occurs. Damage from the conditions causing spike knock may not be readily visible and a thorough maintenance inspection is warranted. □

FIXED WING

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

BRANCH

■ MAJ William G. Daly, Jr., Chief
SFC John M. Terrell
558-3901

Five precautionary landings were reported.

U-21

2 PRECAUTIONARY LANDINGS ■ Intense fumes in cockpit forced abort of mission. Brushes failed in blower vent motor. Fifty-amp circuit breaker did not pop. EIR submitted. ■ After intentional engine shutdown, IP noted fuel leaking from engine accessory exhaust vent. During return for landing, fuel leak apparently stopped and IP elected to restart engine. Landing was made without incident. Fuel dump drain line vibrated loose.

U-8

1 PRECAUTIONARY LANDING ■ No. 1 engine began running rough during climb. Power was reduced and aircraft returned for landing. No. 6 cylinder rocker assembly valve failed. (ARNG)

T-42

1 PRECAUTIONARY LANDING ■ No. 1 engine failed during descent for straight-in approach to landing. Fuel metering valve in fuel injector pump failed.

U-6

1 PRECAUTIONARY LANDING ■ Smoke in cockpit was caused by burned-out voltage regulator. (USAR)

NOTICE TO T53 OPERATORS

Crash facts messages received by USAAAVS indicate an increasing number of in-flight engine stops that are fuel control related. In many of these mishaps the engine would have continued to produce power had the pilot selected the emergency governor position before N1 speed decreased below 50 percent. The criterion for an emergency governor save is a loss of power without loud noises such as compressor stall or mechanical disintegration, then a shift to emergency that is accomplished before N1 speed decreases below 50 percent. The engine should continue to produce usable power for a safe and controlled landing. □

MAINTENANCE MISHAPS

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

One incident and four precautionary landings were reported.

U-3

1 INCIDENT ■ During runup for test flight, No. 2 engine caught fire. Maintenance had been performed on fuel system. Suspect ruptured fuel line.

T-42

1 PRECAUTIONARY LANDING ■ IP pulled mixture lever to induce engine failure for single-engine training. Pilot tried to close throttle and it could not be closed. IP took control of aircraft, secured engine, and landed without damage. Caused by improperly installed button plug (P/N 5548172) that came loose and jammed throttle butterfly valve.

U-8

2 PRECAUTIONARY LANDINGS ■ Pilot felt unusual vibration after attempting to retract gear. Intransit light remained on and all gear indicated down. Three recycling attempts produced no change. Gear handle was lowered and tower confirmed gear appeared down. Cockpit indications showed gear down and locked. Safety switch on right main gear was out of adjustment. ■ After retracting gear, gear warning horn continued to blow after several recycling attempts. Landing gear safety switch was improperly adjusted.

OH-58

1 PRECAUTIONARY LANDING ■ Illumination of transmission low oil pressure warning light during hover was caused by improper installation of plug in free wheeling unit. (ARNG) □

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ARMY AIRCRAFT MISHAP PREVENTION DATA

FLIGHT FAX

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Chief Advisor on
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A USAAAVS PUBLICATION

VOL. 3, NO. 44 ■ 27 AUGUST 1975

mishaps for the period of 8-14 AUGUST 1975

Human Factors Mishap Report

USAAAVS has received several inquiries from the field regarding the Human Factors Mishap Report (AR 95-5, figure 12-1, page 12-3). A human factors mishap is a mishap in which a psychological, physiological, or pathological condition occurs to prevent or interfere with an aircrewman's performance of his duties during the operation or maintenance of Army aircraft. A forthcoming change to AR 385-40 provides guidelines for reporting human factor mishaps when:

a. A crewmember becomes sufficiently incapacitated to cause

(1) the duties of one crewmember to be assumed by another crewmember or

(2) the mission to be aborted, delayed, or diverted.

b. An occupant injury occurs that exceeds the degree of minimal as defined in paragraph 14-13a(2), AR 95-5. Conditions which may cause human factor mishaps are listed on, but not limited to, DA Form 2397-9.

Examples of a human factor mishap follow:

a. From Fort Huachuca, Arizona–At 23,000 feet during an OV-1 airborne systems test, the pilot detected a malfunction of his oxygen mask exhalation valve. Descent was begun during which the pilot became incapacitated without loss of consciousness. The technical operator, who was also a rated pilot in the OV-1, continued to descend to 7,000 feet, using the auto-pilot. The pilot recovered and landed the aircraft.

b. From Fort Clayton, Canal Zone–During an instrument training flight, the pilot of a UH-1H suffered coughing, dizziness, and nausea from battery fumes. The instructor pilot made a precautionary landing and the battery was removed.

c. From Fort Riley, Kansas–Prior to test flight a UH-1H engine had been cleaned internally with water soluble cleaner, B&B 3100, and then rinsed with clear water. On test flight, at 6,000 feet msl, the test pilot became aware of a peculiar odor. Fumes from the cleaning agent coming through the bleed air system became so strong that the pilot had the crew chief hold the controls while he stuck his head out the window to inhale fresh air and land the aircraft.

USAAAVS extends a WELL DONE to each of these units, pilots, aircrewmen, and ASO's who reported these human factor mishaps in the interest of aviation safety. We urge other units to report those cases which fall into this category to help us preserve vital aviation resources.

Checklist (-CL) Binders

You can't get the green 14-ring binders for the operator's and crewmember's checklist (–CL)? Well, we contacted the St. Louis Publications Center (Requisition Branch) and found that TM 1500-1 (the binder) is a current stockage item. Requisitions will be filled by submitting your requirements for TM 1500-1 on DA Form 17 to Commander, U.S. Army AG Publications Center, 1655 Woodson Road, St. Louis, MO 63166, providing your unit has an active publication account established (reference FLIGHTFAX, Vol. 1, No. 17, 12-18 January 1973, and MAINTENANCE FAX, Vol. 1, No. 4, 16 December 1972-15 January 1973). If your unit does not have an account with the St. Louis Publications Center, submit your requirements for TM 1500-1 as you are presently doing for other required TM's. But remember, only one binder for each aircraft in your unit.

UTILITY/ATTACK BRANCH

Fatalities: 0 ■ *Accidents:* 0
Injuries: 0 ■ *Estimated Costs:* $8,965

■ CPT James M. Klina, Jr., Chief
SP6 Roland L. Allen, Jr.
558-4198

Two incidents, two forced landings, and forty-two precautionary landings were reported.

UH-1

1 INCIDENT ■ During liftoff, cable connected between aircraft and grounding point pulled loose from grounding point and contacted tail rotor blade. Urgency of mission was reported as reason for improper preflight.

2 FORCED LANDINGS ■ Engine failed during hover. Engine had compressor stall immediately after engine oil pressure dropped to 80 psi. (ARNG) ■ Crew heard loud bang and aircraft yawed to right. Aircraft was autorotated to field and landed with no apparent damage. Suspect engine failure.

31 PRECAUTIONARY LANDINGS–following are selected briefs ■ Engine rpm dropped to 6000 during training flight. After unsuccessful attempt to beep rpm back up, throttle was retarded and governor placed in emergency. Landing was made at base field. Caused by failure of linear actuator. ■ IP felt high frequency vibration and binding in antitorque pedals. Failure of tail rotor servo was reported. ■ N2 rpm fluctuated, aircraft yawed, and engine made loud noise during cruise flight. Crew landed with power. Maintenance could not duplicate problem. ■ Crew smelled fumes during runup. Aircraft was shut down. Tar-like substance was found seeping from hot air solenoid. Caused by defective hot air valve. ■ Crew experienced hard jolts of cyclic control to left rear with hydraulics on. Malfunction of right irreversible valve was reported. ■ Eleven precautionary landings were reported because of engine or gearbox chip detector light illuminations. One was caused by metal chip, four by metal fuzz, two by broken wires, and one by moisture on magnetic plug. Causes for the other three were not reported.

AH-1

1 INCIDENT ■ During NOE target acquisition training, crew allowed aircraft to drift laterally and both main rotor blades struck tree. Inadequate cross-check between cockpit and outside environment was cited as cause factor.

11 PRECAUTIONARY LANDINGS–following are selected briefs ■ Pilot became disoriented due to lack of familiarity with destination and lack of adequate map. Ten percent fuel light came on and pilot landed. Aircraft was refueled at nearby private airfield and crew flew aircraft to home base. ■ Transmission oil pressure light came on and pressure gauge indicated loss in oil pressure. Caused by failure of transmission oil filter gasket. ■ Environmental control unit blower fan disintegrated. Suspect metal fatigue. ■ Chip detector lights of three aircraft came on because of fuzz on magnetic plugs. □

LOSS OF RESOURCES
FROM THIS WEEK'S MISHAPS

FATALITIES:	0
INJURIES:	0
AIRCRAFT LOSSES:	0
ESTIMATED COSTS:	$161,638

UNITED STATES ARMY AGENCY FOR AVIATION SAFETY
FORT RUCKER, ALABAMA 36362
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
USAR Representative	558-6510/4714
After-duty tape recording of incoming calls to be returned following day (hours: 1615 to 0730)	558-6510
Commercial:	255-XXXX

Prepared from information compiled by the Directorate for Aircraft Accident Analysis & Investigation
Colonel Samuel P. Kalagian, Director

LOH/CARGO BRANCH

Fatalities: 0 ■ *Accidents:* 1
Injuries: 0 ■ *Estimated Costs:* $149,349

■ MAJ Robert P. Judson, Chief
SFC D. T. Farrar/SFC R. G. Farris
558-4202

One accident, four incidents, and twenty-seven precautionary landings were reported.

OH-6

1 INCIDENT ■ When off-loading VIP passenger during rainshower, sedan drove too close and its long antenna was struck by main rotor blade. (ARNG)

1 PRECAUTIONARY LANDING ■ Engine chip detector light came on. Maintenance considered fuzz and particles within tolerances. (ARNG)

OH-58

3 INCIDENTS ■ Engine stopped 20 minutes into administrative flight. Cause not reported. (ARNG) ■ Main rotor blades struck tree during authorized and supervised NOE flight. Both blades were damaged. ■ Right seatbelt left hanging outside caused sheet metal damage to side of aircraft.

15 PRECAUTIONARY LANDINGS ■ Engine chip detector lights of four aircraft came on. Metal fuzz was found on two, but one had metal sliver. The fourth aircraft was released by technical inspector and light illuminated again from gasket chips restricting oil flow. System was flushed and refilled, and aircraft released. ■ Main transmission chip detector light came on. Transmission is being changed. ■ Three hydraulic low oil pressure caution light illuminations were reported. Two resulted from malfunction of pressure switches and the third from dirty cannon plug. ■ Two transmission low oil pressure warning light illuminations were caused by malfunction of pressure switches. ■ Pilot heard loud bang and smelled burning odor in flight. Caused by failure of drive shaft seal, P/N 206-040-138-1. ■ N1 was fluctuating in flight. Cause not reported. (ARNG) ■ High engine oil temperature was caused by loose connection at sending unit. (USAR) ■ Rotor rpm deteriorated and low rpm audio came on during flight. Ground and flight check were OK and aircraft was released by maintenance supervisor. (USAR) ■ Tail rotor chip detector light came on. Plug was cleaned and aircraft released.

TH-55

3 PRECAUTIONARY LANDINGS ■ Main transmission warning light came on. Caused by malfunction of oil pressure switch. ■ Excessive oil pressure during flight was caused by malfunction of oil pressure sending unit. ■ Loud noise and strange odor resulted from malfunction of lower bearing in "H" frame of main rotor belt transmission assembly.

CH-47

1 ACCIDENT ■ Running landing was made with 10-knot tailwind and 40 knots indicated because of declared emergency. On initial touchdown, aircraft shuddered and the smell of burning rubber was noted. Aircraft was lifted from ground, swivel lock switch was recycled, and landing was attempted again with same indication. Crew was informed from several sources that left aft landing gear was broken. Aircraft was repositioned and landed on small trailer with mattress supporting damaged area. Caused by failure of left aft landing gear trunnion assembly.

8 PRECAUTIONARY LANDINGS ■ Crew smelled fumes and No. 1 d.c. loadmeter indicated high. Battery was switched to off. Caused by battery thermal runaway. First cell from negative terminal was found to be ruptured. (ARNG) ■ Crew saw smoke coming from No. 1 generator. Generator caution light came on and generator was turned off. Bearing failure resulted in sheared generator shaft. (ARNG) ■ No. 1 SAS warning light illuminated and SAS switch was deactivated, followed immediately by warning light illumination of No. 1 hydraulic boost. Caused by faulty hydraulic pressure switch. (ARNG) ■ Crew noted excessive vertical vibrations during flight. Cause unknown. Crew could not duplicate. ■ Aircraft was

picking up sling load when torque needles split and No. 2 engine low oil light illuminated. Suspect power turbine failure. ■ Flight engineer reported slight high frequency vibration in No. 8 drive shaft bearing during flight. En route to home base, vibration increased. Emergency was declared and landing made. Caused by bearing failure of No. 8 drive shaft assembly. ■ Utility hydraulic oil cooler failed during flight. Caused by disintegration of hydraulic oil cooler impeller. ■ With rotor rpm at 235 crew shut down APU. This was followed immediately with generator and all hydraulic systems failures. Aircraft rose 5 to 6 feet in air with an approximate 10- to 15-degree left bank and pivoted left 90° around aft left landing gear. IP attempted to manipulate controls but they were frozen. Engines were shut down and aircraft settled to ground. Suspect A/G/B input quill shaft failed. WELL DONE to the crew.

Correction to FLIGHTFAX, Vol. 3, No. 42, dated 13 August 1975. CH-47 precautionary landing reads: "No. 2 engine was shut down during flight because of low oil pressure light illumination." What actually happened was: "No. 2 engine was shut down during flight because of engine low oil light illumination." □

FIXED WING

Fatalities: 0 ■ *Accidents:* 0
Injuries: 0 ■ *Estimated Costs:* $3,324

BRANCH

■ MAJ William G. Daly, Jr., Chief
SFC John M. Terrell
558-3901

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

U-21

4 PRECAUTIONARY LANDINGS ■ No. 1 engine flamed out during taxi. Caused by malfunction of fuel control. ■ No. 1 propeller surged in cruise flight, causing aircraft to roll 80° to right. Cause unknown at this time. ■ Left boost pump, left generator, and crossfeed warning lights came on. Ten seconds later, left inverter failed. Inverter was switched to right and it failed. Pilot returned to base and switched back to left inverter, which stayed on line. Gear had to be lowered manually. Caused by thermal runaway of battery. ■ Copilot noticed fuel splashing on left exhaust cone. Engine was not secured. Pilot initiated approach and landing was made. Fuel nozzle gasket (301157) failed.

U-8

1 PRECAUTIONARY LANDING ■ After lowering gear, all indicators showed down but light remained on in gear handle. Visual check showed nose gear was not extended. During go-around from approach, light indicators flickered and gear extended. Tower confirmed gear was down and landing was made. Landing gear relay had one excessively pitted contact. Also, insufficient preload on nose gear activator would not permit safety hook to engage pin and activate indicator switch.

C-47

1 FORCED LANDING ■ After loud noise was heard from left side, pilot observed drop of about 9 inches manifold pressure and hole in No. 1 engine cowl. Engine was secured. At high density altitude and near gross weight, flight could not be maintained on single engine. Landing was made in desert. Cause of engine failure is unknown at this time. WELL DONE to Mr. Carl A. Vanderpool, DAC, Fort Huachuca, AZ, for his expert and successful handling of a dangerous situation.

OV-1

1 INCIDENT ■ After 45 minutes of flight, entrance hatch swung open and struck lower edge of overhead canopy, shattering plexiglass on entrance hatch. Pilot made successful landing at slow speed. Suspect entrance locking handle was not properly locked before takeoff.

T-41

1 FORCED LANDING ■ Engine began to run rough at cruise mixture and power settings. Mixture control was moved to rich with no change. Approach was initiated toward base airfield but was terminated at auxiliary field because of engine condition. Swage on mixture control cable had worked loose, prohibiting mixture control movement from cockpit. □

THOUGHT FOR THE WEEK
TODAY IS YESTERDAY'S SAFETY AWARD.
WHAT ABOUT TOMORROW?

MAINTENANCE MISHAPS

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

Three precautionary landings were reported.

UH-1

3 PRECAUTIONARY LANDINGS ■ Engine rpm bled off slowly, causing warning systems to activate. Pilot retarded throttle and placed governor in emergency. Aircraft was returned to base field. Droop cam and linear actuator were out of adjustment. ■ Transmission oil pressure light came on and oil pressure dropped to zero. Caused by improper torque on self-locking nut. ■ Pilot had just completed topping check at 6,000 feet msl and noticed funny smell. Bleed air heater switch was off but was still blowing air. Pilot tried several different ways to shut off heater but was unsuccessful. Fumes were so bad pilot had crew chief hold controls while he stuck his head out the window and took several breaths of fresh air, then landed. Prior to test flight, engine had been cleaned internally, using water soluble cleaner, B&B 3100. The chemical was mixed 1 to 4 and approximately 2 gallons used to flush engine. Engine was rinsed with clear water, then MOC'd. Air distribution valve failed, letting fumes enter cockpit through bleed air system. Engine maintenance procedure of disconnecting P3 bleed air hose at quick disconnect instead of at air bleed actuator contributed, allowing large quantity of chemical to collect in P3 line.

AH-1/TH-1 CHECK VALVES

The following message, 161500Z Jul 75, was received from USAAVSCOM, St. Louis, MO, subject: Maintenance Advisory AH-1-75-9, Check Valves, P/N 204-076-437-3 and 204-076-437-1.

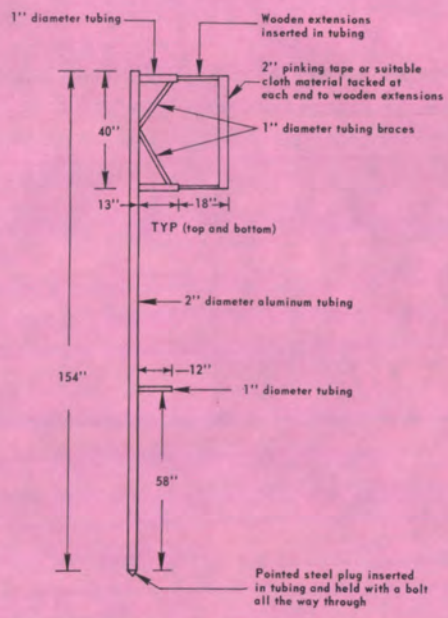
1. It has come to our attention that some units employing AH-1/TH-1 model aircraft are not installing the subject check valves in the main servo cylinder pressure lines when replacing defective servo cylinders.

2. The subject check valves are backup valves for those built into the servo valves and should be installed when servo cylinder replacement occurs.

3. All units employing AH-1/TH-1 aircraft should order the quantity of check valves required to replace those missing in their aircraft system and install them during their next scheduled maintenance after receipt of the check valves.

4. Ample supplies of the check valves are available in the supply system.

SUPERVISION + SAFETY = A WINNING TEAM



TRACKING FLAG

UH-1/AH-1 TRACKING FLAG

USAAAVS has recently received several inquiries on the drawings and/or dimensions for the UH-1/AH-1 tracking flag. These are not presently contained in the respective dash 20s, but are due to be incorporated in the near future. To satisfy the numerous inquiries USAAAVS has acquired the drawing and dimensions of the tracking flag and it is shown here.

UH-1 SAFETY-OF-FLIGHT ADVISORY MESSAGE

The following message, 152013Z August 1975, was received from USAAVSCOM, St. Louis, MO, subject: Safety-of-Flight Advisory Message "Technical/Maintenance" for UH-1 Helicopters (UH-1-75-7). The purpose of this message is to advise UH-1 users of the possibility of cracks existing in the vertical fin of the tail boom. Preventive inspection procedures are included in this message.

1. Summary of Problem: Recent reports to AVSCOM indicate possible structural problems exist in the vertical fin of the UH-1 tail boom in the vicinity of the 90° gearbox attachment fitting. Reports of cracks occurring directly below the 90° gearbox attachment fitting in the vertical fin forward spar (P/N 205-030-846) and the vertical fin drive shaft cover attachment channel; the vertical fin rib (P/N 204-030-827 or P/N 204-031-098) at fin station 10.08 (next rib down from the whip antenna); and in the outboard skin (L/H side) along fin station 10.08 have prompted issuance of this safety-of-flight advisory.

