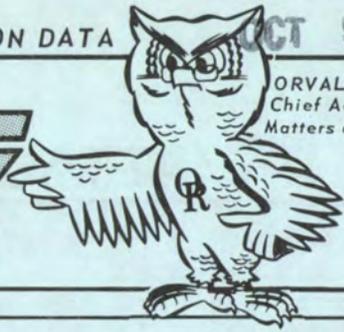




FLIGHT FAX



ORVAL RIGHT
Chief Advisor on
Matters of Aviation

A USAAAVS PUBLICATION

VOL. 4, NO. 1 ■ 8 OCTOBER 1975

mishaps for the period of 19-25 SEPTEMBER 1975

US Army Aviation Training Library
Fort Rucker, Alabama 36360

Everybody is in the Act



This photo shows what was left of a Huey that came to grief on a quick reaction air mobile operation. The mission was a dropoff of troops near the top of a mountain. The pilot selected a sloping area on the downwind side and, since there was no level ground available, intended to discharge the troops at a hover. The approach was to the north, with wind from the west. The approach was terminated at a hover and rpm started falling. An attempted left pedal turn caused further loss of rpm. Attempts to regain rpm were unsuccessful and the tail rotor struck the ground. The tail boom broke off, the fuselage struck and bounced, the main rotor struck the ground, and the helicopter turned over. Some of the troops were thrown out and one was injured by a main rotor blade.

The cause of this accident was the crosswind approach on the downwind side of the mountain, with the left pedal turn contributing to the loss of rotor rpm. Fatigue was considered a possible factor because the pilot was living under field conditions that were less than ideal. On this mission he didn't even have a rated copilot. There was no clear indication that loss of engine power contributed to

the accident, but fuel in the aircraft was found to be contaminated.

There is a lesson in this one for all of us:

■ For pilots: The necessity for close evaluation of every situation, to include aircraft load, wind, elevation, and terrain, and the need to monitor every approach all the way down and stay ready to take corrective action.

■ For unit commanders and supervisors: The essentiality of close supervision in such activities as aircraft servicing; the importance of good unit operational SOP's that insure, among other things, that passengers stay buckled in until it is time to get out; the need for a good look at the requirement for a flight, versus the criticality of operating conditions, if a complete and fully qualified aircraft crew is not available.

■ For commanders and staff officers at higher levels: The need for planning and organization in an operation to insure good operating procedures, adequate logistical support, and living conditions that provide opportunity for sufficient rest. This last is a necessity for personnel operating sophisticated equipment under critical conditions.

SIGNAL KITS, PERSONNEL DISTRESS

The SRU-21/P survival vest and the new OV-1 aviator survival vest are being issued with the Signal Kit, Personnel Distress Foliage Penetrating, Red, Model No. 201 Global, NSN 1370-00-490-7362. This signal kit is not available to Army users for replenishment or training. The Signal Kit Item Manager at ARCOM advises that action is presently being taken to adopt the Model 201 as Standard A to replace the current Signal Kit, Personnel Distress, Red M185, NSN 1370-00-921-6172, listed in chapter 2, SB 700-20. Recommend all users take action to conserve the Model 201 for actual emergency use. Training and replenishment needs can be satisfied by ordering the Model 185.—Aviation Life Support Systems Manager, ATTN: AMSAV-WL, U.S. Army Aviation Systems Command, St. Louis, Missouri 63166, AUTOVON 698-3241/3291

UTILITY/ATTACK

Fatalities: 0 ■ Accidents: 1
Injuries: 0 ■ Estimated Costs: \$103,769

BRANCH

■ CPT James M. Klina, Jr., Chief
SP6 Roland L. Allen, Jr.
558-4198

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

UH-1

2 INCIDENTS ■ While aircraft was landing in LZ, marker panel flew into rotor blades, damaging one blade. ■ Aircraft was flying level at 12,500 feet msl over mountain when it struck a bird, breaking pilot's side of windshield. (ARNG)

27 PRECAUTIONARY LANDINGS—following are selected briefs ■ Transmission hot light came on. Caused by failure of thermoswitch. ■ Hydraulic warning light came on. Caused by failure of hydraulic pressure switch. ■ Aircraft encountered severe vertical vibration. Inspection revealed failure of drive link tunniun. ■ Engine surged during cruise flight. Pilot entered autorotation, switched to emergency governor, and landed. Governor had failed internally. ■ Chip detector lights of nine aircraft came on. Five reported fuzzi, one had loose wire, and three causes were not reported. ■ Transmission oil pressure dropped to zero and oil pressure light came on. Caused by failure of transmission oil filter gasket. ■ Pilot heard loud bang at night and landed. Inspection revealed bird strike on radio compartment door. (ARNG) *There were two bird strikes this week. We'd like to tell you to fly high or fly at night but, as indicated above, that evidently won't work. So all we can say is stay alert and use those eyes.*

AH-1

1 ACCIDENT ■ Pilot was taking off after rearming with 48 2.75-inch rockets. After completion of hover check he encountered insufficient left pedal control with apparent loss of power. Aircraft began tuming to right and struck ground, causing major damage.

5 PRECAUTIONARY LANDINGS ■ Chip detector lights of three aircraft came on. All three were caused by fuzzi. ■ Engine oil pressure light came on. Caused by faulty pressure switch. ■ Aircraft departed with full fuel load and burned 1,000 pounds in 45 minutes. Inspection revealed inaccurate fuel gauge. □

LOH/CARGO

Fatalities: 1 ■ Accidents: 2
Injuries: 0 ■ Estimated Costs: \$174,565

BRANCH

■ MAJ Robert P. Judson, Chief
SFC D. T. Farrar/SFC R. G. Farris
558-4202

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

OH-58

2 ACCIDENTS ■ Aircraft crashed during landing and was destroyed. Accident is under investigation. ■ IP was demonstrating stuck pedal landing and attempted power recovery when aircraft wouldn't align with runway. During throttle application, spike knock occurred and aircraft landed hard. Fuselage skin was wrinkled and there was structural damage at junction of fuselage and tail boom.

LOSS OF RESOURCES FROM THIS WEEK'S MISHAPS

FATALITIES: 1
INJURIES: 0
AIRCRAFT LOSSES: 1
ESTIMATED COSTS: \$278,402

UNITED STATES ARMY AGENCY FOR AVIATION SAFETY
FORT RUCKER, ALABAMA 36362
Commander/Deputy Commander 558-3410/3819
For Assistance in Locating Proper Directorate 558-6510
Aircraft Accident Analysis and Investigation 558-3913/4202
Technical Research and Applications 558-6404/6410
Plans, Operations, and Education 558-4812/6510
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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
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.

1 INCIDENT ■ Aircraft was climbing after takeoff at about 300 feet and 80 knots when bird struck upper vertical fin, damaging leading edge of vertical fin.

9 PRECAUTIONARY LANDINGS ■ Tail rotor chip detector lights of two aircraft illuminated. One was caused by loose wire and the other by shorted wire. ■ Two main transmission chip detector light illuminations were reported. Plugs were cleaned and aircraft released for flight. ■ Engine chip detector light came on. Plug was cleaned and aircraft released for flight. ■ Hydraulic pressure light came on. Caused by malfunction of old type pressure switch, P/N 206-076-365-1. ■ When power was applied to bring aircraft to hover, N₂ dropped to 80%. Problem could not be duplicated during maintenance inspection and aircraft was released for flight. ■ Engine oil bypass warning light came on as power was applied for takeoff. Inspection revealed cracked torque meter oil line. ■ N₁ fluctuated from 93% to 95% with corresponding fluctuations in torque and TOT gauge. Caused by excessive wear in linear actuator control rod. (ARNG)

TH-55

2 PRECAUTIONARY LANDINGS ■ Engine oil pressure dropped below minimum and engine chip detector light illuminated. Inspection revealed malfunction of engine oil pressure sending unit and chip detector plug. ■ Manifold pressure gauge became inoperative. Caused by malfunction of gauge.

CH-47

6 PRECAUTIONARY LANDINGS ■ No. 2 engine would not increase above 71 percent on reapplication of power from descent. Cause unknown. Condition could not be duplicated. (USAR) ■ No. 1 engine chip detector light came on. Caused by defective chip detector plug. (ARNG) ■ Crew saw white flaky substance coming from forward transmission area. Caused by fiberglass reinforcement that came loose from No. 3 tunnel cover which contacted and was pulverized by driveshaft. (ARNG) ■ During simulated No. 2 engine failure, normal or emergency engine beep trim would not respond on recovery. Caused by N₂ actuator failure. ■ Aircraft was at hover with sling load when cargo hook malfunctioned and released load. Cause unknown. Investigation is continuing. ■ Aft transmission chip detector light came on. Inspection revealed excessive metal particles on plug and in filter. Caused by internal failure of aft transmission.

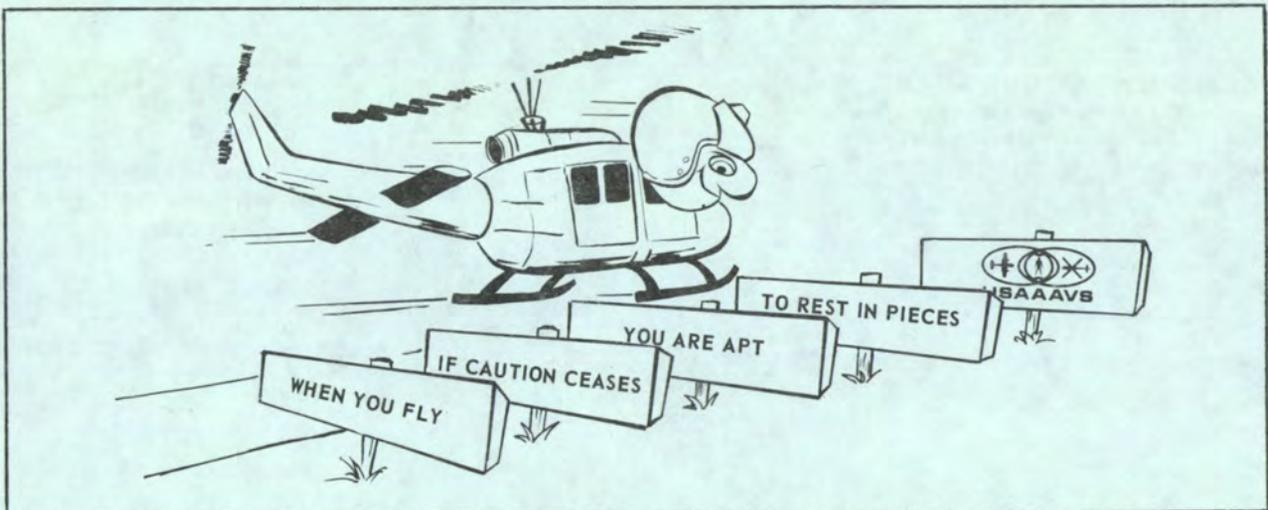
CH-54

1 PRECAUTIONARY LANDING ■ Main transmission chip detector light came on. Fuzz was found on plug.

MESSAGES RECEIVED

■ Safety-of-flight message, DTG 241740Z Sep 75, one-time inspection on engine mechanical transmissions A, B, & C, CH-47 helicopters. Message provides for identifying and removing from service transmissions that have been overhauled without accomplishment of critical cleaning and inspection work.
■ Maintenance advisory message, DTG 231500Z Sep 75, on CH-47 A, B, & C rotor blades. Message indicates that blade corrosion inspection can be performed by field maintenance personnel who have received instructions on techniques from AVSCOM field maintenance technicians or from qualified depot personnel.