2. A series of inspections for the area in question suitable for insertion in TM 55-1520-210-PMS, TM 55-1520-219-PMS, and TM 55-1520-220-PMS are included in this message. These new scheduled inspections should be implemented upon receipt.

3. Added/revised PMS inspections and sequences are as follows:

a. "Inspect tail boom and vertical fin exterior skin for evidence of damage, cracks, loose or missing rivets, and corrosion, and for security of elevators, tail skid, and whip antenna." This revised inspection shall be performed daily and substituted for sequence No. 6.1 in TM 55-1520-210-PMS, TM 55-1520-219-PMS, and TM 55-1520-220-PMS.

b. "Open tail boom access door and drive shaft covers to inspect structure, including longerons, for damage, cracks, and corrosion." This revised inspection shall be performed at periodic and substituted for sequence No. 6.2 in TM 55-1520-210-PMS; part 2 of sequence No. 6.1 in TM 55-1520-219-PMS; and sequence No. 6.1.2h in TM 55-1520-220-PMS.

c. "Ninety-degree gearbox attachment fitting (P/N 204-030-328) for security and for cracks or corrosion. Silent chain grommets for wear." This new inspection shall be performed at periodic for TM 55-1520-210-PMS sequence No. 6.2.1; TM 55-1520-219-PMS sequence No. 6.1.1; TM 55-1520-220-PMS sequence No. 6.1.3.

d. "Inspect vertical fin forward spar (P/N 205-030-846) and vertical fin drive shaft cover attachment channel for cracks in the area directly below the 90° gearbox attachment fitting." This new inspection shall be performed daily for TM 55-1520-210-PMS sequence No. 6.2.2; TM 55-1520-219-PMS sequence No. 6.1.2; TM 55-1520-220-PMS sequence No. 6.1.4.

e. "Inspect vertical fin rib (P/N 204-030-827 or P/N 204-031-098) along rivet row at fin station 10.08, L/H side, for cracks. Inspection to be accomplished through topmost lightning hole of the vertical fin forward spar with a flashlight and inspection mirror." This new inspection shall be performed at periodic for TM 55-1520-210-PMS sequence No. 6.2.3; TM 55-1520-219-PMS sequence No. 6.1.3; TM 55-1520-220-PMS sequence No. 6.1.5.

Dark location surrounding crack is the dye penetrant used to define location of crack. Drawn-in ink line represents location of crack itself.

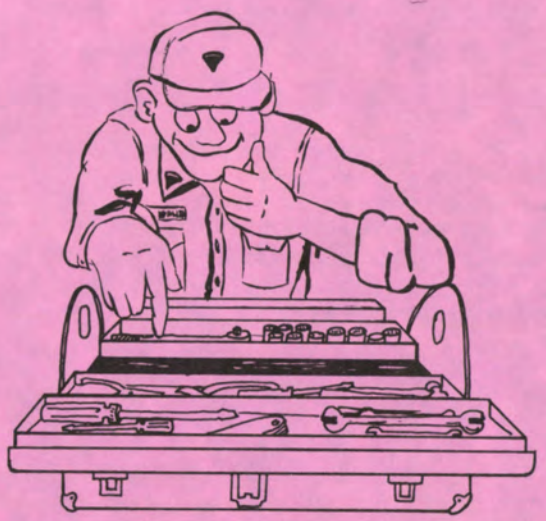
4. The above inspections are added to the PMS cards in the sequence as noted.

5. If any defects are found while performing inspection a above conduct inspection b through e above as follow-up inspections rather than waiting for the period as noted.

6. Obtain assistance from direct support if cracks in skin, spar, or rib are discovered and change status symbol to red X.

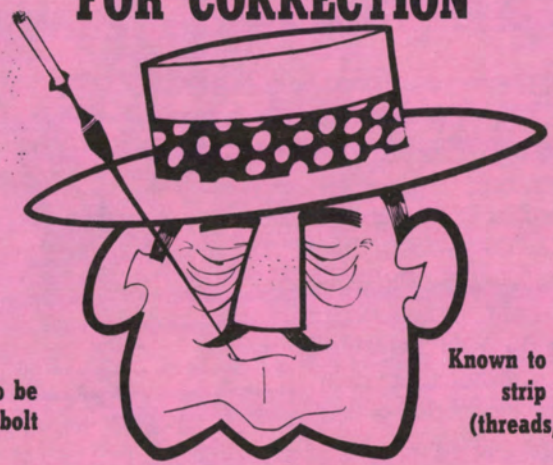
Even if you can afford to pay for lost tools and equipment, you probably won't make enough to buy a new pilot or aircraft that was destroyed by the screwdriver, wrench, or pliers that were left where they shouldn't be.

INVENTORY YOUR TOOLBOX



WANTED

FOR CORRECTION



Believed to be
a son-of-a-bolt

Known to frequently
strip joints
(threads, that is)

"Gigolo" 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 36362

OFFICIAL BUSINESS

POSTAGE AND FEES PAID
DEPARTMENT OF THE ARMY
DOD-314

ARMY AIRCRAFT MISHAP PREVENTION DATA

FLIGHT FAX

ORVAL RIGHT
Chief Advisor on
Matters of Aviation

A USAAAVS PUBLICATION

VOL. 3, NO. 45 ■ 3 SEPTEMBER 1975

mishaps for the period of 15-21 AUGUST 1975

Improving Initial Distribution Of Aviation Publications

One common problem discovered during recent USAAAVS assistance visits to units in the field was the difficulty in obtaining aviation publications, especially dash 10's, 20's, and 34's. As a result, USAAAVS met with responsible representatives of the U.S. Army Adjutant General Publications Center and the Technical Publications Division of the U.S. Army Aviation Systems Command at St. Louis, Missouri, to discuss ways to help units overcome the publications problem. The AVSCOM and AG Publications Center representatives identified several ways to improve operating procedures which should make reprinted technical manuals more readily available to units for their resupply requisition requirements. Both agencies asked that unit commanders thoroughly understand the system established by the Army for supply of publications to the field and follow those procedures for getting pinpoint and resupply distribution of publications and blank forms.

Let's discuss those items that unit commanders can work on to insure more timely receipt of publications at their level. First, make sure your unit has an active publication account established with

Continued on page 2

Continued from front page

the Baltimore and St. Louis Publications Centers. Instructions for establishing your account are contained in AR 310-2 and DA Pamphlet 310-10. All elements of the active Army, down to and including company/battery/detachment level, State Adjutants General, and selected Reserve component units, are authorized to establish a publications account subject to certain stipulations which are outlined in the pamphlet. Requests for accounts from companies, batteries, and detachments must be approved by the next higher headquarters. Some commanders may be unaware that their units already have valid accounts with the Publications Centers because of reorganizations, personnel turbulence, and misplacement of publications account files in conjunction with unit moves. An indicator may be those unwanted publications your unit has been mysteriously receiving. If this is the case, it is recommended that the Publications Centers be contacted by telephone or letter for a determination.

Should your unit already be on pinpoint distribution, but a complete publications account file reflecting your unit's current initial distribution requirements is not available in your orderly room, the Publications Centers will gladly help you. On request, the Centers will provide a computer printout of your unit's current DA Form 12 initial distribution requirements.

Remember, the St. Louis and Baltimore Centers will assign your unit separate account numbers. Therefore, all requisitions (DA Form 12 Series and DA Form 17) submitted must include the proper account number for the appropriate Center. Remember also that the account numbers must be included for all communications and transactions with the Centers.

It is important to consider your unit's requirements for applicable publications and quantities needed because they help determine the number printed for distribution. For example, when a certain TM is revised or changed, the AG Publications Agency bases the number to be printed on the initial distribution figures (DA Form 12 requirements). The actual demand figures (DA Form 17 resupply requirements) are not included. Consequently, the availability of that TM to satisfy subsequent requisitions, other than initial distribution, could very well become a problem. Therefore, it is recommended that your unit's realistic needs be reflected on the current DA Form 12 series for automatic initial distribution. Submit changes to your account NOW to increase or decrease quantities needed, or cancel publications no longer required. Contrary to the instructions printed on each requisition form, a complete revision of your account no longer has to be submitted. Merely enter your updated requirements only in those blanks for which an addition, change, or deletion is to be made. Refer to DA Pam 310-10 for complete information on this. Furthermore, be sure that you designate a responsible and capable individual to perform the duties of unit publications supply clerk and that he maintains a complete and current file of all transactions with the Publications Centers.

Continued on back page

CHANGE IN USAAAVS ORGANIZATION

Colonel Sam Kalagian, head of the Directorate for Aircraft Accident Analysis and Investigation, is now the Deputy Commander of USAAAVS. Taking COL Kalagian's former job is Lieutenant Colonel Curtis Sanders, who previously served as chief of the Officer Instructional Division.

LOSS OF RESOURCES
FROM THIS WEEK'S MISHAPS

FATALITIES:	3
INJURIES:	0
AIRCRAFT LOSSES:	1
ESTIMATED COSTS:	$338,595

UNITED STATES ARMY AGENCY FOR AVIATION SAFETY
FORT RUCKER, ALABAMA 36362
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
USAR Representative	558-6510/4714
After-duty tape recording of incoming calls to be returned following day (hours: 1615 to 0730)	558-6510
Commercial:	255-XXXX

Prepared from information compiled by the Directorate for Aircraft Accident Analysis & Investigation
Lieutenant Colonel Curtis M. Sanders, Director

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.

UTILITY/ATTACK BRANCH

Fatalities: 3 ■ *Accidents:* 1
Injuries: 0 ■ *Estimated Costs:* $311,570

■ CPT James M. Klina, Jr., Chief
SP6 Roland L. Allen, Jr.
558-4198

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

UH-1

1 ACCIDENT ■ Aircraft departed field site to check weather. Pilot reported weather was too bad and he was returning to field site. Aircraft crashed en route, fatally injuring the three crewmembers. Investigation in progress with USAAAVS assistance.

2 INCIDENTS ■ Aircraft struck tree during flight through mountainous terrain. Tree was obscured by fog. One main rotor blade and both elevators were damaged. (USAR) ■ Main rotor blade of one aircraft struck stabilizer bar of parked helicopter during attempt to park with the use of a ground guide. Main rotor of first aircraft and stabilizer bar of second were damaged. (ARNG)

1 FORCED LANDING ■ Pilot entered autorotation to perform engine vibration check during test flight. Throttle was reduced to flight idle, but power could not be restored when throttle was rolled back on to full open position. Pilot continued autorotation to active runway. Situation could not be duplicated and cause is unknown. WELL DONE to CW2 Randy J. Taylor, HHD 210th Avn Bn, Fort Clayton, Canal Zone.

25 PRECAUTIONARY LANDINGS–following are selected briefs ■ Hydraulic pressure light came on during takeoff. Caused by ruptured hydraulic pressure line. ■ Smoke and fumes filled cockpit. Suspect internal failure of UHF radio. ■ Engine chip detector lights of three aircraft came on. Two were caused by fuzz and one by moisture in plug. ■ Engine oil pressure gauge dropped to zero. Caused by failure of engine oil transmitter. ■ Three tail rotor chip detector light illuminations were reported. One was caused by metal particles and one by fuzz. Cause of third is unknown. ■ Cockpit began to fill with smoke. Caused by failure of main inverter.

AH-1

2 INCIDENTS ■ During field problem aircraft drifted left and main rotor struck small tree. One main rotor blade was damaged. ■ Tail rotor hit small bush during landing.

1 FORCED LANDING ■ Aircraft picked up to hover and engine quit. Caused by failure of fuel control.

5 PRECAUTIONARY LANDINGS ■ Loud bang was heard during takeoff. Caused by failure of copilot's blower fan. ■ Transmission oil pressure fluctuated and dropped to 30 psi. Inspection revealed transmission elbow assembly was cracked, allowing oil to escape. ■ No. 1 hydraulic light came on. Caused by defective O-ring on No. 1 lockout valve. ■ Pilot noted feedback on cyclic control. Maintenance was unable to duplicate and aircraft was released for flight. ■ Collective froze on final approach and pilot made running landing. Caused by failure of collective servo. □

LOH/CARGO BRANCH

Fatalities: 0 ■ *Accidents:* 0
Injuries: 0 ■ *Estimated Costs:* $23,691

■ MAJ Robert P. Judson, Chief
SFC D. T. Farrar/SFC R. G. Farris
558-4202

Four incidents and sixteen precautionary landings were reported.

OH-6

1 PRECAUTIONARY LANDING ■ Main transmission chip detector light came on due to metal flakes. Plug was cleaned and aircraft returned to base. (ARNG)

OH-58

2 INCIDENTS ■ While making go-around from aborted approach to LZ, pilot initiated right turn and main

rotor blade struck tree limb, damaging blade tip and tip cap. ■ During authorized and supervised NOE flight, pilot was distracted by tactical vehicle and main rotor blade struck small tree branch, damaging blade.

9 PRECAUTIONARY LANDINGS ■ Main transmission chip detector lights of two aircraft illuminated. One resulted from chips and fuzz and the other from internal short. (ARNG) ■ Tail rotor chip detector light came on during hover. Cause not reported. ■ Engine chip detector light came on. Plug was cleaned and aircraft released. ■ Hydraulic caution light illuminated. Caused by faulty pressure switch. (ARNG) ■ Engine and main rotor rpm bled off during power increase. Suspect dirty engine compressor. ■ During takeoff, N2 decayed to 94% and began surging between 90% and 98%. Caused by power governor assembly malfunction. ■ DC starter generator malfunctioned during flight and was replaced. ■ During engine runup in preparation for takeoff, TOT exceeded limitations. Suspect fuel control malfunction. Investigation is in progress.

TH-55

2 PRECAUTIONARY LANDINGS ■ Excessive engine oil pressure indication resulted from malfunction in pressure sending unit. ■ Loss of engine oil pressure resulted from malfunction of pressure sending unit.

CH-47

2 INCIDENTS ■ Aircraft was discharging internal load when forward rotor blade struck vehicle-mounted whip antenna. (ARNG) ■ Copilot's emergency door separated from aircraft during flight. Cause undetermined. Door was not recovered.

3 PRECAUTIONARY LANDINGS ■ Pilot detected odor of smoke during flight and aircraft was landed. No discrepancies were found and mission was continued. Suspect smoke odor came from nearby industrial area. ■ No. 2 engine decreased in power and egt increased to 760° C. during cruise flight. Engine was secured and aircraft landed. Engine was inspected and normal restart made. During engine acceleration egt went to 750° C. and flight engineer advised that engine be shut down. Engine reinspection showed damage had occurred to N2 turbine area during restart. Cause is undetermined and investigation continues. ■ Transmission chip detector light flashed intermittently during flight. Caused by metallic fuzz on plug.

CH-54

1 PRECAUTIONARY LANDING ■ Main transmission chip detector light came on. Caused by metallic fuzz on plug.

"LOW ALTITUDE ALERT, ADVISE YOU CLIMB IMMEDIATELY."

FAA controllers have been directed to issue this low altitude alert to radar-identified aircraft if the altitude as observed on radar will, in the controller's judgment, place the aircraft in unsafe proximity to terrain/obstructions. The service is a first duty priority along with the separation of aircraft and is contingent upon the capability of the controller to observe the unsafe altitude. This action, which represents a change in agency policy, follows recent unfortunate accidents where aircraft were inadvertently flown into the ground or an obstruction when the pilots failed to maintain a safe distance from the terrain.

—FAA Aviation News, July 1975

FIXED WING

Fatalities: 0 ■ *Accidents:* 0
Injuries: 0 ■ *Estimated Costs:* $3,334

BRANCH

■ MAJ William G. Daly, Jr., Chief
SFC John M. Terrell
558-3901

Two incidents and seven precautionary landings were reported.

U-8

1 INCIDENT ■ Landing gear could not be lowered. Both engines were feathered and wheels-up landing was completed with damage to edge of left flap and VHF antenna. Cause unknown at this time. WELL DONE to LTC Paul G. Phillips, Hawaii ARNG.

OV-1

1 INCIDENT ■ Technical observer's entrance hatch opened in flight. Suspect latch was not properly locked.

3 PRECAUTIONARY LANDINGS ■ Inertial navigation system went off line followed by NO-GO light. After landing, maintenance found overheated battery. ■ Cockpit filled with smoke and fumes. Rectifier shorted out. ■ No. 1 engine chip detector light illuminated. Small amount of metal fuzz was found on chip detector plug.

T-41

1 PRECAUTIONARY LANDING ■ Fuel pressure dropped to 8 pounds and engine began running rough. No. 2 fuel discharge line broke.

U-21

2 PRECAUTIONARY LANDINGS ■ Pilot noticed fuel leak on takeoff. Right wing fuel cap did not seal. ■ Pilot noticed fuel coming from fuel cap during flight. Landing was made and cap reseated.

U-3

1 PRECAUTIONARY LANDING ■ Fuel began siphoning from right wing auxiliary fuel cap. Caused by deterioration of cork seal. □

THOUGHT FOR THE WEEK

The air discipline required to successfully complete an NOE mission doesn't begin at the start point of the course and terminate at the end point of the course. It starts at operations when the mission is assigned and terminates when the rotor blades are stopped and tied down.

MAINTENANCE MISHAPS

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

One precautionary landing was reported.

OV-1

1 PRECAUTIONARY LANDING ■ Right main gear would not fully retract after liftoff. Pilot obtained clearance for approach and gear extended and locked down normally. Uneventful landing was completed. Mooring hook ring (main gear tiedown ring) was frozen in extended position. Caused by lack of lubrication.

MAIN ROTOR BLADE INSPECTION

Reference FLIGHTFAX, Vol. 3, No. 15, dated 5 Feb 1975, and USAAVSCOM Message 251530Z Aug 1975. The AVSCOM message is repeated to insure all are aware of the inspection.

MAINTENANCE ADVISORY MESSAGE

Subject: UH-1 and AH-1 Main Rotor Blade Preventive Maintenance Services (UH-1-75-11 and AH-1-75-13)

A. TM 55-1520-210 PMS, 9 May 75, Seq. No. 4.3
TM 55-1520-219 PMS, 9 May 75, Seq. No. 4.1.2
TM 55-1520-220 PMS, 25 Apr 75, Seq. No. 4.14
TM 55-1520-221 PMD, 21 Jan 70, W/Chg 3, 11 Oct 72, Seq. No. 6.1
TM 55-1520-221 PMI, 21 Jan 70, W/Chg 5, 28 Feb 73, Seq. No. 6.1
TM 55-1520-221 PMP, 21 Jan 70, W/Chg 8, 7 Mar 75, Seq. No. 6.1

1. This message provides the latest information on preventive maintenance inspection requirements for all main rotor blades used on UH-1 and AH-1 model aircraft. The information contained herein for the UH-1C and M and AH-1G and Q is in addition to the special inspection requirements for 540-011 series main rotor blades used on these aircraft.

2. All, repeat, all main rotor blades used on UH-1 and AH-1 aircraft are to be wiped down with a clean soft cloth and visually inspected during the aircraft daily, intermediate, and periodic inspections.

3. Information contained in this message should be inserted in the referenced TM's pending receipt of the formal change.

4. Delete the present inspection procedures for the indicated sequence numbers in the referenced TM's. Insert the following inspection procedure in place of those deleted. "Gain access to blades. Wipe blades upper and lower surfaces with a clean soft cloth and inspect both surfaces and blade tip for damage, cracks, and visible indications of voids and bond separation. Inspect for nicks and dents in trailing edge and scarf joints for erosion and corrosion." □

Continued from page 2

Did you know there is also a means established at the Publications Centers to accommodate requisitions after duty hours? It is an automatic telephone recording system. Simply dial autovon number 698-7339, for St. Louis Publications Center and 231-3431 for Baltimore Publications Center. Provide the following information:

a. Account number.
b. Unit designation and address.
c. Your name and autovon number.
d. Reason for requisition.
e. Date publications are required.
f. Items and quantity needed (no more than five publications of each type).

Allow 30 days for the Publications Centers to act on your requisitions before submitting a follow-up. In addition, please notify the Publications Center of any changes in your unit's designation and address. If your unit is to be inactivated, or has been inactivated, let the Centers know. Every day, large quantities of distribution packages are being returned to the Centers stamped "undeliverable." This is a serious imposition on the U.S. mail system, Publications Center administration, and Army funding.

Should you need assistance on any matter pertaining to receipt of publications, do not hesitate to contact the following agencies:

Commander
U.S. Army AG Publications Center
2800 Eastern Blvd.
Baltimore, Maryland 21220

Commander
U.S. Army AG Publications Center
1655 Woodson Road
St. Louis, Missouri 63114

Commander
U.S. Army Agency for Aviation Safety
ATTN: IGAR-PP
Fort Rucker, Alabama 36362

DEPARTMENT OF THE ARMY
UNITED STATES ARMY
AGENCY FOR AVIATION SAFETY
FORT RUCKER, ALABAMA 36362

OFFICIAL BUSINESS

POSTAGE AND FEES PAID
DEPARTMENT OF THE ARMY
DOD-314

ARMY AIRCRAFT MISHAP PREVENTION DATA

FLIGHTFAX

ORVAL RIGHT
Chief Advisor on
Matters of Aviation

A USAAAVS PUBLICATION

VOL. 3, NO. 46 ■ 10 SEPTEMBER 1975

mishaps for the period of 22-28 AUGUST 1975

TURBINE ENGINE CLEANING

Because of the number of telephone calls received at USAAAVS pertaining to the engine cleaning procedure printed in FLIGHTFAX, Vol. 3, No. 40, 30 July 1975, the following caution note will soon be added by AVSCOM Powerplants Branch to *all* turbine engine cleaning procedures:

CAUTION

Cleaning solution or water must *not* be sprayed into the engine inlet while engine is running. A stream of liquid directed against compressor blades at operating rpm can cause blades to oscillate at high frequency. This can result in fatigue damage to the blades and contribute to subsequent blade failure.

Signal Kit, Flare / Cartridge

Signal Kit, Foliage Penetrating, NSN 1370-00-490-7362, is currently issued with the SRU-21/P survival vest and contains a flare gun and "insert type" flare cartridge. The flare cartridges used in the old type AP25S-1, signal gun, NSN 1370-00-886-9788, are identifiable by the caps and screwthreads of the cartridges. Some of these cartridges have loose caps and bad threads. This pengun and cartridges are being phased out of the supply system as shelf life expires. Should you have the old signal flare gun and cartridges, extreme caution should be exercised; i.e., if the firing control is in the forward position the "gun" is unsafe to load as the firing pin will contact the cartridge when loaded and could cause premature firing of the flare. NOTE: Users of survival equipment and accessories should be properly trained in use of the equipment prior to issue. For further information, call USAAVSCOM, St. Louis, MO.

SPH-4 Helmet Visor Assembly

There appears to be some confusion about which is the tinted visor for the SPH-4 helmet. Visor Assembly, Neutral, NSN 8415-00-490-1196, is the tinted visor. Action is being taken to reflect this in the next change to TM 10-8415-206-13, Operator, Organizational, and Direct Support Maintenance Manual, including repair parts and special tools list for the SPH-4 helmet.

WARNING

United Airlines is advising airport managers and personnel at stations serving UAL that automotive vehicles equipped with catalytic converters should be restricted from airport ramp areas. According to tests, the converters can reach temperatures of 900 to 1,200 degrees, high enough to ignite spilled gasoline. *–Aviation News Digest*

UTILITY/ATTACK BRANCH

Fatalities: 0 ■ *Accidents:* 1
Injuries: 12 ■ *Estimated Costs:* $309,858

■ CPT James M. Klina, Jr., Chief
SP6 Roland L. Allen, Jr.
558-4198

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

UH-1

1 ACCIDENT ■ During low-level cruise flight aircraft descended, crashed and burned, resulting in twelve injuries. Investigation is in progress.

2 INCIDENTS ■ Aircraft drifted laterally during takeoff from confined area and main rotor blades struck tree. ■ At 1-foot hover with 47 psi torque applied, aircraft started to spin. Pedal was applied with no effect. Aircraft landed hard.

24 PRECAUTIONARY LANDINGS–following are selected briefs ■ Partial power loss occurred during cruise flight. Full power was regained in emergency governor position. Suspect overspeed governor malfunction. (ARNG) ■ Engine momentarily lost power during NOE flight, then regained power long enough for pilot to land in adjacent field. Fuel control was replaced. ■ Fire detector light came on. Cause not reported. ■ Transmission oil pressure light came on and pressure gauge indicated zero. Transmission internal oil filter gasket failed. ■ Immediately after trigger was depressed to start engine, battery exploded. Cause not reported. ■ Master caution and hydraulic pressure lights illuminated before takeoff. Hydraulic pressure switch malfunctioned. ■ Chip detector lights of eight aircraft came on. One indicated internal engine failure; two had fuzz on magnetic plug; and three had loose wires. Causes for the other two were not reported.

AH-1

1 INCIDENT ■ Main rotor blades struck tree while aircraft was being parked.

8 PRECAUTIONARY LANDINGS–following are selected briefs ■ Transmission oil pressure gauge indication dropped to zero. Caused by loose cannon plug. ■ Four precautionary landings were caused by chip detector light illuminations. All reported fuzz on magnetic plug. □

SUPERVISION + SAFETY = A WINNING TEAM

LOSS OF RESOURCES
FROM THIS WEEK'S MISHAPS

FATALITIES:	0
INJURIES:	13
AIRCRAFT LOSSES:	1
ESTIMATED COSTS:	$327,298

UNITED STATES ARMY AGENCY FOR AVIATION SAFETY
FORT RUCKER, ALABAMA 36362
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
USAR Representative	558-6510/4714
After-duty tape recording of incoming calls to be returned following day (hours: 1615 to 0730)	558-6510
Commercial:	255-XXXX

Prepared from information compiled by the Directorate for Aircraft Accident Analysis & Investigation
Lieutenant Colonel Curtis M. Sanders, Director

LOH/CARGO BRANCH

Fatalities: 0 ■ *Accidents:* 1
Injuries: 1 ■ *Estimated Costs:* $14,201

■ MAJ Robert P. Judson, Chief
SFC D. T. Farrar/SFC R. G. Farris
558-4202

One accident, three incidents, one forced landing, and twenty-two precautionary landings were reported.

OH-6

1 PRECAUTIONARY LANDING ■ During cruise flight at 400 feet, indications of power loss occurred. There was a slight yaw, N2 dropped to 97%, and engine-out light flashed. Pilot lowered collective for power-off approach and N2 stabilized. Power-on landing was made. Cause of momentary power loss is unknown pending analysis. (ARNG)

OH-58

1 INCIDENT ■ During authorized and supervised NOE flight, while approaching unprepared landing zone, pilot went IMC in dust. Main rotor blades struck tree and were damaged.

1 FORCED LANDING ■ During cruise flight at 100 feet and 70 knots, pilot heard loud grinding noise and felt vibration. TOT went beyond maximum and power loss followed. Engine stoppage was caused by malfunction of N1 turbine section. WELL DONE to CPT Robert E. Huntley, Fort Hood, Texas.

16 PRECAUTIONARY LANDINGS ■ Hydraulic low pressure caution lights of six aircraft came on. All were caused by malfunction of pressure switch. P/N 206-078-404-1 was reported in one case and P/N 206-076-365-1 in four cases. P/N was not reported for the sixth case. ■ Three transmission low oil pressure light illuminations were reported. One was caused by loose and leaking oil line connection and one by a seeping input quill. The third cause could not be isolated. ■ Tail rotor chip detector light came on. Metal particles were found on plug. ■ Main transmission chip detector light illuminated. Plug was cleaned and aircraft released. (USAR) ■ Main transmission oil hot temperature light came on during approach. Situation could not be duplicated and aircraft was released. ■ Malfunction of N1 tachometer generator caused N1 to fluctuate and engine-out light and audio to come on during flight. ■ Main rotor rpm bled off during takeoff. Maintenance could not duplicate situation. ■ Fuel filter caution light came on. Caused by fuel contamination from dirty fuel nozzle. ■ During authorized and supervised NOE flight, a roaring sound came from rear of aircraft and moderate to severe vibrations were encountered. Caused by deterioration of No. 8 tail rotor drive hanger bearing, P/N 206-040-339-5.

TH-55

1 ACCIDENT ■ During takeoff on first student pilot solo flight, overcontrol of throttle, collective, and pedals resulted in left rotation while hovering. Aircraft landed hard, damaging landing gear assembly, center frame, main rotor blades, and cabin enclosure.

1 INCIDENT ■ Bird struck lower right windshield during flight. Windshield was broken.

3 PRECAUTIONARY LANDINGS ■ Student pilot head metallic thumping sounds and felt shudder in airframe. Caused by malfunction of upper forward bearing in "H" frame of main rotor drive belt assembly. ■ Excessive engine oil pressure was caused by malfunction of oil pressure sending unit. ■ Main transmission warning light came on when temperature switch malfunctioned.

CH-47

2 PRECAUTIONARY LANDINGS ■ No. 1 engine oil temperature gauge increased to 150° during flight. Engine was brought to ground idle and oil temperature returned to normal. Engine was returned to flight rpm and temperature exceeded 138°. Engine was shut down. Caused by short in engine wiring cannon plug

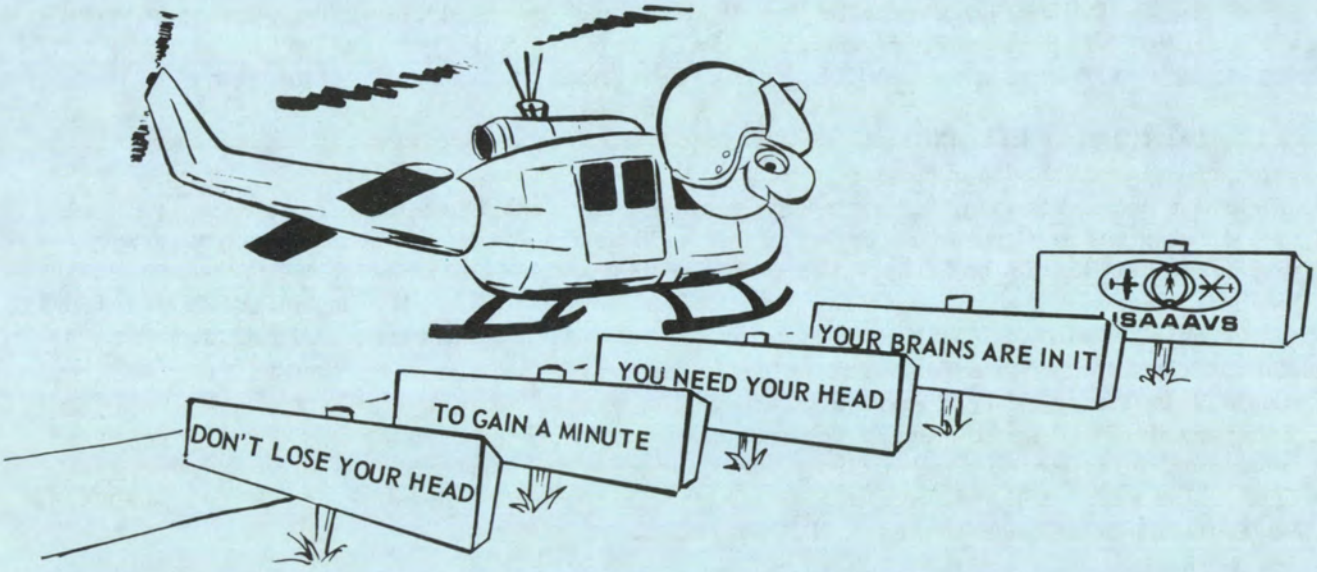
at engine disconnect panel. ■ Aft transmission oil temperature went to 140° and warning light came on. Caused by faulty temperature bulb.

CH-54

1 INCIDENT ■ Aircraft was in cruise flight when slight vibration, accompanied by cyclic feedback, was noted. During procedure for emergency landing and in descending right turn, severe downward jolt was felt, accompanied by increasingly severe cyclic feedback. After landing, aircraft began to oscillate and bounce and shutdown was immediately initiated. On rotor brake application, yellow main rotor blade continued forward, breaking yellow pitch change link and causing damage to preceding blade. Caused by sheared outboard damper retaining spanner nut pin. Sheared pin allowed nut to come off and damper to disconnect from yellow blade horizontal hinge pin.

THOUGHT FOR THE WEEK

Remember the "Burma-Shave" roadside signs? If you're in your teens you probably don't . . . in your twenties you may . . . and if you're over thirty, you probably couldn't forget them if you tried. In any case, whether you do or don't doesn't matter because we're going to show you one anyway!



FIXED WING

Fatalities: 0 ■ *Accidents:* 1
Injuries: 0 ■ *Estimated Costs:* $3,239

BRANCH

■ MAJ William G. Daly, Jr., Chief
SFC John M. Terrell
558-3901

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

U-21

1 INCIDENT ■ During training flight pilot noticed fuel siphoning from right nacelle fuel cap. Landing was made in overgross landing condition. Damage was found to front wheel assembly and right wheel well stringer.

1 PRECAUTIONARY LANDING ■ During gear retraction on test flight, grinding noise and heavy vibration were noted. Gear handle lights remained on and recycling produced negative results. Gear was lowered manually and confirmed down. Suspect failure in drive between electric motor and gearbox of retraction system.

U-8

1 PRECAUTIONARY LANDING ■ Engine began running rough during climb after takeoff. Pilot reduced power but engine continued to run rough. Engine quit on short final, but successful landing was made. Cause is suspected to be ingestion of portion of air intake filter.

OV-1

3 PRECAUTIONARY LANDINGS ■ Nose gear indicated down after gear retraction. Recycling did not change indication. Tower confirmed gear was up but door was partially open. Caused by gear door timer check valve. (ARNG) ■ No. 1 engine chip detector light came on after takeoff and landing was made. Caused by defective chip detector plug. Three days later, No. 1 engine chip detector light came on again. Pilot returned for landing and noted power loss on base leg. Engine was secured during rollout. Propeller-gear reduction system malfunctioned. CCAD is performing analysis.

U-3

1 PRECAUTIONARY LANDING ■ During cruise flight, rpm began to drop on No. 1 engine. Pilot noticed black puff of smoke coming from cowling. Pilot switched fuel, turned boost pump on, and moved mixture to rich, but rpm continued to deteriorate. Engine was secured and single-engine landing was successful. Quick drain on oil sump opened in flight.

U-1

1 ACCIDENT ■ While taxiing in soft sand with deep ruts from ground vehicles, tail wheel struck hard-packed berm, causing skin wrinkle above tail wheel about 24 inches long and buckling of bulkhead forward of steering motor. (USAR)

Due to inquiries concerning OV-1 ejection seats, the following message is being repeated for your information:

OV-1 EJECTION SEAT BAROSTATS

USAAVSCOM message, R261835Z Aug 75, subject: Technical Advisory Message for OV-1 Series Aircraft With Improved Ejection Seats Installed, Control Number OV-1-75-2.

1. Purpose of Message. This message is being transmitted to advise ejection seat maintenance personnel of a change in the operating tolerance for the new barostat used on mark jay five delta ejection seats.

2. Field reports have indicated some difficulty in functional testing of the new barostat to the prescribed operating tolerance cited in TM 55-1680-308-24. The problem is primarily attributed to the lack of accuracy attainable using the currently available barostat test apparatus. This condition is causing increased aircraft downtime as well as an undesirable degree of disassembly adjustment and reassembly of the improved barostats.

3. Pending receipt of a formal change to TM 55-1680-308-24 the information cited in this message shall be used during barostat operational testing for mark jay five delta ejection seats only.

a. Chapter 4, page 4-23, par. 4-6L(3)(D)–the caution shall read: Insure the pressure altimeter used is within calibration and is set at 29.92 inches before beginning test.

b. Chapter 4, page 4-24, par. 4-6L(3)(F) is changed to read: Slowly open bleeder valve until pressure altimeter indicates 19,000 to 20,000 feet. Hold vacuum at this altitude for approximately one minute.

c. Chapter 4, page 4-24, par. 4-6L(3)(H)–the last sentence is changed to read: The rack plunger should start its extension at an altitude range of 15,500 to 14,000 feet. □

MAINTENANCE MISHAPS

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

One precautionary landing was reported.

AH-1

1 PRECAUTIONARY LANDING ■ Aircraft was on short final when smoke was noticed coming from battery vent. Postflight inspection revealed battery was improperly serviced at scheduled maintenance checks.

From AVSCOM's "Maintenance Matters," August 1975

PROBLEMS WITH OH-58 SEATBELTS

"Inquiries show that the seatbelt can pull loose when the belt restraint is worn. The problem is caused by the threads of the seatbelt retention bolts forcing the bushing to turn in its restraint. In time the rotation of the bolt and the bushing causes the restraint to wear. The diameter of the safety washer presently in use is not large enough to prevent the seatbelt from pulling loose."

To correct the problem, AVSCOM recommends replacing the bolt, AN 24-10A, and the washer, AN 960PD 416, with bolt, AN 24-11A, and washer, AN 970-4. For reference, see TM 55-1520-228-34Q, figure 41, items 15, 15A, 16, and 16A, and figure 42, items 2 and 3.

The AVSCOM publication also states a change to TM 55-1520-228-20P and 34P will reflect the new part number. □

DEPARTMENT OF THE ARMY
UNITED STATES ARMY
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FORT RUCKER, ALABAMA 36362

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ARMY AIRCRAFT MISHAP PREVENTION DATA

FLIGHT FAX

ORVAL RIGHT
Chief Advisor on
Matters of Aviation

A USAAAVS PUBLICATION

VOL. 3, NO. 47 ■ 17 SEPTEMBER 1975

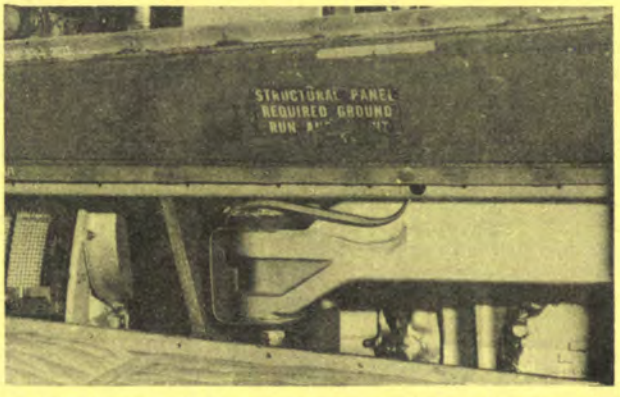
mishaps for the period of 29 AUG-4 SEP 1975

FOREIGN OBJECT DISEASE

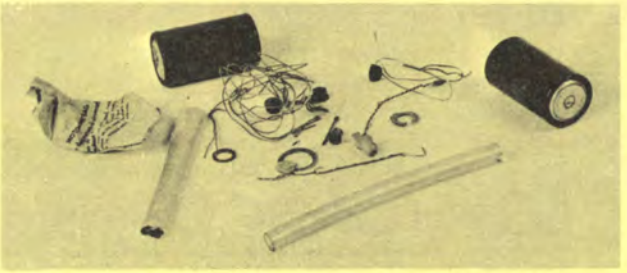
The all-out assault on FOD is a team effort, like any good military or medical operation. The trouble is that in any such operations, someone always is handed the heavy end of the load.

As far as FOD is concerned, the maintenance people get the task of carrying the ball about the same proportion of times as the running back on a pro football team. The mechanics, chiefs, inspectors, and the rest of the experts who have the job of keeping aircraft hale and hardy work in areas where foreign objects are spawned and where they are likely to do the most damage. So it's also their job to get rid of potential FOD where the disease starts.

Forgetting to pay proper attention to any job in Army aviation will cause certain trouble for somebody else sooner or later. And giving birth to FOD is the easiest and surest way to do it.