THOUGHT FOR THE WEEK



FIXED WING

Fatalities: 0 ■ Accidents: 0
Injuries: 0 ■ Estimated Costs: \$68

BRANCH

■ MAJ William G. Daly, Jr., Chief
SFC John M. Terrell
558-3901

One incident and seven precautionary landings were reported.

T-41

2 PRECAUTIONARY LANDINGS ■ Oil pressure dropped below green arc during cruise. Engine seemed to be running rough before pressure drop. Oil pressure gauge and fuel nozzle were replaced. ■ Normal fuzz on magnetic chip plug caused chip detector light illumination.

T-42

1 PRECAUTIONARY LANDING ■ Right alternator failed, causing left alternator to drop off line. Right alternator was replaced.

OV-1

1 INCIDENT ■ Right side entrance hatch came open on takeoff. Suspect technical observer hit latch handle.

U-8

2 PRECAUTIONARY LANDINGS ■ No. 1 engine chip detector light came on for about 2 minutes, then went out. Inspection revealed metal flakes on magnetic plug. Aircraft was released for flight after oil and filter change. ■ No. 2 engine chip detector light came on after takeoff. Inspection revealed sheared rivet in ring gear drive plate, causing replacement of reduction gear assembly.

U-21

2 PRECAUTIONARY LANDINGS ■ Left outboard flap failed to retract after takeoff. Landing was delayed long enough to analyze problem and effect on aircraft. Landing was successful. Flap actuator drive shaft sheared. ■ Odor in cockpit was followed shortly by smoke. Electrical systems were secured and smoke began to dissipate. Fluid was detected coming from battery cover. Battery was turned off and landing completed. Caused by battery thermal runaway. □

MAINTENANCE MISHAPS

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

Two precautionary landings were reported.

UH-1

1 PRECAUTIONARY LANDING ■ Aircraft was in cruise flight when hydraulic pressure caution light came on. Hydraulic line was chafed.

AH-1

1 PRECAUTIONARY LANDING ■ No. 1 hydraulic pressure caution light came on, followed by stiffening in antitorque pedal. Lock nut on hydraulic filter inlet line elbow was improperly installed. □

DEPARTMENT OF THE ARMY
UNITED STATES ARMY
AGENCY FOR AVIATION SAFETY
FORT RUCKER, ALABAMA 36362

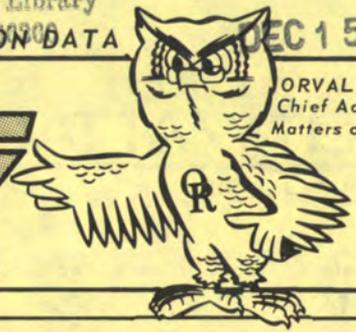
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FLIGHT FAX



ORVAL RIGHT
Chief Advisor on
Matters of Aviation

A USAAAVS PUBLICATION

VOL. 4, NO. 10 ■ 10 DECEMBER 1975

mishaps for the period of 21-27 NOVEMBER 1975

MESSAGE FROM GENERAL W.T. KERWIN, JR., VICE CHIEF OF STAFF

24 November 1975

I am concerned with the increased number of Army aircraft accidents and the resultant fatalities that have been sustained by the Army during the period 1 July 1975 through 7 October 1975. During that time frame, we experienced 32 accidents accounting for a loss of 23 lives and \$4,826,229 in equipment.

The disturbing fact derived from analysis of the 1975 accidents is that crew error and inadequate supervision appear as the predominant cause factors. Conversely, tactical aviation training such as nap-of-the-earth (NOE), aerial gunnery and tactical navigation, although contributing to two accidents, was not a major contributing factor overall.

I realize we cannot avoid the inherent risks of realistic tactical aviation training. However, with your personal involvement in the aviation safety program, we ought to be able to halt this alarming trend. We must reduce this tragic loss of life and destruction of materiel.

You figure it out

PROBLEM?

You are assigned a training mission to place your AH-1G on a ridgeline in position to ambush lightly armored vehicles. Your ambush site is at 5,000 feet msl and the temperature is 35° C. You know you must be able to unmask to fire and will require at least a 15-foot hover. Your aircraft has an operating weight of 7,867 pounds with a moment/100 of 15,383. You are in a "heavy hog" configuration with four M200 pods, 1,500 rounds of 7.62, 150 rounds of 40mm, ten 10-pound rockets on each inboard pod and five 10-pound rockets on each outboard pod. You plan to arrive at your ambush site with 600 pounds of fuel.

Will you be able to engage your target from this position with this aircraft? Are you in CG limits? What is your critical azimuth for the tractor tail rotor system and under what wind conditions? (Check your answer with ours; see back page.)

CORRECTION

In last week's FLIGHTFAX, Brigadier General Rufus C. Lazzell was inadvertently listed as assistant division commander, 3d Combat Aviation Battalion. He is assistant division commander, 3d Infantry Division.

<p>LOSS OF RESOURCES FROM THIS WEEK'S MISHAPS</p> <p>FATALITIES: 1 INJURIES: 7 AIRCRAFT LOSSES: 1 ESTIMATED COSTS: \$86,181</p>	<p>UNITED STATES ARMY AGENCY FOR AVIATION SAFETY FORT RUCKER, ALABAMA 36362</p> <p>Commander/Deputy Commander 558-3410/3819 For Assistance in Locating Proper Directorate 558-6510 Aircraft Accident Analysis and Investigation 558-3913/4202 Technical Research and Applications 558-6404/6410 Plans, Operations, and Education 558-4812/6510 Management Information System 558-4200/2920 Publications and 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</p>
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Prepared from information compiled by the Directorate for Aircraft Accident Analysis & Investigation
Lieutenant Colonel Curtis M. Sanders, Director

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UTILITY/ATTACK

Fatalities: 1 ■ Accidents: 1
Injuries: 7 ■ Estimated Costs: \$79,680

BRANCH

■ MAJ William C. Childree, Chief
SP6 Roland L. Allen, Jr.
558-4198

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

UH-1

1 ACCIDENT ■ Aircraft was on night resupply mission. After supply dropoff, five passengers boarded aircraft for return flight. During hover before takeoff, aircraft became shrouded in blowing snow and crashed. Suspect crew disorientation due to whiteout conditions.

3 INCIDENTS ■ Aircraft was flying NOE course when main rotor struck tree, damaging one main rotor blade. ■ As aircraft was being repositioned in field site, main rotor hit 1-inch-diameter tree, damaging one main rotor blade. Report indicates ground guide was being used. ■ Main rotor blade struck 2-inch hardwood limb during NOE turn. (ARNG)

2 FORCED LANDINGS ■ Engine compressor stalled while aircraft was hovering. FOD to compressor was reported as cause. ■ Engine was inadvertently shut down when throttle was reduced to flight idle for practice autorotation. Failure of flight idle solenoid allowed throttle to move to closed position.

24 PRECAUTIONARY LANDINGS—following are selected briefs ■ Engine oil temperature increased to 120°. Caused by loose coupling in bleed air system. ■ Engine lost power during cruise flight. Aircraft entered autorotation and pilot saw gas producer stabilize at 54 percent. Governor switch was placed in emergency position and aircraft returned to home station. (ARNG) ■ Aircraft developed severe vibrations during flight. Cause not reported. ■ Crew noticed high frequency vibration. Replacement of oil cooler fan corrected problem. ■ Engine chip detector light illuminated. Inspection of magnetic plug revealed excessive wear metal indicating possible failure of No. 3 or No. 4 bearing. Engine replaced. ■ Pilot's door began vibrating. Inspection revealed loose weather stripping on door. ■ N1 tachometer fluctuated during reduced power setting for approach. Caused by malfunction of tachometer generator. ■ Total hydraulic failure occurred on final approach. Running landing was completed to sod adjacent to runway. Hydraulic fluid was lost due to internal failure of irreversible valve. ■ Master caution and right fuel pump lights came on. Caused by internal failure of pump. ■ Engine had several compressor stalls during NOE flight. Cause not reported. Engine was replaced.

AH-1

1 INCIDENT ■ Main rotor struck 2-inch-diameter tree limb during NOE flight.

1 PRECAUTIONARY LANDING ■ Tail rotor gearbox chip detector light came on. Caused by failure of gearbox input quill seal. □

LOH/CARGO

Fatalities: 0 ■ Accidents: 0
Injuries: 0 ■ Estimated Costs: \$6,501

BRANCH

■ MAJ Robert P. Judson, Chief
SFC D. T. Farrar/SFC R. G. Farris
558-4202

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

OH-58

1 INCIDENT ■ Aircraft was making NOE approach to LZ when main rotor blade tips struck tree. Both main rotor blades were damaged, requiring replacement.

1 FORCED LANDING ■ Engine flamed out during HIT check. Maintenance inspection revealed air in fuel line.

5 PRECAUTIONARY LANDINGS ■ Pilot engaged starter with left hand and opened throttle with right hand. At approximately 25 percent N1, pilot released starter while attempting to change hands. IP reengaged starter and aborted start. TOT exceeded limit, requiring engine change. ■ During reduction of engine power and airspeed, TOT went above red line. All bleed air was turned off and TOT remained in high yellow. Suspect failure of seal ring, P/N 6870736, off diffuser scroll, which caused air leak. ■ Generator caution light came on. Inspection revealed generator had failed. ■ Pilot was unable to reduce power during landing due to binding of collective pitch lever. Shallow approach was made to airfield. Inspection revealed armor seat panel was not secured and was binding collective pitch lever. TM 55-1520-228-20, page 14-7, change

16, under "WARNING" states that armor panel can interfere with collective control if latch is excessively worn or loose. ■ Pilot noticed oil on overhead plexiglass and landed. Transmission oil pressure line fitting was found loose at bulkhead between engine and transmission.