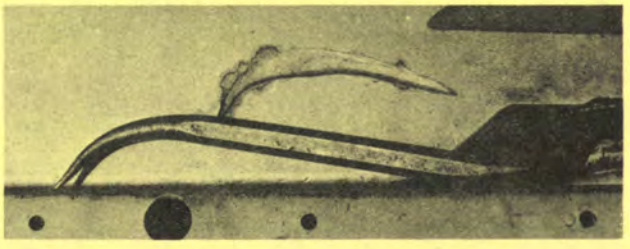


A UH-1H crew chief was inspecting his helicopter when he noticed something wedged between the main transmission and side structural panel. Removal of the panel revealed this damage. It is suspected the cotter key extractor was dropped into the transmission well while work was being done in the area of the main rotor hub assembly 25-30 hours before its discovery. Damage resulted in replacement of the main transmission. Evidently, no toolbox inventory was made.



During a recent safety survey team inspection at one airfield, these foreign objects were picked up from the ramp and helipads where helicopters were in operation.

During preflight inspection, a ¼-inch wrench was found lodged underneath the base of the No. 4 hanger bearing. Rust had formed under the wrench. The aircraft had been out of PE for 3 weeks and had been flown 5 hours. Damage was small—minor scratches—but the oversight could have resulted in fatalities and the destruction of the aircraft.



AAPC CANCELLATION

Aircraft Accident Prevention Courses 76-3 (29 Sep-10 Oct) and 76-4 (10-21 Nov) have been cancelled. AAPC prospective attendees should request quotas for classes beginning after 1 January 1976.

UTILITY/ATTACK

Fatalities: 0 ■ *Accidents:* 1
Injuries: 0 ■ *Estimated Costs:* $64,000

BRANCH

■ CPT James M. Klina, Chief
SP6 Roland L. Allen, Jr.
558-4198

One accident and twenty-nine precautionary landings were reported.

UH-1

1 ACCIDENT ■ Aircraft was in cruise flight when engine failed. Pilot entered autorotation and landed hard. Inspection revealed bent tail boom and crosstubes, displaced crosstube mounts, and broken greenhouse.

23 PRECAUTIONARY LANDINGS–following are selected briefs ■ Engine chip detector lights of three aircraft came on. Two were caused by fuzz and one engine was replaced. ■ N1 and N2 began fluctuating in flight. Caused by failure of overspeed governor. ■ Right fuel boost pump light came on. Caused by failure of right fuel boost pump. ■ Aircraft encountered unforecast weather and pilot landed. Crew had received weather briefing before departing with no adverse weather reported along their route of flight. ■ Tachometer failed during flight. Caused by failure of tachometer generator. ■ Transmission chip detector light came on. Inspection revealed numerous metal chips and slivers. Transmission was changed. ■ Hydraulics failed in flight. Caused by failure of O-ring between irreversible valve and right lateral servo. ■ Tail rotor chip detector lights of two aircraft came on. One was caused by fuzz and one gearbox was replaced.

AH-1

6 PRECAUTIONARY LANDINGS ■ Fuel quantity dropped rapidly during cruise flight. Caused by short in fuel gauge wiring. ■ Two chip detector light illuminations were reported. Both were caused by fuzz. ■ While in slight dive aircraft yawed and N2 fluctuated. Aircraft was test flown but problem could not be duplicated. ■ Pilot noted excessive feedback in lateral cyclic control. Inspection revealed failure of lateral servo. ■ Pilot felt binding in tail rotor pedals during takeoff. Tail rotor servo was found to be binding.

LOH/CARGO

Fatalities: 0 ■ *Accidents:* 0
Injuries: 0 ■ *Estimated Costs:* $5,769

BRANCH

■ MAJ Robert P. Judson, Chi
SFC D. T. Farrar/SFC R. G. a
558-4202

Three incidents, three forced landings, and seven precautionary landings were reported.

OH-58

1 INCIDENT ■ Left armor door popped open during flight. Upper three hinge attachment points, P/N H1080-5, were torn loose.

3 FORCED LANDINGS ■ Engine stopped during hover. Suspect malfunction of double check valve, P/N 6854622. ■ At about 400 feet and 60 knots during climbout, loud bang was heard, aircraft yawed left, N1 and N2 dropped to zero, and TOT rose to 900+ degrees. Mishap is under investigation. WELL DONE to CW2 Jimmy D. Spilchan for a successful autorotation. ■ During cruise flight at 600 feet, aircraft yawed and engine-out audio came on. Zero N1 and 800° TOT were noted. Suspect internal malfunction of engine. WELL DONE to LTC Doctor R. Grant for a successful autorotation. (USAR)

LOSS OF RESOURCES
FROM THIS WEEK'S MISHAPS

FATALITIES:	0
INJURIES:	0
AIRCRAFT LOSSES:	0
ESTIMATED COSTS:	$70,391

UNITED STATES ARMY AGENCY FOR AVIATION SAFETY
FORT RUCKER, ALABAMA 36362
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
USAR Representative	558-6510/4714
After-duty tape recording of incoming calls to be returned following day (hours: 1615 to 0730)	558-6510
Commercial:	255-XXXX

Prepared from information compiled by the Directorate for Aircraft Accident Analysis & Investigation
Lieutenant Colonel Curtis M. Sanders, Director

1 PRECAUTIONARY LANDINGS ■ One tail rotor and one engine chip detector light illuminated. Both were cleaned and aircraft released. ■ Aircraft lost power during hover. Caused by malfunction of linear actuator, P/N 206-862-721-1. ■ Loud grinding noise, high frequency vibration, and reduced engine and main rotor rpm occurred during flight. Caused by deterioration of tail rotor hanger bearing, P/N 206-040-339-1.

TH-55

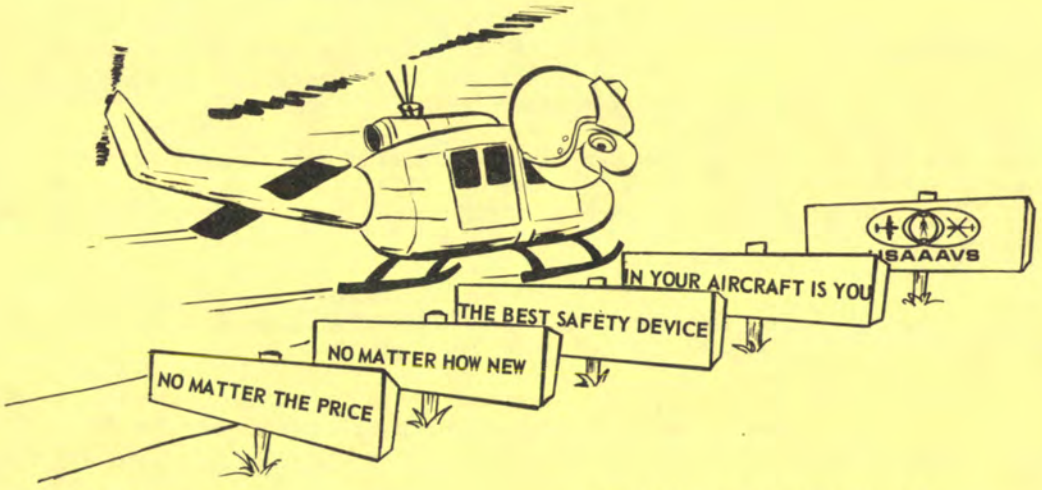
2 PRECAUTIONARY LANDINGS ■ Engine chip detector light came on. Caused by malfunction of chip detector. ■ Engine oil pressure exceeded upper limit during takeoff. Caused by malfunction of pressure sending unit.

CH-47

2 INCIDENTS ■ Aircraft was hovering in confined area when flight engineer directed pilot to move right as he was drifting left. Confusion over which direction to move became evident when aft main rotor blades struck tree. Main rotor tip covers were damaged. (ARNG) ■ Copilot's jettisonable door came off in flight. Cause is under investigation.

1 PRECAUTIONARY LANDING ■ On takeoff pilot noticed that No. 1 engine a.c. beep had failed statically at 88 percent and 550 pounds of torque. Engine was placed in ground to prevent N2 rotor overspeed during thrust decrease input. Caused by N1 control beep failure.

THOUGHT FOR THE WEEK



FIXED WING

Fatalities: 0 ■ *Accidents:* 0
Injuries: 0 ■ *Estimated Costs:* $622

BRANCH

■ MAJ William G. Daly, Jr., Chief
SFC John M. Terrell
558-3901

One incident and nine precautionary landings were reported.

U-21

1 INCIDENT ■ Aircraft encountered IMC at 17,000 feet with visible moisture. Crew requested and received lower altitude. Rime ice collected on leading edges during descent. Inspection after landing revealed missing VHF dipole antenna.

3 PRECAUTIONARY LANDINGS ■ Fuel was noticed siphoning from right nacelle tank after takeoff. Inspection of filler neck revealed bent lip, probably due to improper refueling procedure. Tank would not seal properly. ■ Another similar mishap could only be traced to improper installation of fuel tank cap. ■ No. 1 engine could not be started in flight after intentional shutdown. Landing was successful. Igniter plugs were replaced.

T-42

2 PRECAUTIONARY LANDINGS ■ No. 2 engine began running rough during climbout and fuel pressure fluctuated from 0 to 18 psi. Boost pump did not help the situation. Engine was secured at 600 feet and aircraft returned. Problem could not be duplicated on runup, but mixture was slightly rich and was

adjusted. ■ Interruption in electrical power occurred during practice instrument approach. Approach was cancelled and aircraft returned to land. Power returned and normal approach and landing were completed. Cause has not been completely determined at this time; however, a weak battery was changed.
USAAAVS T-42 EXPERIENCE ■ During runup, right mag of No. 1 engine dropped 200 rpm and left dropped 150 rpm. Engine ran rough. All plugs were changed and aircraft released. Situation was duplicated after 4 hours flight time. Maintenance changed all plugs again and fuel pump. Fuel mixture adjustment required two test flights before proper adjustment was obtained.

OV-1

3 PRECAUTIONARY LANDINGS ■ No. 1 engine quit on GCA downwind. Landing was uneventful. Right fuel manifold had cracked. ■ Two mishaps occurred when left main gear did not indicate down before landing. Gear was blown down. Gear-up indicator microswitch plunger was broken off. EIR's were submitted on both.

U-3

1 PRECAUTIONARY LANDING ■ No. 1 engine began running rough and approximately 3 minutes later engine quit. Suspect internal failure of carburetor.

MAINTENANCE MISHAPS

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

One forced landing was reported.

CH-47

1 FORCED LANDING ■ Aircraft was at 15-foot hover for No. 1 engine maximum power vibration check when engine lost power due to fuel starvation. Hovering autorotation was made. No. 1 engine quick disconnect female fitting of main fuel line separated at disconnect shelf.

ATTENTION CH-47 USERS: Special emphasis should be placed on transmission and engine inspection requirements as outlined in Boeing-Vertol service note dated 8 August 1975, pertaining to general system number (016) 107 and (024) 114, titled "Intermixing of Lubricating Oils, MIL-L-7808 or MIL-L-23699, and oil, MIL-H-5606."

CRASHWORTHY FUEL VALVES

A maintenance/technical advisory message (051347Z Sep 75) concerning inspection of Wiggins crashworthy fuel valves (AH-1G, TH-1G, AH-1Q, UH-1D, and UH-1H helicopters) has been released by USAAVSCOM. It seems TB 55-1500-206-20-23 needs clarification, additional information, and minor correction. It was not the intent of the TB to immediately ground all aircraft which have the defective valves or couplings installed. It was and is the intent of the TB to have all affected aircraft inspected at the next intermediate inspection or within 1 year, whichever comes first. Get a copy of this message for more information about this problem.

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ARMY AIRCRAFT MISHAP PREVENTION DATA

FLIGHT FAX

ORVAL RIGHT
Chief Advisor on
Matters of Aviation

A USAAAVS PUBLICATION

VOL. 3, NO. 48 ■ 24 SEPTEMBER 1975

mishaps for the period of 5-11 SEPTEMBER 1975

T53 ENGINE FUEL CONTROLS

As a result of information received from the field, preliminary reports of aircraft mishaps, and teardown analysis reports, USAAAVS has been alerted to a failure trend in the P1 multiplier valve connector of the T53 series engine fuel control. The function of P1 multiplier bellows is to sense altitude changes and to insure that fuel flow to the engine is adjusted automatically. When a P1 multiplier connector fails, the fuel control main metering valve moves toward the closed position and reduces fuel flow to minimum. In some cases N1 speeds as low as 25% have been reported. Emergency procedures are predicated upon time and altitude, and require almost instantaneous and accurate evaluation of the situation.

The emergency governor procedures contained in the operator's manual are correct and should be followed. The only difference between an underspeeding N2 governor (low rpm) and failure of the P1 multiplier is that with a P1 multiplier failure, the N1 rpm at which the engine will stabilize will be so low that the pilot will most likely be unable to recover in emergency governor position without overtemp or surge. AVSCOM and CCAD are aware of the problem. All fuel controls received at CCAD since 15 July 1975 will have the new modified P1 multiplier connector installed.

In each case where this type of failure has occurred, the power loss has been sudden, complete, and without noise or surging. Until T53 engine fuel controls are modified, if you are faced with a failure of this type, follow the procedure in the dash 10 for underspeeding N2 governor (low rpm). However, don't expect N1 speed to stabilize at approximately 50%. If it's a P1 multiplier failure, it won't. Positive throttle control should be achieved as soon as possible.

FIRE PREVENTION AND PROTECTION REFERENCES

USAAAVS assistance visits have prompted many questions about references used by team members concerning grounding of aircraft, shop safety procedures, and shop conditions, e.g., battery shop. These references are:

Change 20, TM 55-1500-204-25/1, chapter 7, page 7-1, par. 7-8, states ". . . also safety engineers and safety officers will insure that proper safety procedures are adhered to in accordance with AR 385-10, Army Safety Program; AR 385-30, Safety Color Code Markings and Sights; AR 385-32, Protective Clothing and Equipment; the Occupational Safety and Health Act of 1971; all applicable fire codes; and other accepted civilian and military safety practices."

AR 420-90, C1, (Fire Prevention and Protection), par. 1-5, Standards and Procedures, subparagraph a, states ". . . fire prevention and protection standards and general operational procedures will be set forth herein and in . . . Occupational Safety and Health Standards of the Occupational Safety and Health Administration of the Department of Labor." Subparagraph b states: "Supplementary Standards. In absence of specific Headquarters, Department of the Army, regulations, directives, manuals, or standards, use the National Fire Protection Association (NFPA) and other national recognized fire protection standards and publications."

The facilities that are U.S. government-owned generally have been constructed in accordance with the National Fire Code, National Electrical Code, and other safety publications/procedures. Problems occur when units (DS/GS) move in and attempt to construct individual shops. When this is done, compliances with the codes and other related publications are generally overlooked.

If you are in doubt about your area, look for a supplement to AR 420-90 or seek the advice of the local fire prevention marshal. He should be able to identify your problem areas.

Prepared from information compiled by the Directorate for Aircraft Accident Analysis & Investigation
Lieutenant Colonel Curtis M. Sanders, Director

UTILITY/ATTACK

Fatalities: 0 ■ *Accidents:* 0
Injuries: 0 ■ *Estimated Costs:* $22,078

BRANCH

■ CPT James M. Klina, Jr., Chief
SP6 Roland L. Allen, Jr.
558-4198

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

UH-1

1 INCIDENT ■ Main rotor blade struck top of tree during takeoff from confined area.

1 FORCED LANDING ■ During hover-taxi, engine lost power, surged, and failed. Cause not reported.

29 PRECAUTIONARY LANDINGS—following are selected briefs ■ Crew smelled odor of burning electrical equipment. Caused by internal failure of left fuel boost pump. (ARNG) ■ Engine oil pressure gauge indication dropped to zero. Caused by loose wire. ■ On final approach at 10-15 feet agl, aircraft yawed and low rpm warning system activated. Aircraft landed with 5400-5600 engine rpm. Suspect fuel control malfunction. ■ Transmission oil hot light came on. Maintenance could not determine cause. ■ Aircraft had high frequency vibration and antitorque pedals were sticking. Tail rotor servo was replaced. ■ Aircraft was flying NOE when property owner shot it with 30.06 rifle. (ARNG) ■ Large bird struck mast. No damage. ■ Chip detector lights of six aircraft came on. Four reported fuzz on magnetic plug, one had corrosion on magnetic plug, and one cause was unknown.

AH-1

3 INCIDENTS ■ Aircraft hit unmarked wire while flying between two hills. ■ Engine surged and pilot entered autorotation. On termination, aircraft rocked forward, causing damage to fiberglass turret cowling. Suspect internal failure of fuel control. ■ While firing 2.75-inch rockets, aircraft was struck by shrapnel.

6 PRECAUTIONARY LANDINGS ■ Generator and battery failed. Cause not reported. ■ Electrical failure occurred in flight. Suspect failure of cutout relay. ■ Crew noticed binding in cyclic control. Inspection failed to identify cause. Suspect expansion of ECU duct. ■ Engine chip detector light came on. Caused by internal failure of engine. ■ Tail rotor gearbox chip detector light illuminated. Fuzz was found on magnetic plug. ■ Aircraft lost fluid from No. 2 hydraulic system. Pressure line fitting was loose. □

LOH/CARGO

Fatalities: 0 ■ *Accidents:* 1
Injuries: 2 ■ *Estimated Costs:* $28,257

BRANCH

■ MAJ Robert P. Judson, Chief
SFC D. T. Farrar/SFC R. G. Farris
558-4202

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

OH-6

1 INCIDENT ■ Infantryman walked under main rotor blade disk with extended antenna during tactical training. Blade was damaged. (ARNG)

3 PRECAUTIONARY LANDINGS ■ Fuel quantity gauge decreased and held at 50 pounds during flight. Caused by defective gauge, P/N 124878. (ARNG) ■ Low oil pressure light came on because oil filter was partially clogged. (ARNG) ■ At about 10 feet during pinnacle approach, aircraft began to rotate right because of insufficient tail rotor thrust. IP took control, pitched aircraft over side of pinnacle, and regained directional control. Aircraft returned to home station without further incident. (ARNG)

OH-58

2 INCIDENTS ■ During night flight, bird struck OAT mount point, causing 1½ x 3-inch hole in top right windscreen which was discovered during postflight inspection. ■ During authorized and supervised NOE training, main rotor blade struck tree, causing dent in main rotor blade tip cap and ½-inch tear in blade skin.

2 FORCED LANDINGS ■ While climbing through 1,800 feet on maintenance test flight to check topping, pilot heard loud bang, followed by rushing noise, and TOT rose to 1,000°. Autorotation was entered and N_1 stabilized at 63% and TOT within limits. TOT again rose to 1,000° when throttle was increased, so autorotation was continued to touchdown. Inspection showed melted metal particles fused to exhaust section and metal to metal contact in power turbine section. Cause of engine malfunction is unknown pending results of teardown analysis at CCAD. ■ Pilot was attempting to rejoin needles while in autorotation to check autorotation rotor rpm when engine surged and N_2 decayed. N_1 dropped to 58% with full throttle when

collective was increased. Autorotation was continued to ground after several unsuccessful attempts to rejoin needles. Suspect hairline cracks near base of accumulator fittings caused engine malfunction.

9 PRECAUTIONARY LANDINGS ■ Main transmission chip detector lights of three aircraft illuminated. Two were caused by fuzz and one by metal chip. All had special oil samples taken and two were grounded pending results of sample. (Two ARNG) ■ Two tail rotor chip detector light illuminations were reported. Caused by metal particles on plugs. ■ Engine chip detector light came on because of metal slivers. Aircraft is grounded pending results of special oil sample. ■ During runup, d.c. ammeter showed rapid rise and pilot smelled smoke. Caused by loose connections on a.c. relay. ■ Fluctuating engine instruments during approach were caused by loose power turbine governor sensing line. (ARNG) ■ Pilot heard grinding sound during hover. Caused by malfunction of freewheeling bearing, P/N 206-040-207-1.

TH-55

1 ACCIDENT ■ Upper main rotor mast, head, and blades separated from aircraft at conclusion of hovering autorotation. Damage resulted to main rotor mast assembly, tail rotor drive shaft, and canopy. Severe vibration was reported at touchdown and before mast separation. Cause is under investigation.

2 PRECAUTIONARY LANDINGS ■ Airspeed indicator became inoperative and altimeter pointer needle became detached from mounting. Inspection revealed malfunction of altimeter. Airspeed problem could not be duplicated. ■ Engine and rotor tachometer malfunctioned during hover.

CH-47

1 INCIDENT ■ Aircraft was ground taxiing when No. 1 engine fire light came on. Aircraft was stopped and engine was shut down. Investigation revealed that fire had occurred because of escaping fuel at crack in fuel manifold combustor connector. Source of ignition was combustor. Fire damage occurred to engine fire detection insulator and cowling. Engine was L-11AB series.

4 PRECAUTIONARY LANDINGS ■ Three engine chip detector light illuminations were reported. Two were caused by metal fuzz and one by excessive metal particles resulting in engine change. (1 ARNG, 1 USAR) ■ Aircraft was at approximately 200 feet agl on takeoff when copilot's door came off. Cause undetermined. □

FIXED WING

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

BRANCH

■ MAJ William G. Daly, Jr., Chief
SFC John M. Terrell
558-3901

One precautionary landing was reported.

U-21

1 PRECAUTIONARY LANDING ■ Pilots detected odd odor during short final. After landing, aircraft filled with smoke. Another case of thermal runaway in nickel cadmium battery. □

MAINTENANCE MISHAPS

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

Five precautionary landings were reported.

UH-1

1 PRECAUTIONARY LANDING ■ Hydraulic pressure caution panel illuminated during climb. Hydraulic disconnect fitting was improperly attached.

OH-6

1 PRECAUTIONARY LANDING ■ Engine oil cooler bypass caution light came on. Caused by overtorque of snubber airframe exhaust fitting during engine installation. (ARNG)

OH-58

1 PRECAUTIONARY LANDING ■ Crew smelled hydraulic fluid, hydraulic caution light came on, and feedback was felt in cyclic. Caused by loose clamp which allowed hydraulic line to chafe, resulting in loss of fluid.

U-8

2 PRECAUTIONARY LANDINGS ■ During test flight, No. 1 engine was shut down and would not unfeather.

Aircraft was landed and accumulators serviced. Aircraft was test flown and released. Suspect maintenance failed to service accumulators. ■ During slow flight No. 2 propeller rpm decreased, oil pressure decreased to 30 psi, and cylinder head temperature increased. Engine was secured and landing completed. Time on engine was 24 hours since overhaul. Polyethylene substance was found in propeller governor oil screen. Further inspection revealed the same substance in fuel oil screen, oil filter element, and engine oil pump adjustment spring and plunger. Engine oil system was flushed and aircraft released for flight to support maintenance facility. The support facility found O-rings and nuts in engine oil system. During oil filter change (15 hours after overhaul) maintenance personnel left oil filter parts kit inside filter.

U-21 FUEL PROBLEMS

During the last 13 months, 23 Preliminary Reports of Aircraft Mishaps (PRAM's) were received concerning U-21 fuel problems. Causes were listed as: seven improperly installed fuel caps, one loose filler cap, four improperly installed oil caps, three bent fuel cap wells because of improper refueling techniques, five materiel failures, and three missing parts. Obviously, emphasis is needed on prevention of damage to filler cap wells during refueling operations and inspections before flight by the flight crew to insure servicing filler caps are properly secured.

T63 ENGINE PROBLEMS

In a 2-month period, USAAAVS received 43 crash facts messages concerning engine problems. The problems ranged from total failure to chip detector light illuminations for normal fuzz, with a good number of fuel controls, governors, and loose and failed fittings. Of the 43 problems reported, 25 should have had Equipment Improvement Recommendations (EIR's) submitted. Of these 25, only 11 EIR's were submitted.

The EIR is AVSCOM's way of detecting, tracking, and correcting parts and components that are defective, fail, or do not perform as required. The only *sure* way to make the EIR program work is to turn in the reports, condition the parts or components to prevent further deterioration or damage, and await disposition instructions. Many units are submitting EIR's properly but then do not keep the parts or components until disposition instructions are received.

Be a professional. Do it by the book.

OH-58 HYDRAULIC PRESSURE SWITCH

A large number of OH-58 mishaps have been caused by failure of the hydraulic pressure switch, P/N 206-076-365-1. This switch has been replaced with a new one listed under P/N 206-076-404-1.

Most reports indicate that the new switch failed but it was the old switch which actually failed. It is recommended that when reporting failed components, the part number be taken off the component, rather than the parts manual.

In view of the increase in reported mishaps resulting from switch failures, USAAAVS recommends that only the new pressure switch be used on the OH-58.

Units that have confirmed 206-076-404-1 pressure switch failures should submit EIR's to AVSCOM. □

DEPARTMENT OF THE ARMY
UNITED STATES ARMY
AGENCY FOR AVIATION SAFETY
FORT RUCKER, ALABAMA 36362

OFFICIAL BUSINESS

POSTAGE AND FEES PAID
DEPARTMENT OF THE ARMY
DOD-314

ARMY AIRCRAFT MISHAP PREVENTION DATA

FLIGHT FAX

ORVAL RIGHT
Chief Advisor on
Matters of Aviation

A USAAAVS PUBLICATION

VOL. 3, NO. 49 ■ 1 OCTOBER 1975 mishaps for the period of 12-18 SEPTEMBER 1975

COMMAND INFLUENCE?

The aviation detachment was situated outside a large city. The location was ideal and so was the mission, strictly VIP flights in plush U-8Fs and UH-1s. The unit, headed by a lieutenant colonel, was made up of some of the most experienced officers and warrant officers in the command.

The "old man" had been commended personally for a job well done early in the week and he had declared a training holiday on Friday and Saturday, with minimum crew on standby.

Friday afternoon we got word that the commanding general would be making an inspection of the local area by sedan and would like a helicopter on standby Saturday in case his schedule was tight.

On Saturday, MAJ Maxwell, our exec and a senior aviator, and CW4 Warren checked weather, and the picture was not so good—500 feet overcast with 1½ miles visibility dropping in the afternoon. They proceeded to preflight and review the general's inspection route.

After 1530 we learned that the general was to be picked up at a place about 15 minutes from the airfield and transported back to his headquarters 30 miles away.

CW4 Warren was concerned about the weather. His years of experience told him this was no time to be flying. The weather was intermittently 100 feet overcast, with ¾-mile visibility. Warren told MAJ Maxwell how he felt but Maxwell said they should try it anyway.

They strapped in and began the runup checklist. Halfway through the checklist, Maxwell agreed with Warren that the flight should not be made. He left the helicopter and called the unit commander and told him the situation.

The commander arrived at the airfield about 15 minutes later and after a quick discussion told them the detachment was to support headquarters on all missions and that he would replace Warren on the flight.

Although there were IFR facilities in the area, and the aircraft was instrument equipped, the mission required VFR weather and landings at small helipads.

The commander, a master Army aviator, and Maxwell departed low level to the pickup site. The weather forced them to fly low over the route and the commander was heard to comment over FM at operations, "I hope we can get over that damn pass into the valley; then we're home free."

At approximately 1715, 45 minutes after the flight departed, operations was notified that the general was proceeding by sedan back to headquarters because the helicopter had not arrived.

About 1815 a ground search was initiated. The wreckage was found and all crewmembers were dead. The commander was still on the controls.

Cause? You guessed it. Trying to maintain VFR in IMC. The reason? Command influence or just damn fools? As I looked down into the crushed cockpit and saw two pairs of aviator wings, one master and one senior, I wondered how many other crews take unnecessary risks when the mission could be accomplished in other ways.

Written by **CW3 RAYMOND WATTS, SR.,** *while attending a recent USAAAVS Aviation Accident Prevention Course.*

UTILITY/ATTACK BRANCH

Fatalities: 3 ■ *Accidents:* 3
Injuries: 0 ■ *Estimated Costs:* $334,070

■ CPT James M. Klina, Jr., Chie
SP6 Roland L. Allen, Jr.
558-4198

Three accidents, two incidents, one forced landing, and thirty-five precautionary landings were reported.

UH-1

2 ACCIDENTS ■ While on routine instrument training flight aircraft was seen at approximately 400 feet agl in steep dive which continued until aircraft crashed and exploded. Aircraft was destroyed by fire. Aircraft was equipped with noncrashworthy internal auxiliary fuel tank. ■ After initiating go-around from pinnacle approach, aircraft encountered downdraft which caused it to turn 180° and land hard, damaging landing gear and underside of fuselage.

1 INCIDENT ■ Engine was started with main rotor blades tied down. Tail rotor blades were damaged.

1 FORCED LANDING ■ Engine lost power during NOE quick stop. Crew heard loud banging from engine and aircraft shuddered. Egt rose to 980°, N2 fell off to 5800, and fire warning light illuminated. Crew of another aircraft saw flames 6 to 8 feet in length coming from engine exhaust. Pilot landed with no further damage to aircraft. Compressor stall was reported as cause of failure. WELL DONE to CW2 Gary Lusk of HQ & CSC, 3d Combat Aviation Battalion, 3d Infantry Division, Kitzingen, Germany.

28 PRECAUTIONARY LANDINGS–following are selected briefs ■ Main transmission lost oil pressure when filter gasket failed. Caution light and pressure gauge functioned properly to alert crew. ■ While climbing at 8,500 feet msl aircraft yawed and loud bang was heard from engine. Suspect compressor stall. ■ Crew smelled hydraulic fluid and started approach. On approach, hydraulic pressure light came on and lateral cyclic became stiff. Caused by internal failure of left lateral irreversible valve. ■ Engine oil pressure gauge indication fluctuated from 90 to 95 psi. Replacement of oil pressure indicator corrected the problem. ■ Aircraft had high frequency vibration. Maintenance replaced tail rotor servo. ■ On takeoff pilot felt strong feedback in cyclic control. Inspection revealed hydraulic leak from top of left lateral servo. Caused by internal failure of hydraulic cylinder assembly. ■ On final approach as chalk 4 in a flight of four, aircraft developed high sink rate. Pilot applied 54 psi torque to avoid hard landing. Cause of high sink rate was reported as gusty surface winds and wake turbulence. ■ Crew noticed unusual vibrations in flight. Caused by deteriorated cross tube bumper pads. ■ Four precautionary landings occurred because of chip detector light illuminations. One was caused by fuzz on magnetic plug and one by carbon chips. Causes of the other two were not reported.

LOSS OF RESOURCES
FROM THIS WEEK'S MISHAPS

FATALITIES:	3
INJURIES:	0
AIRCRAFT LOSSES:	1
ESTIMATED COSTS:	$334,070

UNITED STATES ARMY AGENCY FOR AVIATION SAFETY
FORT RUCKER, ALABAMA 36362
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
USAR Representative	558-6510/4714
After-duty tape recording of incoming calls to be returned following day (hours: 1615 to 0730)	558-6510
Commercial:	255-XXXX

Prepared from information compiled by the Directorate for Aircraft Accident Analysis & Investigation
Lieutenant Colonel Curtis M. Sanders, Director

AH-1

1 ACCIDENT ■ Pilot noticed high frequency vibration during NOE flight. About 10 minutes later aircraft began to shudder violently and would not respond properly to antitorque control input, but directional control was not lost. Pilot landed in clearing. Inspection revealed damage to one tail rotor blade, tail rotor gearbox output shaft, and vertical fin. All four mount bolts on tail rotor gearbox failed from fatigue. Suspect tree strike with tail rotor was initiating factor in this mishap. *When an aircraft develops an unusual vibration it is trying to tell you something. A precautionary landing when the vibration first started could have prevented this accident.*

1 INCIDENT ■ As aircraft accelerated through effective translational lift, forward battery compartment door came off. Cause not reported.

7 PRECAUTIONARY LANDINGS–following are selected briefs ■ During takeoff from range, crew heard hydraulic pump cavitate, followed by failure of No. 2 hydraulic system. Cracked tube assembly resulted in fluid loss. ■ Master caution and fuel filter lights came on. Filter was pulled and found clean. Cause of caution system activation could not be identified. ■ Main transmission lost oil pressure when oil cooler elbow failed between thread and bend in elbow. ■ Engine oil bypass light flickered and master caution light came on. Engine oil level was low. Crew was utilizing hot refueling and had operated aircraft for 5 hours without shutdown. Maintenance added oil and aircraft was released for flight. ■ In traffic pattern, crew heard loud bang from engine, followed by yaw and egt rise to 635°. Cause of compressor stall not reported. □

LOH/CARGO

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

BRANCH

■ MAJ Robert P. Judson, Chief
SFC D. T. Farrar/SFC R. G. Farris
558-4202

Twenty-five precautionary landings were reported.

OH-6

1 PRECAUTIONARY LANDING ■ Aircraft began to yaw right and left and torque fluctuated about 10 psi during cruise flight. Caused by malfunction of N2 governor.

OH-58

15 PRECAUTIONARY LANDINGS ■ Hydraulic caution lights of seven aircraft came on. Six were caused by malfunction of pressure switch, P/N 206-076-365-1 (5 cases), and P/N 206-076-404-1 (1 case). *(FLIGHTFAX, 24 Sep 75, Vol. 3, No. 48, made recommendations on this problem in paragraph entitled "OH-58 Hydraulic Pressure Switch.")* Suspect malfunction of hydraulic pump, P/N 206-076-030-3, caused seventh illumination. (2 ARNG) ■ Main transmission chip detector lights of four aircraft came on. Special oil sample was submitted in two cases. Plugs were cleaned and all aircraft released. ■ Tail rotor chip detector light came on because chip detector was defective. (ARNG) ■ Main transmission oil hot light came on because of water in transmission oil. Source of water was not reported. ■ Loud grinding noise, accompanied by high frequency vibration, resulted from deterioration of No. 8 tail rotor hanger bearing, P/N 206-040-339-7. (ARNG) ■ Hydraulics were lost in flight and warning light came on. Experimental tail rotor servo developed oil leak between two machined surfaces.

TH-55

3 PRECAUTIONARY LANDINGS ■ Rough running engine was caused by malfunction of both left and right magnetoes. ■ Excessive fuel pressure was caused by malfunction of pressure sending unit. ■ Fluctuating engine oil pressure was caused by malfunction of pressure sending unit.

CH-47

6 PRECAUTIONARY LANDINGS ■ No. 1 engine low oil light illuminated. Caused by float being worn in half and departing indicating rod assembly. ■ Utility hydraulic oil cooler fan disintegrated during flight. Aircraft landed and oil cooler assembly was replaced. Approximately 15 minutes after takeoff fan disintegration occurred again. Cause not determined. ■ Aircraft was in descent when No. 2 engine egt started rising, accompanied by intermittent bleed band opening at 72 percent with oil pressure fluctuation from 50-65 psi and an N2 split of approximately 150 pounds. Pilot initiated climb and egt went to 850° C., and stayed approximately 10 seconds before engine was placed in ground. Egt stabilized at 580°, oil pressure 40 psi and 37.5 percent indicated. Cause unknown. Suspect internal malfunction of engine. ■ During climbout pilot noticed rotor tachometer decrease and stabilize at 80 rpm. Caused by failure of rotor tachometer generator. ■ No. 2 engine transmission oil hot light came on and oil temperature gauge went to maximum limit. Caused by defective temperature gauge. ■ Fuel was seen in cabin area during flight. Caused by ruptured fuel heater line at station 280.

CORRECTION. Reference 17 September 1975 FLIGHTFAX, references to engine trim failure have been a.c. beep and d.c. beep failed. Correct terminology should be *normal or emergency* beep trim failed. Pardon our blooper. □

FIXED WING

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

BRANCH

■ MAJ William G. Daly, Jr., Chief
SFC John M. Terrell
558-3901

Six precautionary landings were reported.

U-8

3 PRECAUTIONARY LANDINGS ■ No. 2 engine began surging violently during climb. Engine was secured and single-engine landing completed. No. 6 piston and cylinder assembly failed. ■ No. 2 engine began to surge and backfire during climb. Engine was secured and aircraft returned for landing. No. 2 cylinder and piston assembly failed. ■ Gear would not completely retract after takeoff. Gear was lowered and visual check by tower confirmed gear appeared down. Landing was normal. Splined area of armature shaft and spur gear drive were worn badly, preventing normal gear function.

U-21

1 PRECAUTIONARY LANDING ■ Gear would not fully retract after takeoff. Main gear circuit breaker had popped and would not reset. Gear was pumped down and landing completed. Landing gear motor failed.

U-3

1 PRECAUTIONARY LANDING ■ Flaps were being used during instructional flight and could not be raised. Flap control switch had failed. (USAR)

C-7

1 PRECAUTIONARY LANDING ■ Right main gear would not extend fully. Gear was recycled and emergency procedures applied with negative results. Turbulence was encountered during preparation for tower flyby and gear came down. Landing was uneventful. Striker pad on gear was bent, allowing door lock mechanism to jam.

CORRECTION. Reference 10 September 1975 FLIGHTFAX, apologies go to the USAR. The U-1 accident reported as belonging to USAR should have read ARNG.

OV-1 AUXILIARY ACCESSORY DRIVE GEARBOX

USAAVSCOM message, R122045Z Sep 75, subject: Technical Advisory Message on Auxiliary Accessory Drive Gearbox, P/N 1358R60; FSN 2995-966-9367 (OV-1-75-2)

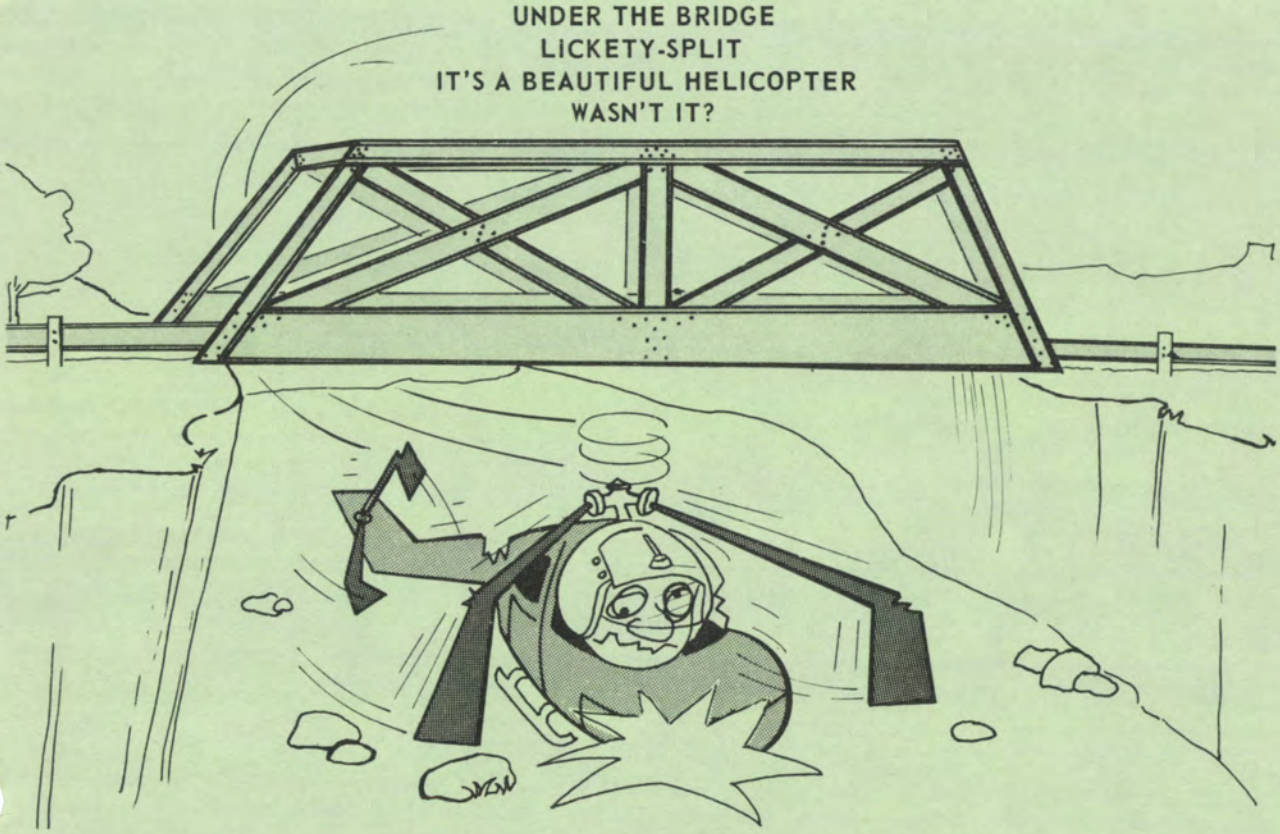
1. This message pertains to subject item installed on T53-L-7/7A, L15, and L701 engines in OV-1 aircraft.