TH-55

1 INCIDENT ■ While hovering to active lane, SP applied excessive aft cyclic control and reduced collective pitch. IP was late with corrective action and tail rotor blades struck ground.

1 FORCED LANDING ■ Student pilot heard loud bang, aircraft yawed, and fuselage vibrated. Engine and rotor tachometer needles split. Pilot added throttle to rejoin tachometer needles, but engine would not respond. Pilot autorotated aircraft to open field. Engine is still under maintenance investigation.

2 PRECAUTIONARY LANDINGS ■ IP felt and reported unusual vibrations during flight. Investigation revealed that during preflight IP removed main rotor tiedown and placed it on top of fuel tank. Tiedown fell into impeller shroud area and wound around impeller shaft, resulting in vibrations. ■ During hover, IP heard grinding noise coming from area of main transmission. Maintenance inspection revealed that heater blower motor had failed.

CH-47

1 PRECAUTIONARY LANDING ■ Transmission chip detector light came on. Caused by excessive metal chips on chip detector. Transmission was replaced. □

FIXED WING

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

BRANCH

■ MAJ William G. Daly, Jr., Chief
SFC John M. Terrell
558-3901

Four precautionary landings were reported.

OV-1

2 PRECAUTIONARY LANDINGS ■ Right main gear did not indicate down, and recycling did not help. Gear was blown down and landing was uneventful. Wire was broken to down-lock sensing switch. ■ While lowering gear, hydraulic pressure was lost on No. 2 system. Gear was blown down and landing was uneventful. Accessory gearbox drive to hydraulic pump failed.

U-8

2 PRECAUTIONARY LANDINGS ■ No. 1 engine began running rough and chip detector light came on. Maintenance found rivet (NSN 5320-00-062-0099) on magnetic plug and replaced engine. ■ Unusual vibration was detected in No. 2 engine during climb. Pilot returned for landing. Broken valve was found by maintenance. □

MAINTENANCE MISHAPS

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

Five precautionary landings were reported.

UH-1

2 PRECAUTIONARY LANDINGS ■ Aircraft was in cruise flight when it began an intermittent bouncing motion similar to that encountered in collective bounce. Inspection revealed that bearing and liner assembly (P/N 204-011-443-1) failed because it was installed backwards. ■ While in traffic pattern on training flight, crew was notified of fluid loss from underside of aircraft. Fluid loss was the result of a small hole which developed in hydraulic line where it was chafing against connecting link.

T-42

1 PRECAUTIONARY LANDING ■ Pilot noted smoke coming from No. 1 engine on climbout. Engine was secured and uneventful landing made. Front end of No. 1 engine prop governor oil line was found to be loose, resulting in oil dropping on exhaust manifold. On the previous day the lower end of the oil line was taken loose while removing exhaust manifold to inspect for possible fuel leak. It is possible that the upper end may have been inadvertently loosened by maintenance personnel.

U-21

2 PRECAUTIONARY LANDINGS ■ Both were on the same aircraft on the same day. First P/L: Pilots noted unusual aircraft vibration. Through combination of power reductions, vibration was isolated on left

side and subsided under reduced power condition. Aircraft returned to home base and landed. Cause could not be located. Second P/L: Initiating descent, pilots noticed left engine would not reduce below 85 percent N1. Left power lever was reduced to idle position with no further reduction in N1 on affected engine. No. 1 engine was shut down and single-engine landing made without further mishap. Caused by fuel control linkage binding due to dry bearing. Condition was corrected by maintenance with no other related factors found.

T-42 MAINTENANCE SCHOOL

Beech Aircraft Corporation is conducting a T-42 enlisted maintenance course at their Wichita, Kansas, plant. The tuition cost per student is \$170 and the next two scheduled classes are 2-6 February 1976 and 3-7 May 1976. Tuition and TDY-associated costs must be borne by the attendee's parent command. This information was received from TRADOC (ATTNG-SC-C).

MAINTENANCE ADVISORY MESSAGES

- R 241550Z Nov 75, subject: Maintenance Advisory Message on NSN 9150-00-944-8953 and 9150-00-181-7724, MIL-G-81322, Grease, Aircraft, Batch/Lot 28, DOP May 74, MFG by Royal Lubricants (Gen 75-34). Lab reports indicate that grease is suitable for its intended use and it can now be issued.
- R 261850Z Nov 75, subject: Maintenance Advisory Message on T53-L-11 and T53-L-13 Engines (UH-1-75-21 and AH-1-75-16). Requirements for TBI (900-hour) hot end inspections on all T53-L-11 and T53-L-13 series engines are deleted. T53-L-13 series engines with -21 nozzles still carry the requirement for a 600-hour hot end inspection. □

ANSWER TO QUESTION

Operating weight includes the crew, etc., all extra equipment, and the basic weight. (M200 pods are included in operating weight.)

		MOM/100
Operating Weight	7,867	15,383
Fuel	600	1,200
1,500 rnds 7.62mm	98	122
150 rnds 40mm	114	129
5 - 10# outbd rh	103	209
10 - 10# inbd rh	205	401
5 - 10# outbd lh	103	209
10 - 10# inbd lh	205	401
Gross Weight	9,295	18,054

Reference TM 55-1520-221-10, figure 12-2, pg. 12-19. Yes, you are in CG for this weight.

Look at figure 14-2 to find the DA for the landing area. Five thousand feet and 35° C. equals 8,300 feet DA.

Refer to figure 14-12 to find torque required to hover at 15 feet. About 52 pounds of torque will be required. This is beyond limits of the transmission.

You can find critical wind condition for tail rotor drive system in figure 7-3B. Gross weight and density altitude go off the chart and even if weight were reduced several hundred pounds, the tail rotor thrust would still continue to be critical. Regardless of wind velocity/direction of this aircraft, as configured, you will not have adequate tail rotor control for this mission. Comments? Let us hear them.

DEPARTMENT OF THE ARMY
 UNITED STATES ARMY
 AGENCY FOR AVIATION SAFETY
 FORT RUCKER, ALABAMA 36362

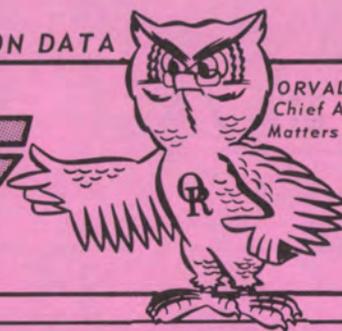
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FLIGHT FAX



ORVAL RIGHT
Chief Advisor on
Matters of Aviation

A USAAAVS PUBLICATION

VOL. 4, NO. 11 ■ 17 DECEMBER 1975

mishaps for the period of 28 NOV-4 DEC 1975

AVIATION ACCIDENT PREVENTION INSTRUCTION

The USAAAVS Officer Instructional Division, which is responsible for the 2-week Aviation Accident Prevention Course (AAPC), the 1-week on-site AAPC, and other special mishap prevention presentations/lectures for officers and civilians, is currently fully committed to finalizing the development of the new U.S. Army Aviation Safety Officer (ASO) Course.

Consequently, the schedule published in FLIGHTFAX, dated 23 April 75, and as amended in the 25 June 75 issue, for the 2-week AAPC is canceled. Further, requests for the 1-week on-site AAPC and special presentations/lectures during January through June 1976 cannot be favorably considered.

A future issue of FLIGHTFAX will carry detailed information concerning USAAAVS' educational program.

LAST FLIGHTFAX THIS YEAR

This is the last issue of FLIGHTFAX you will receive this year. The next issue will be dated 14 January 1976, and will include all briefs for the period 5 December 1975-2 January 1976. 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. Keep your comments and suggestions coming in so we can improve on a publication that's designed for you and you and you!

-ORVAL



IN MEMORIAM

It is with deep regret that USAAAVS reports the death of Colonel (ret) Robert M. Hamilton, on Sunday, 7 December 1975, in Hampton, VA. COL Hamilton was closely associated with Army aviation and Army aviation safety for the majority of his long Army career. He served as Director of USAAAVS (then USABAAR) from 1962 to 1965. COL Hamilton was buried in Arlington National Cemetery on 11 December 1975.

LOSS OF RESOURCES FROM THIS WEEK'S MISHAPS

FATALITIES: 0
INJURIES: 0
AIRCRAFT LOSSES: 0
ESTIMATED COSTS: \$21,688

UNITED STATES ARMY AGENCY FOR AVIATION SAFETY FORT RUCKER, ALABAMA 36362

Commander/Deputy Commander 558-3410/3819
For Assistance in Locating Proper Directorate 558-6510
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Lieutenant Colonel Curtis M. Sanders, Director

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UTILITY/ATTACK

Fatalities: 0 ■ Accidents: 0
Injuries: 0 ■ Estimated Costs: \$7,058

BRANCH

■ MAJ William C. Childree, Chief
SP6 Roland L. Allen, Jr.
558-4198

Two incidents, two forced landings, ten precautionary landings, and one human factors mishap were reported.

UH-1

1 INCIDENT ■ Pilot was warned by crew chief about obstacle on left side while repositioning in LZ. Pilot then swung tail to right, striking tree and damaging tail rotor blade and hub.

2 FORCED LANDINGS ■ During test flight at 3-foot hover, aircraft began spinning to right. Pilot closed throttle and performed hovering autorotation. Suspect tail rotor check valve failure. ■ Engine failed during landing. Pilot made successful forced landing.

8 PRECAUTIONARY LANDINGS ■ While climbing through 800 feet, pilot noted high frequency vibration. Caused by failure of tail rotor servo check valve. ■ Hydraulic pressure lights of two aircraft came on. One was caused by right lateral servo leaking; the second had a loose hydraulic line. ■ Tail rotor struck small tree branch during NOE flight. No damage. ■ Aircraft was departing hover hole when pilot lost pedal control and overtorqued aircraft. Aircraft was inspected by maintenance and released. ■ Compressor stalls occurred during test flight for previous pilot-reported compressor stalls. Maintenance is investigating. ■ Engine chip detector light came on during hover. Excessive metal was found on plug and engine was changed. ■ Transmission chip detector light came on. Moisture had seeped into rubber boot and shorted system.

1 HUMAN FACTORS MISHAP ■ During aerial delivery of CS gas, large amount of CS entered aircraft. Pilot and chemical safety officer had protective masks available but not on. Both copilot and operator of CS dispensing apparatus were properly masked. Pilot immediately initiated climb and, suffering the effects of the gas, relinquished control of the aircraft to the copilot who landed without damage or injuries.