2. Subject item is installed on, but is not a part of, the T53 engine. Currently, there is no inspection interval or scheduled retirement for this item. Subject gearbox may be installed on a number of engines in succession, and is not removed from service until it fails. When subject gearbox fails engine oil system is contaminated and engine failure also occurs.

3. Effective immediately, the maximum allowable operating time (MAOT) for subject item is established at 1800 hours. A DA Form 2410 will be prepared for each gearbox by the owning organization. For all uninstalled used gearboxes the DA Form 2410 will be marked at 600 hours. For all newly overhauled uninstalled gearboxes the DA Form 2410 will be marked at zero hours. For all installed gearboxes the DA Form 2410 will be marked with the sum of the engine time on which they are installed, plus 600 hours.

4. The instructions contained in this message will be incorporated into referenced manuals as follows: TM 55-1510-204-20-1 and TM 55-1510-204-20/1, chapter 3, page 3-29, retirement schedule will be amended to add this MAOT for subject item. In addition, TM 55-1500-307-25 will also be revised to add the requirement for maintenance of time records for subject item. Information contained in this message should be inserted in referenced technical manuals pending receipt of TAG printed changes. □

THOUGHT FOR THE WEEK



MAINTENANCE MISHAPS

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

Five precautionary landings were reported.

UH-1

4 PRECAUTIONARY LANDINGS ■ Hydraulic pressure caution light illuminated on climbout due to tail rotor hydraulic pressure line chafing. ■ During approach, transmission oil sump return line ruptured because of chafing. ■ Battery solenoid failed at hover due to wrong part being installed. ■ Aircraft was unable to maintain N2 rpm when collective pitch changes were made. Insufficient lubrication of slider assembly caused binding that resulted in shearing of jack shaft shear pin.

OH-58

1 PRECAUTIONARY LANDING ■ Engine oil bypass light came on. Oil reservoir cap was not secured when oil sample was taken prior to flight.

OH-58 CYCLIC AND COLLECTIVE CONTROL TUBES

USAAVSCOM message, 172030Z Sep 75, subject: OH-58-75-7 Maintenance Advisory Message, Collective Control Tube Assembly.

A mechanic had inadvertently installed a cyclic control tube in the collective position, believing that only the collective control tube had a data plate. He had not checked the part number.

Data plates have been deleted from newer cyclic control tubes. However, some of the earlier cyclic control tubes with data plates are still in the supply system. The tube assembly must be inspected for proper part number and length prior to installation.

Collective Control Tube, P/N 206-001-524-11, NSN 3040-00-400-2424, reference TM 55-1520-228-20, figure 9-1, index 3, is 11.38 inches long measured from center to center of clevis holes.

Cyclic Control Tube, P/N 206-001-524-13, NSN 3040-00-435-4534, reference TM 55-1520-228-20, figure 9-3, index 8, is 10.50 inches long measured from center to center of clevis holes.

Action will be taken to change TM 55-1520-228-20, par. 9-6 and 9-11, to reflect the aforementioned inspection information. □

DEPARTMENT OF THE ARMY
UNITED STATES ARMY
AGENCY FOR AVIATION SAFETY
FORT RUCKER, ALABAMA 36362

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DOD-314

ARMY AIRCRAFT MISHAP PREVENTION DATA

FLIGHT FAX

ORVAL RIGHT
Chief Advisor on
Matters of Aviation

A USAAAVS PUBLICATION

VOL. 3, NO. 5 ■ 6 NOVEMBER 1974

mishaps for the period of 18-24 OCTOBER 1974

FY75 ACCIDENT PREVENTION COURSES

ACCIDENT PREVENTION COURSES

USAAAVS conducts two accident prevention courses at Fort Rucker–the Aviation Accident Prevention Course (AAPC) and the Aviation Accident Prevention Management Course (AAPMC).

The AAPC is designed primarily for personnel who will serve or are serving as aviation safety officers at detachment, company, and battalion levels and for personnel in responsible positions. Officers, warrant officers, or professional civilians may attend.

The AAPMC is designed for noncommissioned officers and specialists, grade E6 or higher, who have or will have the additional duty of aviation safety NCO. Qualified individuals interested in attending these courses should contact their local schools officer.

Following is a schedule of courses remaining for FY 75:

AAPC		AAPMC	
No.	Dates	No.	Dates
75-6	6-17 Jan 75	75-6	20-31 Jan 75
75-7	3-14 Feb 75	75-7	17-28 Feb 75
75-8	3-14 Mar 75	75-8	17-28 Mar 75
75-9	31 Mar-11 Apr 75	75-9	14-25 Apr 75
75-10	28 Apr-9 May 75	75-10	12-23 May 75

UNIVERSITY OF SOUTHERN CALIFORNIA

A 10-week Aviation Safety Course conducted for the Army by the University of Southern California trains individuals to identify problems of aviation safety and recommend actions necessary to solve these problems on a unit level. Active Army and Reserve/National Guard warrant or commissioned rated aviators are eligible to attend. Selection for attendance is competitive and is limited to aviators filling or scheduled to fill positions as unit safety officers, and Department of the Army civilian flight instructors and safety directors of major commands or installations having assigned aircraft, as specified in DA Circular 351-51. Quotas are allocated by the Department of the Army and obtained through your local schools officer. This is an MOS-awarding course: 7423 for commissioned officers and special qualification identifier suffix "B" for warrant officer flight safety technicians. In addition, the student receives 16 semester hours of under-graduate college credit.

Three classes remain for FY 75:

Class No.	Report	Start	Close
75-4	14 Jan 75	15 Jan 75	28 Mar 75
75-5	14 Jan 75	15 Jan 75	28 Mar 75
75-6	15 Apr 75	16 Apr 75	27 Jun 75

AVIATION LIFE SUPPORT AND SURVIVAL EQUIPMENT

USAAAVS has received the following information pertaining to the Survival Kit, Individual: Vest Type with components, Line Item No. U 72733, NSN 8465-00-177-4819, authorized by Common Tables of Allowances (CTA) 50-900, dated November 1973.

Supply Information Letter No. 6-74, 1 August 1974, U.S. Army Support Center, Philadelphia, PA, states that DA has authorized the issue of the Survival Kit, Vest Type, NSN 8465-00-177-4819, without the Compass, Lensatic, NSN 6605-00-151-5337, to Army activities at a reduced billing ($82.00).

The U.S. Army Support Center recommends using Compass, Magnetic, NSN 6605-00-515-5613, as a temporary substitute. Funded MILSTRIP requisitions should be submitted to the U.S. Army Troop Support Command, RIC A12. Anticipated availability date of the standard Compass, NSN 6605-00-151-5337, is December 1974

■ ■ ■

Supply Information Letter No. 7-74, 1 October 1974, states that the survival kit has as one of its components an individual tropical first-aid kit, NSN 6545-00-782-6412, which contains ingredients classified as controlled substances by the Comprehensive Drug Abuse Prevention and Control Act of 1970, Public Law 95-513. To effectively meet the requirements of this law, as outlined by the Surgeon General, action is being taken to remove the first-aid kit as a preassembled component of the survival kit. The component description of the survival kit in the Federal Supply Catalog is currently being amended to indicate that the first-aid kit will be stocked and issued as a separate component.

Authorized Army activities designated to receive controlled substances by the Surgeon General may submit requisitions for the first-aid kit directly to routing identifier S9M: Defense Personnel Support Center, ATTN: Dir of Medical Materiel, 2800 South 20th Street, Philadelphia, PA 19101. All other Army elements, including National Guard installations, will be required to contact their nearest authorized Medical Base Supply Account for supply support.

■ ■ ■

To prevent any confusion about the above stock numbers, all 11-digit federal stock numbers (FSN's) were changed to 13-digit national stock numbers (NSN's). This conversion was effective 30 September 1974. The first four digits of the NSN denote the Federal Supply Class in which an item belongs. The next two digits denote the country code (North Atlantic Treaty Organization–NATO code). The two codes assigned to the United States are 00 and 01. The remaining seven digits denote the National Item Identification Numbers.

LOSS OF RESOURCES
FROM THIS WEEK'S MISHAPS

FATALITIES:	0
INJURIES:	2
AIRCRAFT LOSSES:	0
ESTIMATED COSTS:	$68,038

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

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.

UTILITY/ATTACK DIVISION

Fatalities: 0 ■ *Accidents:* 0
Injuries: 0 ■ *Estimated Costs:* $4,175

■ MAJ Charles E. Toomer, Chief
558-4198

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

UH-1

1 INCIDENT ■ Main rotor struck trees during hover in pickup zone, damaging both rotor blades. (USA)

1 FORCED LANDING ■ During power recovery from autorotation on maintenance test flight, egt rose to 880° and bleed band popping was heard. Pilot autorotated to ground. Caused by malfunction of fuel governor. (USAR)

15 PRECAUTIONARY LANDINGS–following are selected briefs ■ Fire warning light came on. Cause not reported. (USA) ■ Engine chip detector light came on during landing. Normal accumulation of metal particles found on magnetic plug. (USA) ■ Hydraulic caution light remained on after hydraulic check during runup. Caused by short in electrical system. (USA) ■ External sling load oscillated during night landing. Pilot exceeded torque limits during termination. (USA) ■ Transmission oil hot light came on. Caused by failure of thermostatic switch. (USA)

AH-1

1 INCIDENT ■ Tear in main rotor blade was found during postflight inspection. Suspect shrapnel from range firing caused tear. (USA)

6 PRECAUTIONARY LANDINGS ■ Tail rotor chip detector light came on. Suspect deterioration of 90° gearbox. (USA) ■ Engine decreased to 6000 rpm with N1 at 103 percent during climb. Caused by failure of inlet guide vane actuator. (USA) ■ Transmission oil bypass light came on. Caused by electrical short due to bent sensing unit mounting bracket. (USA) ■ Pilot noticed high frequency vibration during cruise. Caused by loose exhaust ejector. (USA) ■ Transmission oil pressure fluctuated during hover. Suspect malfunction of oil pressure sending unit. (USA) ■ Engine chip detector light came on. Caused by loose wire at magnetic plug. (USA) □

LOH DIVISION

Fatalities: 0 ■ *Accidents:* 3
Injuries: 2 ■ *Estimated Costs:* $63,463

■ LTC David F. Stoutamire, Chief
558-4202

Three accidents, one incident, and six precautionary landings were reported.

OH-58

3 ACCIDENTS ■ Pilot lost visual reference during takeoff on night tactical mission. Pilot attempted to abort takeoff but aircraft struck trees during landing. Weather was a factor due to a fog and haze layer approximately 15 feet above the ground. Major structural damage to tail boom and main rotor. (USA) ■ Aircraft was being repositioned at night when pilot lost visual contact with ground. Aircraft landed hard, collapsing skids, and then rolled. Major damage to all components. Pilot sustained minor injuries. Investigation is in progress. (USA) ■ During day nap-of-the-earth mission, aircraft severed cable (3 strands, ½-inch diameter), resulting in major damage to aircraft. Aircraft was landed in upright position and pilot sustained minor face injuries. Investigation is in progress. (USA)

6 PRECAUTIONARY LANDINGS ■ Transmission chip detector lights of two aircraft illuminated. Both were caused by fuzz on plugs. (USA) ■ Hydraulic pressure warning light came on with no evident loss of hydraulic pressure. Caused by malfunction of hydraulic pressure switch. (USA) ■ Engine chip detector light came on. Fuzz was found on chip detector and special oil sample was submitted. (USA) ■ Pilot was unable to move cyclic stick during cruise flight. Pilot recycled hydraulic control switch, but binding remained. After approximately 5 minutes, normal cyclic control was regained and aircraft was landed. Caused by radio cannon plug lodging against the push-pull tubes connecting the two cyclics. *Pilots and maintenance types beware, this could have been catastrophic.* (USA) ■ Aircraft was on short final when foreign object struck main rotor blades. Aircraft encountered spike knock upon contact with ground. (USA)

TH-55

1 INCIDENT ■ During hovering flight, left door latch released and door opened. Student pilot hovered off stagefield lane into parking area. During landing from hover, door moved full forward against side of windshield, cracking lower part of door panel assembly. Underside of main rotor blades also struck top of door, resulting in damage to door. (USA)

THOUGHT FOR THE WEEK

AN AEROMEDICAL TIDBIT. The accompanying chart, borrowed from USAAMRDL Technical Report 71-22 (Revised Oct 71), may provide a quickie reference for deceleration forces as they act upon the body:

Acceleration Index	Description of Force	Direction of Force
Headward	Eyeballs down	Positive G Z axis
Tailward	Eyeballs up	Negative G Z axis
Spineward	Eyeballs out	Negative G X axis
Sternumward*	Eyeballs in	Positive G X axis
Lateral Right	Eyeballs left	Positive G Y axis
Lateral Left	Eyeballs right	Negative G Y axis

*Sternumward is back to chest.

CARGO/SYSTEMS DIVISION

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

■ CW4 Richard D. Havenstrite, Chief
558-4202

Four precautionary landings were reported.

CH-47

4 PRECAUTIONARY LANDINGS ■ Aircraft was being flown on initial test flight following periodic inspection. No. 2 engine had been topped with No. 1 engine topping just completed. No. 2 engine was brought back on line to 71 percent N1, after which it began to slowly fall off and stabilize at 38 percent. No. 2 engine was secured and running landing was made. After landing, No. 2 engine was restarted and normal operation was noted. Aircraft was shut down and maintenance checked all systems of No. 2 engine. No discrepancies were found. Aircraft was again test flown in attempt to duplicate discrepancy, but No. 2 engine operated normally throughout entire flight. Aircraft is being held in maintenance until additional information is obtained from appropriate engine technical representative and flight testing. (USA) ■ Transmission chip detector light came on during climbout. Forward transmission chip detector plug had accumulated small amount of metal (fuzz) deposits. (USA) ■ Transmission caution light came on, followed by smoke from transmission selector switch. Caused by internal short of switch rotary oil temperature. (USA) ■ No. 2 engine N1 dropped to 39 percent and single-engine landing was made. Caused by loose P3 air line fitting which allowed line to disconnect. (USA) □

FIXED WING DIVISION

Fatalities: 0 ■ *Accidents: 0*
Injuries: 0 ■ *Estimated Costs: $400*

■ LTC Howard D. Deane, Chief
558-3901

Two incidents and eleven precautionary landings were reported.

OV-1

2 PRECAUTIONARY LANDINGS ■ No. 1 engine failed during flight. No. 1 engine chip detector light came on, followed by compressor stall and loss of torque. Suspect internal engine failure. (USA) ■ Landing gear would not retract after takeoff. Aircraft was landed and maintenance personnel reset landing gear dump valve. Suspect maintenance personnel accidentally caused partial discharge of emergency gear extension air bottle, activating dump valve. (USA)

U-3

1 INCIDENT ■ Aircraft was on crosswind when bird struck right wing at main fuel tank. (ARNG)

U-6

1 PRECAUTIONARY LANDING ■ Pilot smelled smoke and saw white smoke behind instrument panel during cruise flight. Master switch and communication and navigation radios were turned off. Smoke stopped and aircraft was landed. Cutout relay, FSN 2925-555-5349, P/N 3025-300, malfunctioned, causing generator to motorize. (USAR)

T-41

2 PRECAUTIONARY LANDINGS ■ Engine began to run rough during cruise and engine chip detector light came on during descent. Caused by failure of No. 3 cylinder assembly. (USA) ■ Engine surged momentarily during takeoff. At 1,000 feet, excessive vibration and strong odor of gas fumes were noted and fuel flow indicator fluctuated excessively. Aircraft was landed. Caused by broken fuel nozzle on No. 5 cylinder. (USA)

T-42

1 PRECAUTIONARY LANDING ■ Gear failed to fully retract after takeoff. Circuit breaker popped and gear would not cycle. Landing gear was extended manually and aircraft landed. Landing gear motor, P/N 96-380022, failed. (USA)

C-54

1 PRECAUTIONARY LANDING ■ Right main landing gear would not retract. Landing gear selector valve and right main gear retract cylinder were replaced. (USA)

C-7

1 PRECAUTIONARY LANDING ■ Landing gear would not retract after takeoff. Maintenance inspector found broken electrical wire to downlock switch on left main gear. (USA)

U-21

1 INCIDENT ■ Bird struck right wing of aircraft during climbout. Mission was continued without further incident. (USA)

3 PRECAUTIONARY LANDINGS ■ After takeoff, pilot reported continuous medium frequency vibration throughout aircraft. Aircraft was returned to base field and landed. Vibration was caused by propeller being out of synchronization. Pilot was attempting to synchronize propellers, using rpm indications. No. 2 engine rpm was giving erroneous indication due to malfunctioning tachometer generator. (USA) ■ No. 2 engine was shut down and feathered during test flight. Engine would not restart and aircraft was landed. Cause of malfunction unknown. (USA) ■ During transition from climb to cruise flight, pilot noted fuel being siphoned from left nacelle filler cap. Aircraft was landed and fuel cap was removed, inspected, and resecured. (USA)

WANTED

FOR CORRECTION

Has trouble seeing what he is looking at

Frequently passes bad (maintenance) checks

"Weak Eyes" 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

OFFICIAL BUSINESS

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DOD-314

ARMY AIRCRAFT MISHAP PREVENTION DATA

FLIGHT FAX

ORVAL RIGHT
Chief Advisor on
Matters of Aviation

A USAAAVS PUBLICATION

VOL. 3, NO. 6 ■ 13 NOVEMBER 1974 mishaps for the period of 25-31 OCTOBER 1974

COMPROMISE???

Approximately 97% of the UH-1D/H helicopter fleet are equipped with the *crashworthy* fuel system. The performance of this system is absolutely magnificent in preventing postcrash fires. Why must we compromise the safety of the occupants and jeopardize the crashworthy fuel system by placing inside the aircraft *noncrashworthy auxiliary* fuel kits to extend the cruising range? USAAAVS is aware of this practice by some aviation units. The 150-gallon auxiliary fuel bladders which mount internally in the left and right rear cargo compartments of the UH-1D/H are considered hazardous. In the event of a survivable crash, these bladders are highly susceptible to rupturing on impact and spewing fuel inside the helicopter. If this occurs and an ignition source is present, it is doubtful that the occupants would have a chance to escape.

In view of this compromise to occupant safety and jeopardy to the integral crashworthy fuel system, it is recommended that aviation units seriously consider the risks of using noncrashworthy auxiliary fuel system kits for daily operational missions. Flight mission requirements using noncrashworthy auxiliary fuel kits should be weighed against the following:

a. Does the urgency of the mission justify the risk?

b. Can the mission route be altered to provide additional refueling stops?

c. Can additional refueling points be established along the proposed route, if none are available?

d. Is another type aircraft with adequate fuel range available to accomplish the mission?

There is, in the development and prototype phase, a crashworthy *auxiliary* fuel system for the UH-1D/H helicopter. Furthermore, an Engineering Change Proposal has been formulated and distributed for evaluation. It is recommended that, if range extension capability is critical to mission accomplishment, aviation units forward to Commander, U.S. Army Aviation Systems Command, P.O. Box 209, St. Louis, Missouri 63166, their requirements for range extension fuel systems that meet crashworthy design.

LOSS OF RESOURCES
FROM THIS WEEK'S MISHAPS

FATALITIES:	0
INJURIES:	0
AIRCRAFT LOSSES:	0
ESTIMATED COSTS:	$90,759

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

UTILITY/ATTACK

Fatalities: 0 ■ Accidents: 1
Injuries: 0 ■ Estimated Costs: $80,759

DIVISION

■ MAJ Charles E. Toomer, Chief
558-4198

One accident, five incidents, and twenty-five precautionary landings were reported.

UH-1

1 ACCIDENT ■ Pilot heard loud noise from engine compartment during cruise flight, followed by violent left yaw. Aircraft landed hard during autorotation, damaging tail boom, landing gear, and power train. Cause of failure unknown. (USA)

3 INCIDENTS ■ Troops were being loaded at night when main rotor struck portable radio antenna, damaging one main rotor blade. (USA) ■ Hole was found in bottom right side of aircraft during postflight inspection. Aircraft had been operated in bushy area. (USA) ■ Pilot noticed what he thought was turbulence. After landing, engine cowling was discovered missing. (ARNG)

22 PRECAUTIONARY LANDINGS–following are selected briefs ■ Engine chip detector light came on. Small metallic particles found on detector plug. (USA) ■ During shutdown, rotor rpm dropped to zero with throttle in flight idle position. Throttle was increased but rpm remained at zero. Aircraft jerked and loud noise was heard when engine was shut off. Suspect failure of transmission clutch assembly. (USA) ■ Cockpit filled with smoke during cruise. Heater duct was deformed due to excessive heat. Caused by malfunction of thermal sensor. (USA) ■ During cruise flight, while transferring fuel from right auxiliary tank, sparks were seen at external float switch. Sparks stopped when transfer pump was shut off. Caused by contact between overflow line and boost pump electrical connection which was exposed when rubber cover deteriorated. (USA) ■ Transmission oil pressure dropped to zero. Transmission internal oil filter gasket failed because improper installation caused loss of oil. (USA) ■ During simulated antitorque failure, four loud reports were heard as power was applied to slow descent. Suspect compressor stall. (USA) ■ Pilot smelled odor of hydraulic fluid, followed by loss of hydraulic control. Caused by leaking irreversible valve on left lateral servo. (USA) ■ Engine rpm decreased with torque settings above 33 psi. Caused by malfunction of fuel governor. (USA)

AH-1

2 INCIDENTS ■ Engine failed in cruise flight. Pilot placed governor in emergency as N1 reached 70 percent during autorotation. Power was regained for about five seconds. Landing gear cross tubes were damaged during landing. Cause of failure unknown. (USA) ■ During range firing at 50 feet agl, gunner attempted to fire grenade launcher without success. Firing switch was released and sight lowered for minigun firing. Grenade fired, landing approximately 50 feet in front of aircraft and damaging cockpit canopy. (USA)

3 PRECAUTIONARY LANDINGS ■ No. 1 hydraulic light came on and pedals became stiff. Caused by failure of collective servo lockout valve. (USA) ■ Aircraft lurched and right pedal became stiff during hover. Cause unknown. (USA) ■ Transmission chip detector light came on during test flight. Metal particles found on detector plug. (USA) □

LOH

Fatalities: 0 ■ Accidents: 1
Injuries: 0 ■ Estimated Costs: $10,000

DIVISION

■ LTC David F. Stoutamire, Chief
558-4202

One accident and six precautionary landings were reported.

OH-58

5 PRECAUTIONARY LANDINGS ■ Aircraft yawed left during flight and lost power. TOT climbed from 580° to 700°. When pitch was pulled, TOT rose to 749°. Bleed air line on right side diffuser scroll going to heater stripped threads on mounting assembly at scroll. Suspect high frequency vibration in engine. (USA) ■ Engine chip detector light came on. Numerous large metal chips found on plug. Engine replacement required. (USA) ■ Transmission chip detector light came on. Metal particles found on detector. Special oil sample ordered. (USA) ■ Hydraulic pressure lights of two aircraft illuminated, but pressure was not lost. Pressure switches were changed. (USA)

OH-6

1 PRECAUTIONARY LANDING ■ Transmission chip detector light came on. Fuzz found on detector. (ARNG

TH-55

1 ACCIDENT ■ During solo flight, student pilot noted stiff throttle and stuck collective pitch control. Student elected to make autorotative landing to plowed field. Maintenance test pilot stated that his pre-flight at the landing site failed to reveal any aircraft damage. Test pilot started aircraft and hovered it for a few minutes before flying back to base field. As aircraft was landed, cross beam assembly broke. Helicopter settled to tail-low position with tail skid resting on ground. Subsequent inspection revealed major damage to center frame assembly, landing gear assembly, landing gear skid and strut assembly, and lower forward fairing assembly. (USA)

THOUGHT FOR THE WEEK

Think back to the late 60's with the pressure of second and third RVN tours facing us all. Three major flight training centers, plus posts like Benning and Ord, were running at full speed, pumping out new aviators and transitioning old aviators. Aviators and their families were crisscrossing the continent on TDY, attending schools, reporting to new units, or en route to a POE. Wives were planning R&R trips to exotic places like Hawaii, Bangkok, Tokyo, Manila, and Taipei. Aviation and aviators were an integral and key part of the total RVN effort—and aviation safety played second fiddle to the combat mission.

Today, the TDY is grinding to a slow stop as stabilized tours become commonplace. We're down to one major flight training center with just enough student output to counteract normal personnel attrition. Wives now plan babies, new drapes, a home off post, and trips to see relatives. There are no more RVN tours—and aviation safety has moved to the forefront as evidenced by the ever-decreasing aviation mishap rate.

What's changed? Closer supervision? The individual's desire to survive during peacetime? Fewer flying hours? Better maintenance? Experience level? Increased professionalism? Or education? Whatever the reason, you guys in the field are breaking fewer aircraft and hurting fewer folks. We don't care who gets the credit as long as we keep receiving fewer and fewer crash facts messages that start off "accident." Kudos to all! Make this the best aviation safety calendar year of all times. □

CARGO/SYSTEMS DIVISION

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

■ CW4 Richard D. Havenstrite, Chief
558-4202

Four precautionary landings were reported.

CH-47

3 PRECAUTIONARY LANDINGS ■ No. 1 engine chip detector light came on. Engine transmission chip detector plug was removed and normal accumulation of transmission metal wear was found. Plug was cleaned and reinstalled. (USAR) ■ Aircraft was at hover when copilot noticed hydraulic fluid leaking from No. 2 pitch SAS link. Caused by SAS link electrohydraulic valve failure. (USAR) ■ No. 2 engine chip detector light came on. Caused by accumulation of engine metal wear on plug. (USA)

CH-54

1 PRECAUTIONARY LANDING ■ Right front jettisonable pod door came off during takeoff. Aircraft was landed and door reinstalled. Suspect improper installation. (USA)

CORRECTION TO FLIGHTFAX of 6-10 Oct 74. The two precautionary landings reported as (ARNG) should be changed to (USAR).

MESSAGES RECEIVED

1. Safety-of-Flight message 292100Z Oct 74 from AVSCOM, subject: One-Time Inspection for CH-47A Aircraft Aft Pivoting Actuator Support Fitting Configuration. Equipment affected is listed by serial numbers and inspection must be completed within five hours or five days.
2. Technical advisory message 252040Z Oct 74 from AVSCOM, subject: CH-47 Engine Inlet Bypass Screens. Message gives authority for use of all-weather engine inlet screen kit (FSN 1560-121-7533). □

FIXED WING DIVISION

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

■ LTC Howard D. Deane, Chief
558-3901

Six precautionary landings were reported.

C-47

1 PRECAUTIONARY LANDING ■ No. 1 engine chip detector warning light came on during takeoff run. Takeoff was aborted, magnetic plug cleaned, and special oil sample submitted for analysis. (USA)

OV-1

1 PRECAUTIONARY LANDING ■ Immediately after takeoff on service test flight, pilot heard unusual sound from right side of aircraft. Check of engine instruments revealed propeller rpm was rapidly increasing on No. 2 engine. Pilot placed auto feather switch off and raised nose of aircraft, without result. After assuring that No. 1 engine was producing power, No. 2 engine was secured and aircraft returned to home base. Caused by malfunction of No. 2 engine propeller control assembly. (USA)

T-42

1 PRECAUTIONARY LANDING ■ Aircraft was in IMC at night when circuit breaker for No. 2 alternator tripped and No. 1 alternator failed to assume electrical load. All nonessential electrical equipment was secured and aircraft returned to VMC via radar vectors. Postlanding check revealed No. 1 alternator had failed and No. 2 alternator became overloaded as a result. (USA)

U-8

3 PRECAUTIONARY LANDINGS ■ When gear was extended on 7-mile GCA final, crew noticed unsafe nose gear condition. Gear was recycled three times without change. GCA was terminated in low approach and approach control vectored aircraft back to altitude for a second approach. Seven additional attempts to recycle gear proved unsuccessful and approach was terminated with a low pass in front of the tower. A maintenance-qualified U-8 pilot in the tower assured the crew that nose gear was completely down and, since gear handle warning light was not illuminated and warning horn did not sound when throttles were retarded, advised crew not to manually extend gear. Postlanding check revealed microswitch (FSN 5930-636-4345) was broken. Switch was replaced. (USA) ■ During prelanding check, pilot put gear handle selector in down position and gear in-transit light came on but gear did not extend. Pilot reset gear relay circuit breaker and checked gear motor circuit breaker in. Gear was recycled two times with negative results. Circuit breaker was then pulled and gear was manually extended to full down with proper full down indication. Flyby was made and tower personnel verified gear was down. Landing gear system was reportedly ground checked OK during postlanding examination. (USA) ■ Approximately 10 minutes after takeoff, copilot noticed fuel running out from under radar chassis. Aircraft was landed immediately and it was determined fuel pressure gauge fittings were loose. Fittings were repositioned and tightened. (USA)

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UNITED STATES ARMY
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ARMY AIRCRAFT MISHAP PREVENTION DATA

FLIGHT FAX

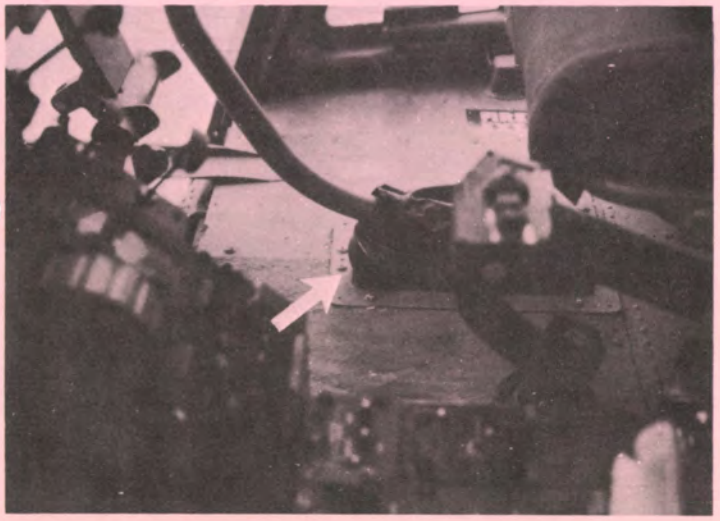
ORVAL RIGHT
Chief Advisor on
Matters of Aviation

A USAAAVS PUBLICATION

VOL. 3, NO. 7 ■ 20 NOVEMBER 1974

mishaps for the period of 1-7 NOVEMBER 1974

WHERE'S THE ASHTRAY ?



Have you ever considered an ashtray a widowmaker? Following a recent night flight at a National Guard facility, the maintenance officer found an ashtray lying under the pilot's pitch and roll stick of a CH-47 Chinook. An operational check revealed only 3½ inches of forward cyclic available. The crew chief indicated that the ashtray had been in its appropriate place prior to takeoff that night. The aircraft had been flown for approximately 2 hours, with a crew change after 1 hour, without shutting down.

Luckily, this did not cause an accident, but it could have.

CORRESPONDENCE COURSES

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

This week, attention is directed to "Fuel and Oil Service–Avn 59," which is 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 requires knowledge in this field.

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 DIVISION

Fatalities: 0 ■ *Accidents:* 1
Injuries: 0 ■ *Estimated Costs:* $24,009

■ MAJ Charles E. Toomer, Chief
558-4198

One accident, three incidents, two forced landings, and twenty-one precautionary landings were reported.

UH-1

1 ACCIDENT ■ Tail rotor struck ground during practice NOE quick stop, severing drive shaft and causing tail rotor and gearbox to separate from aircraft. IP made hovering autorotation. (USA)

1 INCIDENT ■ Dent was found in outboard aft section of main rotor blade during postflight after NOE training flight. Flight crew was not aware of blade strike. Suspect damage was incurred before flight. (ARNG)

2 FORCED LANDINGS ■ Compressor stall occurred in out-of-ground-effect hover at 500 feet agl. Pilot performed normal takeoff from OGE hover and initiated approach for precautionary landing. Engine failed at 300 feet. Successful autorotative landing was made. (USAR) ■ Screeching/grinding noise came from engine compartment and torque dropped to 10 psi during night flight. Noise became more pronounced and engine failed. Autorotation was made to cornfield. (USAR)

19 PRECAUTIONARY LANDINGS—following are selected briefs ■ Piece of parachute canopy blew up into main rotor during hover. Canopy was a salvaged piece used for equipment camouflage. (USA) ■ Fire detector light came on. Loose cannon plug was found on right cowling. (USA) ■ During NOE high hover, IP heard loud grinding noise. Caused by impending failure of inverter. (USA) ■ High frequency vibration was noted in flight. Caused by No. 1 tail rotor hanger bearing failure. (USA) ■ Crew smelled oil, followed by caution light and drop in transmission oil pressure. Caused by ruptured transmission oil filter gasket. (USA) ■ Master caution light came on. Hydraulic pressure switch was replaced. (USA) ■ Engine fuel warning light came on. Fuel control was replaced. (USA)

AH-1

2 INCIDENTS ■ Aircraft was moving forward slowly in NOE hover when main rotor blades struck 20-foot tree. Pilot returned to base to inspect for damage. (USA) ■ During takeoff from confined area, main rotor blades struck tree, requiring replacement of one blade. (USA)

2 PRECAUTIONARY LANDINGS ■ Engine chip detector light came on. Cracked chip detector plug insulation caused short. (USA) ■ Engine oil bypass light came on. Caused by faulty engine oil float switch. (USA) □

LOH DIVISION

Fatalities: 0 ■ *Accidents:* 1
Injuries: 0 ■ *Estimated Costs:* $10,000

■ LTC David F. Stoutamire, Chief
558-4202

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

OH-58

2 FORCED LANDINGS ■ Rpm audio and warning light came on during cruise flight. N_1 tachometer dropped to 60 percent and N_2 was fluctuating. Autorotational glide was established. As collective pitch was

LOSS OF RESOURCES
FROM THIS WEEK'S MISHAPS

FATALITIES:	0
INJURIES:	0
AIRCRAFT LOSSES:	0
ESTIMATED COSTS:	$66,009

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

Prepared from information compiled by the Directorate for Aircraft Accident Analysis & Investigation
Colonel Samuel P. Kalagian, Director

applied, N_1 fluctuated between 60 and 90 percent. Autorotational landing was completed with partial power. Suspect malfunction of engine governor. (ARNG) ■ N_2 tachometer fluctuated and engine quit during cruise flight. Engine-out light and audio came on and pilot executed forced landing. Cause unknown. WELL DONE for a successful power-off emergency landing goes to CW2 Rodger K. Watkins, D Troop, 3/7 Cav, Schweinfurt, Germany. (USA)

5 PRECAUTIONARY LANDINGS ■ Pilot noted intermittent 1:1 vertical feedback through cyclic control. Pilot executed precautionary landing and encountered additional 1:1 lateral vibration on short final. Right hydraulic servo was replaced. (USA) ■ Engine oil bypass light came on. Pilot returned to home base and, on final, noted rise in oil temperature. Caused by orifice diffuser vent coming off in flight. (ARNG) ■ Fuel filter caution light came on. Caused by clogged fuel filter. (ARNG) ■ Transmission chip detector light came on. Caused by master caution warning box malfunction. (ARNG) ■ Engine emitted high frequency whine during maximum performance takeoff. Caused by internal failure of engine. (ARNG)

TH-55

1 ACCIDENT ■ During second supervised solo, student pilot heard unusual noise and noted loss of engine rpm. Attempts to regain rpm were unsuccessful. As he turned downwind, SP noted smoke coming from engine and entered autorotation. Aircraft landed downslope in cornfield and rolled over. Preliminary investigation revealed connecting rod failure. (USA)

2 PRECAUTIONARY LANDINGS ■ Main transmission temperature and pressure indicator light flashed on and off erratically during flight. Caused by failure of transmission oil pressure switch. (USA) ■ Instructor pilot heard high-pitched whine coming from area of tail rotor. Maintenance inspection revealed tail rotor blades were out of balance and track. Maintenance was unable to work out vibrations and tail rotor blades were replaced. (USA) □

CARGO/SYSTEMS DIVISION

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

■ MAJ Robert P. Judson, Chief
558-4202

Three precautionary landings were reported.

CH-47

3 PRECAUTIONARY LANDINGS ■ Aircraft was taking off when 200-pound split in torque was noted. Affected No. 1 engine would not respond to a.c. beep, indicating "static" beep failure. Before normal engine release switch could be deactivated, No. 1 engine torque began increasing uncontrollably. Normal trim was then released and normal torque regained with d.c. emergency beep. As peak rotor rpm had reached 244 for 2 seconds, aircraft operators thought that a possible overspeed had occurred. Landing was made and maintenance was notified. Maintenance determined that the cause was due to internal failure of No. 1 adjustable resistor and that overspeed had not occurred. Resistor was replaced and aircraft returned to service. (USA) ■ No. 1 engine chip detector light came on during approach. Inspection of chip detector plug revealed accumulation of component wear. (USA) ■ Engine low oil caution light came on during takeoff. Caused by electrical short in low oil transmitter wiring. (USA)

WATCH THAT EMERGENCY FUEL

A T-73 engine in a CH-54 failed recently from unknown causes. The CH-54 was approximately 60 hours out of overhaul and the nature of the engine failure was a seizure type. Teardown analysis at Corpus Christi Army Depot found that the engine had been operated for an extended period on Avgas 115/145 which possibly contained TCP. As there was no indication in the aircraft records to this effect and as the engines had low times accumulated, they received no inspection at the time of aircraft overhaul. When Avgas is used for emergency fuel, TM 55-1520-217-10-1&2 must be fully complied with and the fuel system inspection performed as outlined in TM 55-1520-217-20-1.

THOUGHT FOR THE WEEK

To be a professional, you must have knowledge of all publications pertinent to your job. Sometimes one little-used manual becomes "lost in the shuffle." Here's one that's not particularly well known: **TB 43-0142, Safety Inspection and Testing of Lifting Devices, dated 8 February 1974.** This technical bulletin prescribes responsibilities, procedures, and guidance in accomplishment of safety inspections and testing of lifting devices. WHAT YOU DON'T KNOW CAN KILL YOU! □

FIXED WING
DIVISION

Fatalities: 0 ■ *Accidents: 2*
Injuries: 0 ■ *Estimated Costs: $32,000*

■ LTC Howard D. Deane, Chief
558-3901

Two accidents and five precautionary landings were reported.

U-8

1 ACCIDENT ■ Aircraft landed short of runway during simulated single-engine approach. Four flaps, all gear doors, left engine nacelle, and underside of fuselage were damaged. (USA)

U-10

1 ACCIDENT ■ Pilot overcorrected during landing and permitted aircraft to ground loop to left. Right landing gear strut and fuselage were damaged and engine mount frame was broken. (ARNG)

C-47

1 PRECAUTIONARY LANDING ■ No. 1 engine chip detector warning light came on during takeoff. Takeoff was aborted. Examination of magnetic plug and oil screen revealed metal particles. Oil sample was submitted. (USA)

T-41

1 PRECAUTIONARY LANDING ■ During climbout after takeoff, engine chip detector warning light came on and remained on. All instruments remained normal. Postlanding examination revealed fuzz on magnetic plug. (USA)

T-42

1 PRECAUTIONARY LANDING ■ Fuel was seen siphoning from right main fuel tank during takeoff. Caused by deteriorated filler cap seal. (USA)

U-21

2 PRECAUTIONARY LANDINGS ■ As landing gear was being retracted after takeoff, grinding sound was heard and gear light remained on. Gear was extended manually and immediate landing was made at home base. Postlanding check revealed gear actuator assembly had failed internally and required replacement. (USA) ■ During practice approach on nondirectional beacon, IP noted rear inboard cowl latch on No. 2 engine had popped open. Landing was made at nearby facility, latch was secured, and flight continued. Suspect latch was improperly secured by maintenance personnel following work on engine the previous day and crew overlooked it during preflight. (USA) □

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ARMY AIRCRAFT MISHAP PREVENTION DATA

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ORVAL RIGHT
Chief Advisor on
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A USAAAVS PUBLICATION

VOL. 3, NO. 8 ■ 27 NOVEMBER 1974 mishaps for the period of 8-14 NOVEMBER 1974

Whether you're a pilot, mechanic, or anyone who works around aircraft or machinery, it's always a good idea to remove your jewelry beforehand. Save this picture and show it to that suspicious wife when she asks why you're not wearing your wedding band which you forgot to replace after your job was done.