AH-1

1 INCIDENT ■ During preflight, pilot noted damage to main rotor blade. Cause unknown.

2 PRECAUTIONARY LANDINGS ■ Transmission oil pressure light came on and pressure dropped to zero. Inspection revealed internal transmission oil filter gasket had deteriorated. ■ During power recovery from autorotation, right pedal became stuck in full extension position. Emergency procedures were completed and successful running landing was made. WELL DONE to CW2 Jackie R. Brooks, Co. C, 34th Support Bn, Fort Hood, TX. □

LOH/CARGO

Fatalities: 0 ■ Accidents: 1
Injuries: 0 ■ Estimated Costs: \$9,600

BRANCH

■ MAJ Robert P. Judson, Chief
SFC D. T. Farrar/SFC R. G. Farris
558-4202

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

OH-58

1 ACCIDENT ■ Aircraft was in cruise flight at approximately 300 feet agl when engine failed. Aircraft was landed in dense shrubbery, causing minor damage to fuselage.

1 INCIDENT ■ Aircraft was hovering between two trees when copilot saw branch come down into main rotor, probably due to rotorwash. Both main rotor blades were damaged.

2 FORCED LANDINGS ■ Aircraft was picked up to 1-foot hover. Rotor rpm decayed and aircraft settled back to parking apron. Rotor rpm then came back up to operating limits. Fuel valve shutoff handle was found in off position. Engine had been flushed and MOC performed. No problems were noticed during MOC. Pilot who was flying aircraft at time of mishap had flown aircraft before engine cleaning. *It is unknown who had placed shutoff handle in off position. The fuel shutoff valve had not been inspected for proper*

rigging in accordance with AVSCOM message, OH-58-75-5, dated 111920Z Aug 75. Paragraph 5 of this message states: "Although it is recommended that shutoff valves that leak in excess of 2.0 ounces per minute be replaced, it is not considered a safety-of-flight condition until the leakage through the outlet port of the valve exceeds 10.0 ounces per minute by volume. OH-58A helicopters with leakage through the outlet port of the shutoff valve exceeding 10.0 ounces per minute (after being rigged in accordance with AVSCOM message 75-5) are restricted from further flight until the valve is replaced. The engine requires 19.86 ounces per minute (by volume) of fuel to maintain ground idle." As there have been other mishaps reported (which luckily only resulted in precautionary landings) USAAVS recommends that AVSCOM message 75-5 be complied with as soon as possible. ■ Engine failed during hover. Scroll was cracked.

4 PRECAUTIONARY LANDINGS ■ IP was demonstrating right pedal setting while on final when both pilots smelled electrical insulation burning. Landing light wiring was overheating. *It is unknown whether AVSCOM message OH-58-75-4 had been complied with.* ■ During cruise flight, low engine rpm audio sounded and N2 dropped to 98 percent. Pilot attempted to beep up rpm without result. Power-on landing was made. Maintenance could not duplicate malfunction. ■ Fuel filter caution light came on. Filter replaced. ■ Tail rotor chip detector light came on. Inspection revealed metal chips in tail rotor gearbox. Gearbox was replaced.

TH-55

2 FORCED LANDINGS ■ Pilot closed throttle to perform hovering autorotation and engine quit. Maintenance inspection revealed that engine-driven fuel pump had failed. ■ Aircraft was being test flown after fuel injector had been changed. During final approach, engine quit. MOC and test flight were made but problem could not be duplicated. Engine is being evaluated.

3 PRECAUTIONARY LANDINGS ■ Right antitorque pedal was binding during cruise flight. Maintenance inspection revealed excessive drag of pitch control swashplate on gearbox output shaft. Tail rotor assembly was replaced. ■ Engine started running rough at level-off from normal climb. Pilot was able to make landing with partial power. Inspection revealed failure of push rod and shroud on No. 4 cylinder. ■ Instructor pilot heard popping noise and noted that antitorque pedals were loose. Retaining rivets on beam holding antitorque bellcrank assembly had torn loose.

CH-47

2 PRECAUTIONARY LANDINGS ■ No. 2 engine torque meter dropped to zero, followed by illumination of No. 2 engine chip detector light. Inspection revealed rotary assembly torque meter had failed. Chip light resulted from a ball bearing which came out of the torque meter rotary assembly. ■ Aircraft was on short final to stagefield when it was struck by bullet. Mishap is being investigated. *Could this be the work of an irate citizen highly annoyed at the noise level of our machines? Extreme care should be exercised to prevent low-level flights over individual homes or other populated areas in your flight path.* □

FIXED WING

Fatalities: 0 ■ Accidents: 0
Injuries: 0 ■ Estimated Costs: \$800

BRANCH

■ MAJ William G. Daly, Jr., Chief
SFC John M. Terrell
558-3901

One incident and five precautionary landings were reported.

T-42

1 INCIDENT ■ During touchdown with gusty crosswind condition, hard landing resulted in right prop striking runway. After porpoising abated, control was regained and landing completed without further difficulty.

U-8

1 PRECAUTIONARY LANDING ■ Main gear failed to give safe indication. Landing was uneventful. Materiel failures were found on spline portion of landing gear motor and landing gearbox assembly.

OV-1

1 PRECAUTIONARY LANDING ■ Pilot received unsafe gear indication and performed normal emergency procedures. Caused by air in hydraulic system.

U-21

3 PRECAUTIONARY LANDINGS ■ Nose gear warning light would not go out after takeoff. After recycling, left main gear light would not illuminate. After burning off fuel, tower confirmed gear appeared down and landing was uneventful. Suspect frozen moisture prevented proper operation of lights since maintenance could not duplicate situation. ■ Gear did not give safe indication for touchdown. Caused by failure of microswitch. ■ During training flight, student overreacted to simulated right engine failure by applying full power to left engine, resulting in high torque (1,450 pounds for 3 seconds). Landing was completed and engine inspection was performed and recorded. □

MAINTENANCE MISHAPS

Fatalities: 0 ■ Accidents: 0
Injuries: 0 ■ Estimated Costs: \$4,230

Two incidents and two precautionary landings were reported.

UH-1

2 INCIDENTS ■ Both incidents were caused by tools being left under tail rotor drive shaft cover which, in turn, damaged tail rotor drive shaft on both aircraft. *All work areas should be checked for tools at completion of maintenance and/or inspections. Reference AVSCOM message R 281307Z May 75, subject: Interim Change to Preventive Maintenance Cards to Reduce FOD (GEN 75-18).*

U-8

1 PRECAUTIONARY LANDING ■ Landing gear was extended on approach, resulting in unsafe indication for nose and left main landing gear. Landing gear was retracted and then lowered manually with no change in gear light indication. Tower personnel stated landing gear appeared to be down on flyby. Uneventful landing was made. Problem was caused by breaks in wire splices made during prior maintenance on landing gear.

U-3

1 PRECAUTIONARY LANDING ■ Pilot noticed oil blowing from left engine cowling, followed by drop in oil pressure. Three to five minutes later, engine was secured and uneventful landing was made. Bolt (P/N MS29973-04-10) was not properly seated with tube assembly (P/N Q9T116-218). During flight, vibration caused filter element to move into seat on perforated tube assembly, permitting oil to escape between bolt and body casting (P/N 628129). (ARNG)

MAINTENANCE ADVISORY MESSAGE

on Change 7, TM 55-405-9, Weight and Balance

Change 7, dated 3 Oct 75, to TM 55-405-9 is incorrect and has been rescinded. Disposition of weight and balance forms, especially the DD Form 365F, shall be in accordance with paragraph 25.1 of Change 5, dated 8 May 72, to TM 55-405-9; AR 95-16; and AR 750-31.

Preparation of DD Form 365F is not necessary as a clearance requirement for flight of Class I aircraft when the aircraft is loaded in a normal manner. However, a DD Form 365F, representative of the normal loading, shall be maintained as a current work form for all Class I aircraft.

This information was taken from USAAVSCOM message 022025Z Dec 75.

DEPARTMENT OF THE ARMY
UNITED STATES ARMY
AGENCY FOR AVIATION SAFETY
FORT RUCKER, ALABAMA 36362

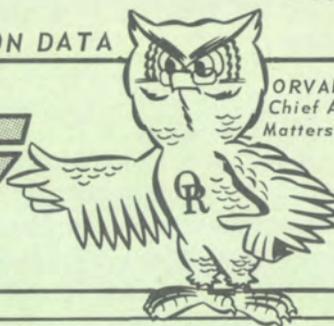
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FLIGHT FAX



ORVAL RIGHT
Chief Advisor on
Matters of Aviation

A USAAVS PUBLICATION

VOL. 4, NO. 12 ■ 14 JANUARY 1976

mishaps for the period of 5 DEC 1975-1 JAN 1976



US Army Aviation Training Library
Fort Rucker, Alabama 36860

OV-1 Safety - of - Flight Messages

■ 152207Z Dec 75, subject: Safety-of-Flight Message No. OV1-75-4 (One-Time Inspection TB 55-1510-204-30-20 for OV-1B, OV-1C, and OV-1D Aircraft). Summary: Cracks have been discovered in the upper portion of the right stub wing center fitting on three aircraft, serial numbers 60-2697 (OV-1C), 60-3745 (OV-1C), and 62-5880 (OV-1B). Buckling of the upper wing skin just inboard of the wing at WS 57.5 has been observed on one OV-1D and two OV-1C aircraft. The two problems do not appear to be related. Aircraft are grounded

until compliance with this TB. Contact: Jim Mitchell, AVSCOM, AUTOVON 698-3292/3456.

■ 191753Z Dec 75, subject: Safety-of-Flight Message No. OV1-75-4 (One-Time Inspection TB 55-1510-204-30-20 for OV-1B, OV-1C, and OV-1D Aircraft). Summary: Where specified in subject message, TB 55-1510-204-30-20 shall be changed to read TB 55-1510-204-20-28. It will not be necessary to resubmit reports required by subject message. Contact: Jim Mitchell, AVSCOM, AUTOVON 698-3292/3456.

FY 77 AAPMC FOR NCO'S

The USAAVS Aviation Accident Prevention Management Course is oriented toward NCO's and specialists in grade E-6 and above, possessing aviation-related MOS's. The purpose of the course is to provide the student sufficient background and training in aviation accident prevention management to enable him to function as an aviation safety NCO, working with the safety officer. For further information regarding the course, call AUTOVON 558-4510/4218 or write:

Commander
U. S. Army Agency for Aviation Safety
ATTN: IGAR-PE
Fort Rucker, Alabama 36362

FY 77 AAPMC SCHEDULE

Class No.	Reporting Date	Closing Date
7T-1	5 Jul 1976	16 Jul 1976
7T-2	2 Aug 1976	13 Aug 1976
7T-3	30 Aug 1976	10 Sep 1976
77-1	11 Oct 1976	22 Oct 1976
77-2	25 Oct 1976	5 Nov 1976
77-3	17 Jan 1977	28 Jan 1977
77-4	14 Feb 1977	25 Feb 1977
77-5	14 Mar 1977	25 Mar 1977
77-6	11 Apr 1977	22 Apr 1977
77-7	9 May 1977	20 May 1977
77-8	4 Jul 1977	15 Jul 1977
77-9	1 Aug 1977	12 Aug 1977
77-10	5 Sep 1977	16 Sep 1977

WHAT IF?