HANDS AND MACHINES

The owner of this hand was preflighting an OH-13 when he slipped and fell. His wedding band caught on a projecting piece of metal and dug into his flesh, causing a most painful injury.

THE OWNER OF THIS HAND was distracted as he placed his hand on the hanger bearing to feel for vibrations during shutdown. His glove slipped into the tail rotor drive shaft. His hand was bent backward and he *may not* regain full use of it.

LOSS OF RESOURCES
FROM THIS WEEK'S MISHAPS

FATALITIES:	1
INJURIES:	3
AIRCRAFT LOSSES:	1
ESTIMATED COSTS:	$420,088

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

Commander	558-3410/3819
Technical Research and Applications	558-6404/6410
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Prepared from information compiled by the Directorate for Aircraft Accident Analysis & Investigation
Colonel Samuel P. Kalagian, Director

BEGINNING THIS ISSUE mishap briefs not designated ARNG and USAR involved Active Army aircraft.

UTILITY/ATTACK DIVISION

Fatalities: 1 ■ *Accidents:* 2
Injuries: 2 ■ *Estimated Costs:* $363,088

■ MAJ Charles E. Toomer, Chief
558-4198

Two accidents, one incident, two forced landings, and twenty precautionary landings were reported.

UH-1

2 ACCIDENTS ■ Aircraft was in cruise flight at approximately 1,200 feet agl when engine lost power. Low rpm warning light came on and pilot entered autorotation. Aircraft struck powerlines approximately 50 feet agl and landed hard, with major damage. Cause is unknown at this time. (ARNG) ■ Aircraft struck trees during low-level night operations and crashed inverted into wooded area.

1 INCIDENT ■ Main rotor blades struck small tree while aircraft was being repositioned at field site. Ground guides were being used.

2 FORCED LANDINGS ■ Engine quit during practice autorotation to stagefield. Flight idle solenoid was replaced. ■ Engine failed at 15 feet agl during practice autorotation.

17 PRECAUTIONARY LANDINGS–following are selected briefs ■ Hydraulic failure occurred during cruise flight and running landing was made at airfield. Hydraulic pressure switch was replaced. ■ Transmission oil hot light came on. Caused by thermostatic switch failure. ■ Engine chip detector light came on. Fuzz found on plug. ■ Voltmeter pegged out during night mission. Aircraft returned 8 miles to heliport and landed. Cause unknown. ■ IP heard slight intermittent high-pitched grinding noise. After 15 minutes in holding pattern, noise became more frequent. IP cancelled IFR and proceeded to home base. Suspect N1 turbine wheel. Hot end inspection is in progress. (ARNG) ■ Fire warning light came on during landing. Fire element malfunctioned. ■ High frequency vibration developed during takeoff. Caused by failure of oil cooler fan.

AH-1

3 PRECAUTIONARY LANDINGS ■ Master caution and transmission oil bypass lights came on during takeoff and transmission oil pressure gauge dropped to zero. Caused by improper filter gasket installation. ■ Engine chip detector light came on. Metal slivers found on chip plug. Aircraft is now under supervision of direct support personnel. ■ Aircraft was en route to rearming point when hydraulic warning light came on. Caused by ruptured hydraulic line. □

LOH DIVISION

Fatalities: 0 ■ *Accidents:* 2
Injuries: 1 ■ *Estimated Costs:* $52,000

■ LTC David F. Stoutamire, Chief
558-4202

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

OH-58

1 ACCIDENT ■ During VFR local service mission, pilot hovered helicopter out of parking area into another parked helicopter.

1 FORCED LANDING ■ Pilot was making hovering turns 2 feet above ground during test flight when engine-out audio sounded, caution lights came on, and oil pressure and engine/rotor rpm decreased. Hovering autorotation was made to ground. Cause of engine malfunction undetermined.

9 PRECAUTIONARY LANDINGS ■ Transmission chip detector warning lights of four aircraft came on. Three transmissions were flushed and aircraft were returned to flyable status. One transmission was sent to ARADMAC for repair. ■ Four precautionary landings were caused by a bird strike; malfunctioning hydraulic pressure switch; feedback in cyclic control; and tail rotor chip detector warning light illumination. ■ During left turn, master caution and engine oil bypass warning lights came on. As aircraft was leveled, lights went out. Minutes later, as pilot continued his approach, lights came back on and stayed on until engine was shut down. Inspection revealed that engine oil reservoir filler cap, FSN 2840-243-3675, P/N 417-41C, was not properly seated, allowing oil to leak past cap.

OH-6

1 PRECAUTIONARY LANDING ■ After approximately 2 hours and 10 minutes flying time, low fuel and

master caution lights flickered intermittently. Five minutes later, lights came back on. Aircraft was landed and refueled. Investigation is still in progress to determine if tanks hold the correct amount of fuel when they visually show full, or if the low fuel caution sending unit is properly adjusted. (ARNG)

TH-55

1 ACCIDENT ■ During solo flight, student pilot entered traffic pattern when aircraft suddenly lost power and crashed. Pilot received major injuries. Investigation in progress.

THOUGHT FOR THE WEEK

NICE AND EASY. USAAAVS has recently received numerous reports of skin damage to OH-58 aircraft just below the fuel tank filler. It seems that when you let the fuel tank cap flop down against the aircraft skin, a hole can get punched in the honeycomb. Water and spilled JP4 can enter the honeycomb panels through such a hole, causing these panels to come unglued. This could result in substantial costs for repair and plenty of downtime. Pilots, pass the word to maintenance and POL types alike. Tell them to let that fuel cap down NICE and EASY when refueling or checking the fuel level in your aircraft. □

CARGO/SYSTEMS

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

DIVISION

■ MAJ Robert P. Judson, Chief
558-4202

Two precautionary landings were reported.

CH-47

2 PRECAUTIONARY LANDINGS ■ No. 1 engine chip detector light came on during landing. Chip detector plug was removed and accumulated engine wear on plug was determined to be insignificant. Plug was cleaned and reinstalled. ■ Aircraft was in flight when crew chief noted high frequency vibration between combining transmission and No. 2 engine. Lack of lubrication prevented axle movement of input spline at combining box. □

FIXED WING

Fatalities: 0 ■ *Accidents:* 1
Injuries: 0 ■ *Estimated Costs:* $5,000

DIVISION

■ LTC Howard D. Deane, Chief
558-3901

One accident and nine precautionary landings were reported.

T-42

1 ACCIDENT ■ During landing roll, pilot mistakenly raised gear while intending to retract flaps. Propellers, gear doors, flaps, and antennas were damaged. *What happened to checklist procedures?*

C-47

1 PRECAUTIONARY LANDING ■ During climb after takeoff, No. 1 engine began to backfire and smoke streamed out of cowling. All engine instruments indicated normal. No. 1 throttle was retarded and left turn was initiated to return to field. Engine was secured, emergency declared, and landing made. Examination revealed No. 4 cylinder head separated one-eighth inch from barrel (cylinder fatigued).

T-41

2 PRECAUTIONARY LANDINGS ■ Engine chip detector warning light came on twice in same aircraft in 7-day period. Fuzz was found on magnetic plug both times.

OV-1

2 PRECAUTIONARY LANDINGS ■ No. 1 propeller ran away (1950 rpm) during cruise flight. Caused by failure of propeller governor. (ARNG) ■ After 15 minutes of flight No. 2 engine chip detector warning light came on. Fuzz was found on magnetic plug.

U-8

2 PRECAUTIONARY LANDINGS ■ No. 2 engine began to detonate and trail black smoke during climbout after takeoff. Postlanding check revealed porcelain was cracked on spark plug for No. 3 cylinder of No. 2 engine. ■ During cruise flight on IFR service mission, crew noted continuous interruption of power on No. 1 engine. Manifold pressure dropped approximately 5 inches and rpm dropped approximately 200. IP switched from auxiliary to main tank and turned boost pump on. Interruption of power continued. All other

gauges remained normal. Passenger told pilot that oil was coming out on cowling of No. 1 engine. No. 1 engine was secured and landing was made at airfield. Caused by failure of compressor ring on No. 6 cylinde

U-21

2 PRECAUTIONARY LANDINGS ■ Right horizontal deice boot separated from horizontal stabilizer, causing vibration in yoke assembly. ■ Preparing to perform touch-and-go landing, crew saw right main landing gear downlock indicator light give unsafe condition. Maintenance personnel in tower observed gear to be down and apparently locked during flyby. Postlanding check revealed wiring for main landing gear indicator lights had been reversed and left downlock limit switch was loose and out of adjustment. □

HOURS FLOWN AND ACCIDENT RATE PER 100,000 HOURS BY COMMAND						
COMMAND	12 MONTHS ENDING SEPTEMBER 73			12 MONTHS ENDING SEPTEMBER 74		
	Flying Hours	Number Accidents	Rate	Flying Hours	Number Accidents	Rate
USARPAC*	113,233	13	11.48	108,207	7	6.47
USAREUR**	176,499	15	8.50	151,080	7	4.63
NATIONAL GUARD	311,584	20	6.42	275,139	10	3.63
TRADOC	119,151	6	5.04	412,652	31	7.51
FORSCOM	116,953	5	4.28	400,071	33	8.25
USAAVNC	253,684	8	3.15	321,119	19	5.92
USAR	69,511	5	7.19	60,166	2	3.32
COMBINED***	1,965,892	139	7.07	1,573,390	100	6.33
WORLDWIDE	1,584,797	114	7.19	1,244,085	88	7.07

*Includes 8th U.S. Army
**Includes 7th U.S. Army
***Army/USAR/NG

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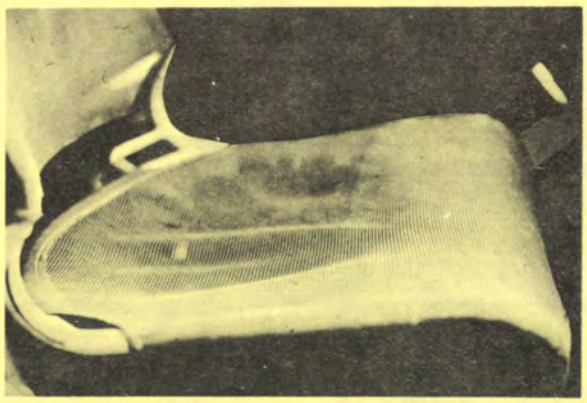
ORVAL RIGHT
Chief Advisor on
Matters of Aviation

A USAAAVS PUBLICATION

VOL. 3, NO. 9 ■ 4 DECEMBER 1974 mishaps for the period of 15-21 NOVEMBER 1974

SAFE OR UNSAFE?



This UH-1 seat may be safe to fly in if you are about an axe handle wide in the posterior. But if you have an accident, you could be hurtin' for certain regardless of your measurements.

This Raschel knit seat was found installed in an aircraft that was considered flyable. Worse yet, the seat was written up and signed off.

Excessive sagging of seat material offers little, if any, energy absorption in the event of an accident. It is even possible to submarine under the lap belt and cause serious internal injuries.

Care of the UH-1 crew seat covers can be found in Change 2, TM 55-1520-210-20, chapter 4, page 4-15, paragraph 4-23, "Crew Seat Covers." Like the Playmate of the Month, the seat (cover) should be smooth and firm.

LOSS OF RESOURCES
FROM THIS WEEK'S MISHAPS

FATALITIES:	0
INJURIES:	0
AIRCRAFT LOSSES:	0
ESTIMATED COSTS:	$25,696

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

Prepared from information compiled by the Directorate for Aircraft Accident Analysis & Investigation
Colonel Samuel P. Kalagian, Director

UTILITY/ATTACK DIVISION

Fatalities: 0 ■ *Accidents:* 0
Injuries: 0 ■ *Estimated Costs:* $3,696

■ MAJ Charles E. Toomer, Chief
558-4198

Two incidents and 30 precautionary landings were reported.

UH-1

1 INCIDENT ■ Aircraft struck bird during landing, damaging right chin bubble.

23 PRECAUTIONARY LANDINGS–following are selected briefs ■ After hydraulics-off flight, hydraulic control switch was placed on. Hydraulic pressure was not reinstated to cyclic control. Suspect failure of fore and aft cyclic servo. (ARNG) ■ Pilot noticed spray from top battery vent. Voltage was found to be set too high on main generator. ■ Pilot noticed unusual vibration in pedals after landing. Caused by failure of No. 1 hanger bearing. ■ Hydraulics failed during cruise flight. Caused by internal failure of hydraulic check valve. Fragments of valve lodged in hydraulic line, causing crack and loss of fluid. (USAR) ■ During maintenance test flight, collective was lowered after topping check. Engine rpm increased to 7000. Caused by overspeeding governor.

AH-1

1 INCIDENT ■ Battery access cover separated from aircraft after takeoff, striking main rotor. One blade was damaged.

7 PRECAUTIONARY LANDINGS ■ Aircraft had SCAS roll channel hardover during takeoff. Caused by defective SCAS card. ■ Cyclic suddenly became stiff during cruise flight. Caused by failure of lateral cyclic servo cylinder. ■ Engine chip detector light came on. Oil sample was taken for analysis. ■ Transmission oil pressure light came on, followed by drop in transmission oil pressure. Caused by crack in oil line fitting. ■ Transmission oil bypass lights of two aircraft came on. Bypass switch replaced on both. ■ Pilot noted smoke from malfunctioning equipment which was being tested. Cause under investigation. □

LOH DIVISION

Fatalities: 0 ■ *Accidents:* 2
Injuries: 0 ■ *Estimated Costs:* $22,000

■ LTC David F. Stoutamire, Chief
558-4202

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

OH-58

1 INCIDENT ■ During refueling operation, nozzle handle was pressed to start fuel flow. Fuel pressure pushed nozzle out of receptacle, spraying fuel on refueler and aircraft. Fuel nozzle struck side of fuselage, causing damage.

7 PRECAUTIONARY LANDINGS ■ During attempted engine start, TOT rose to 940° C. Engine was shut down. Cause of engine overtemperature undetermined until maintenance inspections are completed. ■ Fuel filter caution light came on. When power was reduced for landing, light went out. Inspection revealed filter was clogged and was being bypassed. (ARNG) ■ During test flight, pilot was performing power application following 1,000 fpm power-on descent for pedal check. When power was applied, N_2 dropped off to 85 percent. Running landing was made. Fuel control failed in flight. ■ Attempted takeoff from dirt road caused pilot to encounter IMC. Pilot increased pitch to regain VFR when engine overtemperature occurred. Aircraft is undergoing hot end inspection. ■ Pilot noted TOT indication of 740° C. After landing, inspection revealed maintenance had improperly installed bleed air elbow assembly, FSN 4730-165-4904, TM 55-1520-228-34P, page 199. Elbow was cross-threaded and loss of bleed air caused high TOT conditions. ■ Pilot stated that in cruise flight with bleed air heater on he felt a vibration. When bleed air heater was turned off, vibration stopped. Again, heater was turned on and vibration started. Heater was turned off the second time and vibration did not stop this time. Aircraft landed. Cause undetermined.

■ Transmission oil pressure light came on and power approach landing was made. Seal in free-wheeling unit failed, allowing transmission oil to be scavenged into engine oil system.

TH-55

2 ACCIDENTS ■ While student pilot was operating in confined area, he lost control of helicopter, allowing right rear skid to dig into ground. Aircraft rolled on right side, causing main rotor mast to separate from helicopter. ■ During solo flight, student pilot underarced his second attempt at a normal approach. In an attempt to correct for the underarc, aircraft's forward movement was reduced to near zero and aircraft made rapid and near vertical descent from about 30 feet agl, resulting in hard landing and major damage to aircraft.

3 PRECAUTIONARY LANDINGS ■ Engine oil pressure decreased below red line. Engine oil pressure gauge malfunctioned. ■ While hovering in confined area, student pilot thought he had magneto problem and landed aircraft. Inspection revealed fluctuating tachometer. Tachometer indicator replaced. ■ Instructor pilot heard snap in tail rotor controls during hover. After landing, maintenance found the support stringer for the copilot's control pedals was bent. Suspect instructor pilot exceeded strength limitations on control pedals, causing support stringers to bend. □

CARGO/SYSTEMS DIVISION

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

■ MAJ Robert P. Judson, Chief
558-4202

Four precautionary landings were reported.

CH-47

4 PRECAUTIONARY LANDINGS ■ No. 1 engine would not return to full power during recovery from autorotation maneuver. Cause unknown. Deficiency could not be duplicated. ■ Crew heard loud bang from No. 2 engine during climbout. Torque needles split and N_1 dropped to 58 percent on No. 2 engine. Inspection revealed several blades on power turbine wheels were missing, with blade damage to all power turbine wheels. Five hundred pounds of torque was indicated at time of failure, with no unusual egt indication. Cause unknown. ■ Roll inputs to cyclic stick were felt during cruise flight. Caused by malfunction of pilot valve in roll lower boost actuator. ■ Flight engineer reported severe oil leak in combining transmission area. Caused by rupture of forward transmission rigid lub line which is channeled under combining transmission. □

FIXED WING DIVISION

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

■ LTC Howard D. Deane, Chief
558-3901

One forced landing and nine precautionary landings were reported.

U-8

1 FORCED LANDING ■ No. 2 engine failed and was secured during climbout after takeoff at approximately 300 feet agl. Aircraft would not maintain level flight in clean configuration with good engine at full power. No. 2 engine was restarted and, although developing only partial power, it was sufficient to maintain altitude with only the pilot, copilot, and 200 gallons of AVGAS aboard. Aircraft reportedly appeared to be stalling at 100 KIAS at 1,850 feet msl with an OAT of 20° C., with No. 2 engine developing only partial power. Nothing further was reported.

3 PRECAUTIONARY LANDINGS ■ While descending from altitude for landing, aircraft was slowed to 120 KIAS and gear switch handle was placed in down position. Both main gear indicated down, but nose gear indicated up. Gear warning light in gear handle remained on. On final for flyby, nose gear indicator suddenly indicated down and light in handle went out. Tower personnel confirmed apparent position of gear and landing was made. Examination determined uplock microsensitive switch had been stuck in closed position. ■ Nose gear indicator would not indicate down and locked during preparation for landing. IP kicked

bottom of instrument panel (checklist?) and nose indicator came on. Postlanding check of nose gear revealed one lock was not locked. Suspect faulty nose gear, retractor, and indicator system. ■ During maintenance recovery flight, smoke was seen emitting from No. 1 engine exhaust system. Landing was made at nearby intermediate airfield where examination revealed fitting on oil line from top of oil filter to oil pump was leaking and dripping oil on exhaust. Fitting was tightened and flight continued.

C-7

1 PRECAUTIONARY LANDING ■ No. 2 engine began to backfire and run rough. Engine was shut down and flight completed to home base (10 minutes) where examination revealed No. 10 cylinder was cracked and required replacement.

OV-1

2 PRECAUTIONARY LANDINGS ■ During SLAR training flight, No. 1 engine chip detector warning light came on. Pilot monitored his instruments and returned to home base. Examination of magnetic plug could detect no significant evidence of engine damage. Special oil sample was submitted. ■ No. 1 propeller went to 2000 rpm steady state for approximately 5 seconds. N_1 speed was 60 to 70 percent. Engine was secured and aircraft returned to home base. Engine will be replaced.

T-41

2 PRECAUTIONARY LANDINGS ■ Engine chip detector warning light illuminated on same aircraft on two consecutive days. After the first occurrence, a slight amount of moisture was found on magnetic plug. After the second occurrence, fuzz was found on magnetic plug. Oil was replaced after engine was flushed.

U-21

1 PRECAUTIONARY LANDING ■ Pilot was preparing to land and flaps responded intermittently when attempts were made to extend them. Caused by malfunction of flap relay. □

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