In October 1975, a CH-47C (T55-L-11A powered) was flying in IMC over the eastern states when the crew chief heard a squealing noise from the No. 2 engine. He told the pilot. Cockpit instrument indications were normal so the pilot elected to continue to home station with the engine operating. Postflight inspection revealed extensive damage to the variable inlet guide vanes (VIGV), first and second stage compressor blades. The engines were equipped with the "old" type inlet screens which required removal before flight in IMC at 40° F. or below.

In September 1975, a CH-47C (T55-L-11A powered) landed at a midwest airport to refuel and remove the engine inlet screens (old type) since IMC flight at below 40° F. was forecast. On take-off, the crew chief heard a noise from the No. 2 engine. He looked out the window and saw sparks and pieces flying out the front of the engine and told the pilot. Cockpit instrument indications were torque "0" and N₁ and PTIT normal. The engine was shut down and the aircraft was landed. Postflight inspection revealed extensive damage to the VIGV's, first and second stage compressor blades. In addition, one aft main rotor blade required replacement because of damage from flying engine debris. Teardown and analysis of the engine at Corpus Christi Army Depot (CCAD) determined that two first-stage compressor blades had failed due to fatigue.

It is characteristic of the T55-L-11A to expel the pieces out the front of the engine during a first- or second-stage compressor blade failure

with the inlet screens removed. What if the aircraft in the October incident, whose pilot didn't elect to make a precautionary landing, had sustained damage to the aft rotor blades?

AIRCRAFT GROUND ACCIDENTS AND AVIATION-RELATED 285 MISHAPS

Aircraft "ground" accidents and aviation-related "285 mishaps" are defined in AR's 385-40 and 95-5. DA Form 285 is used to report aviation-related ground mishaps while DA Form 2397 is used to report aircraft ground accidents.

From 1 July 1974 through 23 October 1975, USAAAVS received 115 DA Form 285 reports of aviation-related ground mishaps and 56 DA Form 2397 reports of aircraft ground accidents. Forty disabling injuries (costing \$866,650) resulted from these other-than-flight mishaps. The materiel cost was \$1,550,537, for a total cost of \$2,417,187.

Reported aviation ground mishaps will be reflected in FLIGHTFAX, starting with the next issue, to aid commanders in the conservation of aviation personnel and materiel resources.

BUCKLE UP RIGHT

Follow these procedures to properly fasten and tighten your seatbelt and shoulder harness.

- (1) Fasten seatbelt and shoulder harness.
- (2) Tighten belt so that no slack exists, but do not cut off circulation.
- (3) Lock shoulder harness inertia reel latch.
- (4) Adjust shoulder harness snugly, but again, do not cut off circulation.
- (5) Unlock shoulder harness reel latch.

LOSS OF RESOURCES FROM THIS WEEK'S MISHAPS

FATALITIES:	3
INJURIES:	4
AIRCRAFT LOSSES:	0
ESTIMATED COSTS:	\$277,709

UNITED STATES ARMY AGENCY FOR AVIATION SAFETY	
FORT RUCKER, ALABAMA 36362	
Commander/Deputy Commander	AUTOVON 558-3410/3819
For Assistance in Locating Proper Directorate	558-6510
Aircraft Accident Analysis and Investigation	558-3913/4202
Technical Research and Applications	558-6404/6410
Plans, Operations, and Education	558-4812/6510
Management Information System	558-4200/2920
Publications and 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

Fatalities: 0 ■ Accidents: 1
Injuries: 1 ■ Estimated Costs: \$129,257

BRANCH

■ MAJ William C. Childree, Chief
SP6 Roland L. Allen, Jr.
558-4198

One accident, six incidents, three forced landings, and 41 precautionary landings were reported.

UH-1

4 INCIDENTS ■ While conducting NOE approved flight, aircraft hit tree during turn, damaging both main rotor blades. ■ Aircraft was started with engine inlet cover still installed, causing damage to forward baffle assembly and main drive shaft boot. ■ Aircraft was picking up troops in confined area when both main rotor blades struck tree. ■ During climb, bird struck aircraft, breaking greenhouse on left overhead of aircraft.

3 FORCED LANDINGS ■ During downwind turn at 200 feet, rpm audio sounded and rpm warning light illuminated. N2 went to zero and rotor rpm decreased to 294. Collective was reduced and throttle was advanced to insure full on. Pilot elected to enter autorotation. Caused by shearing of N2 tach generator shaft. ■ Engine failed during practice autorotation to runway. Aircraft landed with no damage. ■ Transmission oil pressure light came on and oil pressure gauge dropped to zero during takeoff. Caused by internal transmission oil filter gasket failure.

34 PRECAUTIONARY LANDINGS—following are selected briefs ■ Pilot heard unusual sound coming from rotor system during cruise flight. Inspection revealed excessive corrosion between blade skin and spar. ■ Crew was attempting to lift conex container when gust of wind hit aircraft. Additional power was required to prevent load from hitting ground, causing pilot to overtorque aircraft. Overtorque inspection was performed with negative results. ■ High frequency noise was heard during cruise flight. Caused by internal failure of main inverter. ■ Rpm fluctuated in cruise flight. Caused by tach generator failure. ■ Master caution and engine chip detector lights illuminated in flight due to moisture around outside of magnetic plug. ■ Right fuel boost pump failed in flight. ■ Left fuel boost pump and 20-minute fuel warning light came on with 410 pounds of fuel remaining. Postlanding inspection revealed clogged strainer at cross fitting. Left fuel boost pump had loose electrical connection at master caution box. ■ Transmission oil pressure gauge fluctuated between 55 and 70 pounds pressure. Caused by oil pressure transmitter malfunction. ■ Transmission chip detector light came on. Caused by master caution panel malfunction. ■ Hydraulic pressure light came on. Caused by failure of hydraulic pressure switch. ■ Cracked O-ring caused hydraulic failure in flight. ■ Three fire warning light illuminations were caused by malfunctioning connections.

AH-1

1 ACCIDENT ■ Right pedal stuck during fire demonstration at high hover. Aircraft made three revolutions and landed hard. Suspect internal failure of tail rotor.

2 INCIDENTS ■ Left side of engine cowling opened in flight, damaging engine cowling and exhaust cover. ■ Aircraft struck tree branches during NOE flight, causing skin cracks on both main rotor blades.

7 PRECAUTIONARY LANDINGS ■ No. 1 hydraulic caution light came on during hover. Caused by leak in hydraulic line between braided hose and swaged fitting. ■ Transmission oil temperature gauge rose to maximum reading. Caused by oil temperature transmitter failure. ■ Engine tachometer dropped to zero. Caused by failure of tachometer. ■ Engine oil pressure began to fluctuate during test flight. Suspect No. 2 engine bearing seal blew out. ■ Engine chip detector light came on. Metal particles were found on plug and determination is being made if replacement of engine is necessary. (ARNG) ■ Aircraft yawed rapidly left in cruise flight. Inspection revealed SCAS was out of adjustment. ■ Transmission oil hot light came on. Caused by short in wiring. □

LOH/CARGO

Fatalities: 0 ■ Accidents: 1
Injuries: 3 ■ Estimated Costs: \$32,299

BRANCH

■ MAJ Robert P. Judson, Chief
SFC D. T. Farrar/SFC R. G. Farris
558-4198

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

OH-58

1 ACCIDENT ■ On short final to precautionary landing site at less than 100 feet agl and 60 knots airspeed, aircraft shuddered and crashed. Landing gear, fuselage, tail boom, and main rotor blades were damaged. Investigation is in progress.

3 INCIDENTS ■ Aircraft was flying low over road at 100 KIAS and struck WD-1 commo wire strung across road. OAT gauge was ripped out of right plexiglass window. ■ During NOE flight, aircraft was being flown down a hill and struck bush, damaging horizontal stabilizer, vertical fin, and lower fuselage skin. ■ During takeoff, aircraft was flown into wires that were not detected due to sun glare. Windshield, FM antenna, control tube, cowling, and main rotor blades were damaged.

2 FORCED LANDINGS ■ While making low pass, aircraft had slight rpm loss. Increase/decrease switch was used to increase rpm to proper range. The same situation occurred again and pilot elected to land. At 5 to 6 feet agl, total engine failure occurred. Suspect compressor or main bearing failure. ■ During cruise flight N2 rpm reduced from 103 to 95 percent. Autorotation landing was made in football field. Suspect governor failure.

8 PRECAUTIONARY LANDINGS—following are selected briefs ■ Hydraulic caution light came on and all hydraulic power was lost. Caused by relief valve failure. ■ During cruise flight TOT rose above 1,000° and pilot entered autorotation. During descent throttle was rolled on with collective full down and TOT rose above 850°. Pilot made power-on landing. Plug line for N1 fuel control heater broke and separated from diffuser section. ■ Hydraulic pressure light came on. Hydraulic pressure switch malfunctioned. ■ Transmission chip detector light came on. Metal chips were found in oil and verified by ASOAP. Transmission and oil cooler are being replaced.

OH-6

1 FORCED LANDING ■ Engine popped, aircraft yawed, and smoke entered cockpit during flight. Heater inlet was turned off, another pop was heard, aircraft yawed again, and engine failed. Cause undetermined at this time.

1 PRECAUTIONARY LANDING ■ During cruise flight, pilot smelled smoke, noted N2 tachometer needle on zero, and entered autorotation. It was determined that engine was still running, and forward flight could be maintained. Power was restored and aircraft was flown 3 miles to airport and landed. Caused by failure of tachometer generator.

TH-55

2 INCIDENTS ■ During practice autorotation, student pilot executed low deceleration and applied excessive collective pitch and left pedal. Aircraft ballooned, turned 180° left, touched down on front of skid, landed hard, and slid rearward down the lane, damaging landing gear and stabilizer assembly. ■ During takeoff for second solo flight, student pilot applied excessive left pedal, causing aircraft to turn left at fast rate. Aircraft turned 180° when pilot lowered collective, resulting in hard landing.

3 PRECAUTIONARY LANDINGS ■ Airspeed indication reduced to zero during cruise flight. Pitot tube was broken at mounting bracket inside cockpit bubble. ■ Excessive rpm drop on left magneto occurred

during magneto check before confined area takeoff. Caused by failure of left magneto. ■ IP heard unusual noise coming from area of main rotor transmission. Caused by failure of heater blower motor.

CH-47

5 PRECAUTIONARY LANDINGS ■ During No. 2 engine start in normal start sequence No. 1 generator and rectifier dropped off line. With both engines on line, pilot attempted unsuccessfully to reset generators. It was then noted that No. 2 flight boost hydraulic system was off line. Aircraft was shut down. APU motor pump gear shaft failed. ■ During simulated No. 2 engine failure using engine beep trim, N1 dropped to 65%, torque to 40%, and PTIT went to 1050° for 10 seconds. Engine was shut down and precautionary landing made. Engine replaced. ■ Pilot was bringing No. 2 engine back on line at completion of topping check when it failed to respond. N1 was noted decreasing below 35%. Engine was brought to stop and a running landing made. No. 2 fuel quick disconnect vibrated loose. Subsequent flight following reattachment and inspection resulted in identical sequence of events. Caused by faulty quick disconnect fitting. ■ Transmission oil temperature light illuminated. Temperature selector switch failed.

CH-54

3 PRECAUTIONARY LANDINGS ■ Main transmission chip detector light came on while aircraft was taxiing for takeoff. Large metal chips found on magnetic plug. Transmission failed internally. ■ No. 1 engine lost power to 70% N1 and would not respond to corrective actions. Aircraft made single-engine landing. Caused by failure of No. 1 engine fuel control. ■ No. 1 engine fire warning light and audio came on while aircraft was in cruise. Corrective actions had no effect. Aircraft landed in field and crew checked visually for fire without result.

CLARIFICATION

Remarks in FLIGHTFAX, Volume 4, Number 11, dated 17 December 1975, reference aircraft struck by bullet, are not to be misconstrued to indicate that the pilot was in violation of any flight regulation, but to reiterate the necessity of providing a flight profile that will minimize noise over populated areas. □

THOUGHT FOR THE WEEK

A ZERO ACCIDENT RATE WAS MISSING
FROM THAT BAG OF OLD ST. NICK'S
SO MAKE AVIATION SAFETY
THE SPIRIT OF '76



FIXED WING

Fatalities: 3 ■ Accidents: 1
Injuries: 0 ■ Estimated Costs: \$116,153

BRANCH

■ MAJ William G. Daly, Jr., Chief
SFC John M. Terrell
558-3901

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

U-21

10 PRECAUTIONARY LANDINGS ■ At 22,000 feet (cabin pressure 5,000 feet) windshield anti-ice was normal and cabin heat was on. Encountering light ice crystals, right windshield cracked in several places concurrently. No loss of pressure was experienced. Cause unknown. ■ After takeoff, gear would only retract about 45°. After landing, microswitches were cleaned and situation could not be duplicated. ■ Pilot noted smoke coming from exhaust stack on No. 1 engine. Connector on lowest fuel nozzle was loose, allowing fuel to leak. Fuel vapor coming out of cowling around exhaust stack looked like smoke coming from exhaust stack. ■ No. 2 engine began fluctuating 50-100 rpm, indicating probable propeller governor failure. Aircraft returned to base and governor was replaced. ■ Crew noted fuel siphoning from left nacelle at top inspection plate. Transfer pump was turned off but siphoning continued. Landing was uneventful. Shutoff control was stuck in low position, allowing transfer pump to continue to operate.

T-42

4 PRECAUTIONARY LANDINGS ■ Nose gear did not indicate down. Normal emergency procedures were followed and landing was uneventful. Retainer pin on gear position indicator link had backed off, allowing link to come loose. Pin was replaced. ■ No. 1 engine oil pressure began dropping. Power was reduced and pressure stabilized. Landing was completed. Pressure relief valve plunger was stuck due to carbon buildup. ■ During climbout, engines began running rough and aircraft yawed. Pilot returned for landing. Nos. 2 and 4 cylinders failed on No. 1 engine.

U-8

1 ACCIDENT ■ Aircraft crashed short of runway during VOR circling approach at night at termination of flight in IMC. Investigation underway.

1 INCIDENT ■ Postflight inspection revealed one blade on No. 2 propeller bent back about 4 inches from tip. Crew stated preflight was satisfactory and no indications were received in flight. Cause unknown. Propeller was replaced.

6 PRECAUTIONARY LANDINGS ■ With full flaps selected, 20° light remained on. Visual check showed right inboard at 20° with remaining panels at 30°. Flap switch was neutralized and odor of burning wire was detected. Switch was turned off and circuit breaker was pulled. Flexible inboard drive shaft assembly failed. Actuator cable separated from actuator which prevented flaps from reaching limit switch and motor burned out.

OV-1

1 INCIDENT ■ During postflight inspection, bird strike damage to horizontal stabilizer was discovered.

6 PRECAUTIONARY LANDINGS ■ During 3-mile final, No. 2 engine lost power and egt rose. Engine was secured and single-engine landing was successful. Cause unknown pending teardown analysis; however, compressor failure is suspected because of damage to variable inlet guide vanes. ■ Gear would not retract after takeoff. Emergency landing gear system had been blown. (ARNG) ■ Two mishaps occurred when western gearbox failed internally. Initial indication in both cases was illumination of chip detector.

U-9

2 PRECAUTIONARY LANDINGS ■ Complete loss of electrical power occurred on takeoff. Caused by faulty overvoltage relay. ■ No. 1 engine chip detector light came on. Pilot throttled back and loud backfire was followed by engine failure. Single-engine landing was successful. Cause unknown.

U-3

1 PRECAUTIONARY LANDING ■ Right engine oil pressure dropped to 10 psi and temperature increased to 225°. Engine was secured and landing was successful. Suspect malfunction of oil cooler bypass valve. (ARNG)

T-41

1 FORCED LANDING ■ During climbout, power loss was experienced and rpm fell from 2600 to 1200. Fuel fumes were noted. Pilot returned for successful emergency landing. No. 1 cylinder fuel tube assembly failed. WELL DONE to MAJ Donald F. Matson, Jr., West Point, NY. □

MAINTENANCE MISHAPS

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

Two forced landings and seven precautionary landings were reported.

UH-1

1 FORCED LANDING ■ Internal transmission oil filter gasket failed because of improper installation.

1 PRECAUTIONARY LANDING ■ Hydraulic pressure light came on. Nut on tube elbow of hydraulic filter was improperly torqued.

AH-1

1 FORCED LANDING ■ Aircraft yawed left while turning inbound. Pilot determined that tail rotor was stuck in full left position. Running landing was made to runway. Inspection revealed speed rig barrels were disconnected due to lack of proper maintenance procedures.

U-21

5 PRECAUTIONARY LANDINGS ■ Two precautionary landings were related to the same problem on the same aircraft. On the first flight, IP noticed fuel siphoning from right wing tank. Aircraft was landed without incident. Copilot exited aircraft and resecured fuel cap. Mission was then continued to completion without further incident. On the second flight of the day, a passenger onboard the aircraft noted fuel siphoning from right wing fuel tank. Passenger notified pilot and aircraft was landed without further incident. Maintenance found that fuel cap well had been bent downward on previous refueling. Fuel cap well was straightened and aircraft released for flight. ■ While flying at slow cruise, crew heard unusual noise and main inverter failed. Aircraft was landed without further incident. Motor generator bearing (NSN 3110-00-108-9226) failed, causing complete inverter failure. This is in contravention of TB 750-991-1 which states that the above mentioned bearing was to be replaced with bearing (NSN 3110-00-679-2069). The PU 545A had been marked to indicate that TB 750-991-1 had been complied with. A maintenance inspection of the inverter revealed that this was not the case. The old bearing should have been replaced with the new bearing at depot level. ■ On climbout, nose gear light would not go out after gear was retracted. Gear was lowered and uneventful landing made. Aircraft had similar problem 12 days before. Aircraft was sent to D/S Maintenance for retraction tests in both instances but condition could not be duplicated. Inspection of nose gear assembly revealed that bracket, landing gear, P/N 50-820205-9, NSN 1620-00-902-5290, TM 55-1510-209-34P1, was bent slightly. ■ During after-takeoff check, gear handle

was put in up position. After 15 seconds, gear handle light would not extinguish when noise from gear motor had obviously stopped. Gear was recycled down with normal indications. Gear was then recycled up with the same indications as before. Gear was put down again and unusual cranking noise was reportedly heard about two seconds after gear motor had started to put gear down. Gear was left in down position and uneventful landing was made. Maintenance inspection revealed right outboard wheelwell door actuator linkage was out of rig, preventing main gear from fully retracting.

T-42

1 PRECAUTIONARY LANDING ■ Fuel spray was noticed coming from left main fuel filler cap after takeoff. Fuel cap was replaced and on test flight fuel continued to siphon. Determination was made that tank filler neck adapter, P/N 96-380035-3, was apparently misshaped allowing poor seal and fuel to siphon. Adapter was replaced and aircraft released for flight. □

“A DROPPED TOOL WILL LAND WHERE IT CAN DO THE MOST DAMAGE”

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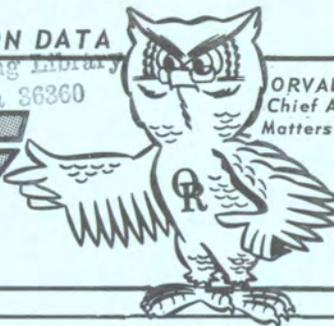


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FLIGHT FAX



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Chief Advisor on
Matters of Aviation

A USAAVS PUBLICATION

VOL. 4, NO. 13 ■ 21 JANUARY 1976

mishaps for the period of 2-8 JANUARY 1976

CH-47 CRASHWORTHY FUEL CELLS

The CH-47C fleet has now been completely retrofitted with the crashworthy fuel system (CWFS) per MWO 55-1520-227-50/20 or 50/4. The CWFS has met or exceeded its design requirements in every instance where a hard or crash landing has occurred.

A problem of premature activation of the main fuel cell inner wall has been discovered. The seams of the inner lining split and saturate the self-sealing material with fuel. This green sponge-like sealant swells and becomes separated from the cell wall, resulting in fuel contamination. Activation primarily is induced by cuts or scratches in the inner liner. Most of these appear to have been caused when fuel lines were pushed through the fuel cell access doors during initial installation. Cuts as long as 3 feet have been reported. As much as 100 gallons of fuel can be trapped in the wall. Fuel contamination can also result from an activated cell. No problems have been reported with the auxiliary cells.

USAAVSCOM Maintenance Advisory Message 291615Z Oct 75 describes the symptoms and a recommended inspection for fuel cell activation during the aircraft's next periodic inspection. Future activation should not occur unless care-

less maintenance takes place inside the cell.

Maintenance on the internal components of the fuel cell should be accomplished with caution to insure that the inner liner is not cut or scratched when boost pumps, fuel quantity transmitters, or fuel plumbing are removed or replaced. Aircrewmembers and maintenance personnel should be aware of the potential for fuel cell activation and resulting decreases in usable fuel quantity, in fuel contamination, and in external fuel leaks.

Perhaps the most adverse effect of an activated fuel cell on the aircraft is that once activated, the cell no longer retains all of its crashworthy features. The fuel saturated cell then becomes an excellent candidate as a source for a postcrash fire, should an aircraft mishap occur.

"SPARE" LIGHT

A caution light came on during a UH-1H flight. The light read "SPARE" and was the fourth light down on the left side of the panel. The crew, thinking nothing of a "SPARE" light, turned it off. After finishing their mission some 6 hours later, they entered the problem on DA Form 2408-13.

When maintenance personnel checked out the problem, they discovered that the light was connected to the engine chip detector. Fortunately, there was only fuzz on the plug.

When the chip detector had been connected, the worded segment on the light had not been changed. Murphy strikes again!

NUMBER PLEASE!

When you send an inquiry to USAAVS, please include your AUTOVON number on the correspondence. This will help us speed up our reply.

UTILITY/ATTACK

Fatalities: 0 ■ Accidents: 0
Injuries: 0 ■ Estimated Costs: \$7,394

BRANCH

■ MAJ William C. Childree, Chief
SP6 Roland L. Allen, Jr.
558-4198

One incident and two precautionary landings were reported.

UH-1

1 INCIDENT ■ During rappelling operation, one rappeller on right side of aircraft became entangled on rope and could not go up or down. Crew was afraid to lift the man higher so it was decided to lower the aircraft to a small clearing and, in doing so, main rotor blade hit tree.

2 PRECAUTIONARY LANDINGS ■ Engine chip detector light came on. Caused by high iron metal concentration. ■ Aircraft was on takeoff with normal instruments when bleed band began popping. Bleed band would not adjust properly □

AVIATION-RELATED GROUND MISHAPS

Fatalities: 0 ■ Mishaps: 4
Injuries: 3 ■ Estimated Costs: \$445,511

■ William P. Christian
558-4202

Four aviation-related ground mishaps were reported.

UH-1

■ During performance of PMI, mechanic started to climb down from engine deck, using hand rails and built-in steps. His foot caught in the first step and he began to fall. Unable to break his fall, he jumped to the hangar floor, injuring his lower back. Corrective action was initiated to have aircraft cargo doors removed or closed during PMI's. Hazard will be discussed during weekly safety meetings. ■ Model airplane club was flying model aircraft. One got out of control and was flown into top side of UH-1 main rotor blade, causing skin damage. Blade had to be replaced. Corrective action was taken to prohibit flying model aircraft near parked aircraft or other potential hazards.

HH-1K

■ During maintenance in transmission area, mechanic was descending to work stand when he slipped from top step, straining his back. Corrective action taken was to remind all employees to use sound judgment and common sense in all endeavors, to know their personal limitations, and to discuss this hazard in the next monthly safety meeting.

OH-58

■ Aircraft was destroyed in hangar fire caused by electrical short resulting from defective wiring. Corrective action was initiated before fire to replace and repair defective wiring, but repair work had not been started. One firefighter was injured by falling glass □

MAKE AVIATION SAFETY THE SPIRIT OF '76

UNITED STATES ARMY AGENCY FOR AVIATION SAFETY, FORT RUCKER, ALABAMA 36362

Prepared from information compiled by the Directorate for Aircraft Accident Analysis and Investigation
LTC Curtis M. Sanders, Director

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LOH/CARGO

Fatalities: 0 ■ Accidents: 0
Injuries: 0 ■ Estimated Costs: \$246

BRANCH

■ MAJ Robert P. Judson, Chief
SFC D. T. Farrar/SFC R. G. Farris
558-4198

One incident and four precautionary landings were reported.

OH-58

3 PRECAUTIONARY LANDINGS ■ During hydraulics-off landing approach, engine and rotor rpm decreased. Aircraft was autorotated with power to a field. Cause under investigation. ■ Crew heard unusual noise during climbout and noticed vibration from rear of aircraft. Caused by failure of No. 4 tail rotor drive shaft hanger bearing. ■ Crew heard unusual noise and noticed slight feedback in cyclic. Right cyclic servo failed internally.

CH-54

1 INCIDENT ■ In cruise flight, pilot felt jerk in aircraft and heard snapping sound, followed by several bright flashes. Aircraft had struck wire, damaging left step assembly.

CH-47

1 PRECAUTIONARY LANDING ■ No. 2 engine transmission pressure dropped to zero and caution light came on. Caused by defective pressure transducer. □

THOUGHT FOR THE WEEK

IS HE IN A HURRY
OR JUST BLIND—
THE MECHANIC WHO LEAVES
A TOOL BEHIND?



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.

OV-1

1 PRECAUTIONARY LANDING ■ During test flight, No. 1 engine failed in climb. Single-engine landing was successful. Cause undetermined. Engine is being forwarded to CCAD. (ARNG) □

MAINTENANCE MISHAPS

Fatalities: 0 ■ Accidents: 0
Injuries: 0 ■ Estimated Costs: \$191

One incident was reported.

AH-1

1 INCIDENT ■ While aircraft was being washed, maintenance personnel found bucking bar under tail rotor drive shaft cover. Drive shaft and clamps were damaged to the point of needing replacement.

UH-1/AH-1 SILENT CHAINS

Maintenance Advisory Message, 152150Z Dec 75, from USAAVSCOM, St. Louis, MO, subject: Maintenance Advisory Message For UH-1/AH-1 Aircraft (UH-1-75-22 and AH-1-75-17).

1. Purpose of Message: To extend current inspection requirements on tail rotor control installation silent chain, P/N 205-001-721-1, to include all part number tail rotor control installation silent chains on UH-1/AH-1 aircraft.

2. There are currently published inspection requirements for the UH-1/AH-1 aircraft silent chain, P/N 205-001-721-1, used in the tail rotor control installation. The next changes to the aircraft organizational maintenance manuals and the preventive maintenance manuals will include in these inspections the other two silent chains used in the tail rotor control system. Reports have been received that both silent chains have suffered from broken links at low flight hours.

3. The information that follows should be inserted in the UH-1/AH-1 aircraft organizational maintenance manuals and preventive maintenance manuals pending receipt of the formal change.

4. Parts to be inspected:

NSN	P/N	NOMENCLATURE	AIRCRAFT
1615-00-624-6963	204-001-739-3	Silent Chain	UH-1/AH-1
1615-00-172-4508	205-001-721-1	Silent Chain	UH-1/AH-1
3020-00-134-8040	205-001-748-1	Silent Chain	AH-1

5. Inspections.

a. Every 10 hours: Using a three-power magnifying glass, visually inspect installed silent chain for cracks. NOTE: For aircraft having tractor tail rotor, use inspection mirror for those areas which are inaccessible for inspection with magnifying glass.

b. Every second intermediate: Remove and inspect silent chain (205-001-721-1) (dark) manufactured prior to July 1974, for cracks.

c. Every periodic: Remove and inspect all silent chains for cracks.

6. Details for removal and inspection are found in the aircraft maintenance manual. If a crack is found, replace chain and submit DA Form 2407, EIR.

SOMETHING TO THINK ABOUT—"Components that must not and can not be assembled improperly will be."

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FLIGHT FAX

A USAAVS PUBLICATION

VOL. 4, NO. 14 ■ 28 JANUARY 1976

mishaps for the period of 9-15 JANUARY 1976

WHAT THE HUMAN FACTOR MISHAP REPORT IS ALL ABOUT

The requirement to report human factor mishaps is based on the thesis that it is more cost effective to identify and remedy potential accident-producing causes than it is to have these causes revealed in an accident.

The actual work involved in reporting human factor mishaps is significantly less than the effort to investigate and report a minor/major aircraft accident. Investigation of a human factor mishap does not require an investigation board nor does it require completion of a full set of DA Forms 2397. Investigation is normally done by the aviation safety officer in cooperation with a flight surgeon when available. The forms required are dictated by the nature of the mishap, and only those items that are descriptive of the mishap are completed.

Following is an example of a recent human factor mishap report which clearly shows the value of this type information.

A UH-1H was engaged in an aerial dispersion of a riot control agent (CS). The crew consisted of pilot, copilot, chemical officer, and operator of the M5 disperser. The copilot and operator of the disperser wore their protective masks, but the pilot and chemical officer did not. (AR 95-1, paragraph 3-33, states, "Either the pilot or copilot will wear a protective mask at all times when fuzed items filled with incapacitating or toxic chemicals are carried inside Army aircraft.") At about 125 feet and 35 knots the crew began dispersing the CS which shot directly into the aircraft. The pilot (without mask) immediately began increasing airspeed and climbing. Within seconds he became incapacitated and relinquished control of the aircraft to the copilot. Unable to lower his window, the pilot opened his door, unstrapped his restraint system, and stuck his head out the door for fresh air. He motioned to the copilot to land.

Inspection of the aircraft revealed the clamps attaching the delivery hose to the rear crosstube had vibrated loose and rotated 180 degrees, causing the hose outlet to point forward—toward the front of the aircraft.

The individuals involved in the mishap and those responsible for submitting the report met every

requirement of AR 95-5 and especially DA Form 2397-2, Findings and Recommendations. They clearly stated what happened, methodically analyzed why the mishap happened, including regulations involved, then made meaningful recommendations to preclude recurrence.

Findings

1. The M5 disperser delivery hose is double clamped to a locally manufactured mount which is then double clamped to the right rear crosstube. The clamps securing the mount to the crosstube worked loose in flight, allowing the mount to rotate 180 degrees. The hose, being securely attached to the mount, also rotated 180 degrees, allowing it to face toward the nose of the aircraft.

2. The two personnel not wearing protective masks were incapacitated by the CS. The pilot ceased to function as a crewmember. Although protective masks were readily accessible and out of their cases, neither individual was able to mask. Both the copilot and M5 disperser operator were

Continued on page 2

UH-1 SAFETY-OF-FLIGHT MESSAGE

192050Z Jan 76, subject: Safety-of-Flight Message (One-Time Inspection) for UH-1D/H Model Main Rotor Blades, TB 55-1520-210-20-12 (UH-1-76-2). Summary: A cracked main rotor blade spar was found recently on a commercial helicopter after 425 flight hours. The crack initiated at an inclusion on the inner surface of the spar. An investigation disclosed that other spars from the same manufacturing lot may have similar defects. This inspection will identify and remove from service, prior to further flight, 204 series blades that were fabricated using spars from the suspect lot. These blades are identified as serial No. A2-27872, A2-27961, A2-27967, A2-27982, A2-28015, A2-28016, A2-28019, A2-28023, A2-29325, A2-29919. Equipment in use will be inspected as soon as possible but not later than 10 flight hours or 10 days, whichever occurs first. Contact: USAAVSCOM, James Konilezny, AUTOVON 698-6516/6517.

Continued from front page

properly masked, thus averting a catastrophic accident.

Recommendations

1. That an improved method of securing the delivery hose to the aircraft be devised. The Division CBR Group is presently investigating several alternatives and will submit through channels an EIR documenting their efforts.

2. That both pilots wear protective masks at all times when performing aerial CS dispensing missions.

3. That all personnel aboard have protective masks on while actually dispersing CS.

4. That all personnel participating in an aerial

CS dispensing mission check their protective masks in the CBR chamber just before takeoff. Flight helmets should be worn in the chamber to insure a proper fit of the mask. This requirement can easily be met as the aircraft must be shut down at the CBR range for installation of the M5 disperser.

5. That a chemical safety officer, designated by the Chief, Command CBR Group, be aboard each aircraft performing CS dispensing missions.

6. That pilots performing aerial dispensing operations on the military reservation notify range control of the intended hot area at least five minutes prior to dispensing CS. Range control should then take appropriate action to clear the area of aircraft traffic.

UTILITY/ATTACK BRANCH

MAJ William C. Childree, Chief ■ 558-4198

0 Accidents, 0 Fatalities, 0 Injuries, Estimated Costs: \$8,480

UH-1

3 Incidents ■ Crew smelled unusual odor, then noticed cargo compartment filling with smoke. Air distribution sensor, component of auxiliary heater, malfunctioned, causing an overheating condition. Smoke resulted when plastic components of aft bulkhead outlets and duct assembly started melting. (USAR) ■ During NOE training with IP in left seat, pilot allowed main rotor to strike limb on dead oak tree. (ARNG) ■ Main rotor struck top of small tree during approach to confined area. Both main rotor blades were damaged.

1 Forced Landing ■ In traffic pattern crew heard high-pitched noise and mild clatter from engine area. All cockpit indicators were normal, then engine began to pop, surge, and lose power. Power was applied and surging became more pronounced. Throttle was then closed and power-off landing was made to open field. Cause of engine malfunction not reported.

13 Precautionary Landings—following are selected briefs ■ Crew noticed 70° increase in egt, accompanied by power surge. Crew returned to airfield and landed. Another HIT check showed plus 45°. Engine inspection showed fifth stage compressor missing three blades and damage to stator vanes. Cause of failure not reported. (ARNG) ■ During cruise, cyclic pitch control began binding and could not be moved forward. Hydraulics-off landing was made to nearby airfield. Suspect malfunction of servo cylinder assembly. (ARNG) ■ Crew heard loud bang during climb followed by yaw and fluctuation of N1, N2, and egt. Crew landed aircraft with no further problems. Compressor stall occurred as a result of dirt and FOD. ■ Transmission oil hot light came on. Oil temperature increased approximately 10° prior to landing. Caused by malfunction of thermostatic switch. ■ During climb, transmission caution light came on and oil pressure gauge indication began fluctuating. Crew landed aircraft immediately. Gasket failure resulted in loss of all but approximately two quarts of transmission oil. ■ Transmission oil pressure gauge indicated

UNITED STATES ARMY AGENCY FOR AVIATION SAFETY ■ FORT RUCKER, ALABAMA 36362

Prepared from information compiled by the
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and Investigation
Lieutenant Colonel Curtis M. Sanders, Director

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COMMERCIAL: 255-XXXX AUTOVON: 558-XXXX
Commander/Deputy Commander 3410/3819
For Assistance in Locating Proper Directorate 6510
Aircraft Accident Analysis and Investigation 3913/4202
Technical Research and Applications 6404/6410
Plans, Operations, and Education 4812/6510
Management Information System 4200/2920
Publications and Graphics Division 6385/4218
USAR Representative 6510/4714
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Drop in oil pressure to 100 psi for approximately 15 seconds, then a drop to zero. Caused by malfunction of transmission oil pressure transmitter. ■ Crew noticed feedback in cyclic control during hover. Maintenance could not duplicate problem.

AH-1

2 **Precautionary Landings** ■ Transmission oil temperature increased to 110°. Caused by malfunction of thermostatic bypass valve in oil cooler assembly. ■ Engine oil bypass caution light illuminated. Engine oil loss occurred because of failure of starter/generator garlock seal. □

LOH/CARGO BRANCH

MAJ Robert P. Judson, Chief ■ 558-4202

1 Accident, 0 Fatalities, 0 Injuries, Estimated Costs: \$24,057

OH-58

1 **Accident** ■ During touchdown phase of practice autorotation, toe of skids dug into soft ground. Aircraft rocked forward and back, causing vertical fin to contact ground.

2 **Precautionary Landings** ■ Engine oil bypass light came on. Oil reservoir cap was found loose. ■ Transmission oil hot light illuminated. Caused by failure of transmission oil temperature switch.

OH-6

1 **Incident** ■ During runup ground crewman signaled for engine shutdown after he saw what appeared to be ice pass through tail rotor system. Inspection revealed plastic tip plate missing on one blade and hairline crack in same area on another blade. Suspect trapped moisture inside tail rotor blade froze and caused fiberglass to crack.

1 **Forced Landing** ■ Engine failed as aircraft was being hovered to parking area after local flight. Cause unknown.

UH-55

1 **Incident** ■ Tail rotor blade struck hard-surfaced lane during practice autorotation.

CH-47

3 **Precautionary Landings** ■ Smoke and fire were seen in aft transmission area during flight with no abnormal indications on master caution panel. Caused by internal failure of No. 2 generator. ■ No. 2 engine had severe compressor stall during flight. Suspect FOD ingestion. ■ Transmission oil hot light came on. Aft transmission oil temperature rose to 135° and dropped to 120° several times at approximately 10-second intervals. Pressure remained constant and within limits. Caused by failure of temperature bulb. □

FIXED WING BRANCH

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

1 Accident, 0 Fatalities, 0 Injuries, Estimated Costs: \$10,550

U-8

1 **Accident** ■ Gear indicated unsafe condition, low pass was made, and tower personnel said gear appeared to be down. During crosswind climb, No. 1 engine failed. Aircraft was unable to maintain altitude and during hard left turn toward open field No. 2 engine quit. Aircraft crash landed in open field. Investigation is in progress.

1 **Incident** ■ Inboard cowling on No. 1 engine separated on takeoff and flight was aborted. Caused by pilot's failure to assure cowling was secure during preflight.

1 **Precautionary Landing** ■ As gear was retracted after takeoff, nose wheel indicator showed down. Mirror check showed nose gear up. Gear was recycled with down and locked indication. Aircraft was landed. Suspect frozen (up limit) microswitch caused by moisture on runways and freezing temperatures.

OV-1

1 **Precautionary Landing** ■ During test flight for No. 2 engine change, pilot noted loss of engine oil pressure, followed by chip detector light. Engine was secured. Engine oil sample indicates internal disintegration.

U-21

3 **Precautionary Landings** ■ Right main gear would not indicate safe down indication. Gear was recycled and manually lowered, but light would not illuminate. Safe landing was made. Caused by failure of down-lock switch (NSN 5930-00-503-3883, P/N MS-24331-1). ■ Oil was noticed seeping from No. 2 propeller area. Aircraft returned to home base and landed. Caused by failure of seal, turbine rotor (NSN 2840-00-837-1843). ■ During flight, No. 1 engine torque dropped below 100 pounds and propeller rpm decreased, but N1 remained constant. Oil was seen coming from accessory vent section and black smoke from exhaust. N1 then began to drop, so engine was secured and aircraft landed. Suspect failure of O-ring on oil return line (NSN 5330-00-882-9176).

T-42

1 **Precautionary Landing** ■ During flight with all instruments normal, loud detonation was heard, followed by smoke coming from No. 1 engine. Engine was secured and aircraft landed. Caused by internal failure of No. 1 engine. □

AVIATION-RELATED GROUND MISHAPS

William P. Christian ■ 558-4202

2 Mishaps, 0 Fatalities, 0 Injuries, Estimated Costs: \$7,287

CH-47

■ Airframe damage to left forward fuel tank area was discovered during preflight inspection. Damage consisted of torn skin, crushed and separated honeycomb, and paint damage. Suspect cause of damage was collision involving fuel tanker and the aircraft. Fuel tanker had traces of aircraft skin paint on its bumper. Action taken was to instruct all refueling personnel to park at least 20 feet from aircraft during refueling operations.

UH-1

■ Before daylight, mechanic took airfield warehouse vehicle to UH-1H to check on previous maintenance accomplishment. Vehicle was parked about 9 feet (on a slope) from aircraft. Mechanic failed to set parking brake or chock vehicle wheels. Vehicle rolled into aircraft, damaging left cargo door. Mechanic was not licensed to drive the vehicle. Actions taken were to give all personnel a class on use and operation of vehicles and to schedule all enlisted personnel for driver's training to operate ramp vehicles. □

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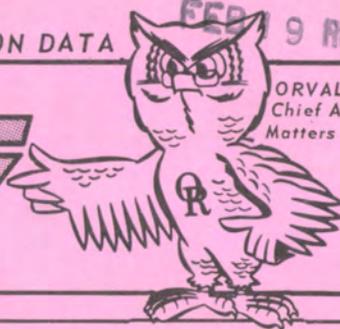
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Chief Advisor on
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A USAAAVS PUBLICATION

VOL. 4, NO. 15 ■ 4 FEBRUARY 1976

mishaps for the period of 16-22 JANUARY 1976

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HELP STOP DELAYS

USAAAVS REQUEST FOR TEARDOWN ANALYSIS		
Requested by: <input checked="" type="checkbox"/>	Tel Nr. <input checked="" type="checkbox"/>	
Adrs: <input checked="" type="checkbox"/>		
Comp: <input checked="" type="checkbox"/>	Comp: _____	Comp: _____
SN: <input checked="" type="checkbox"/>	SN: _____	SN: _____
NSN: <input checked="" type="checkbox"/>	NSN: _____	NSN: _____
P/N: <input checked="" type="checkbox"/>	P/N: _____	P/N: _____
Acft SN: <input checked="" type="checkbox"/>	Mishap Date: <input checked="" type="checkbox"/>	
Mishap Class: <input checked="" type="checkbox"/>	Reason for Analysis: <input checked="" type="checkbox"/>	
Who is to Perform Analysis: _____	Request Approved By: _____	
Date CCAD Notified: _____	Date Report Received: _____	
Date Center Receipt: _____	Date: _____	
(Signature)		
REMARKS:		
USAAAVS Form No. 400, (Rev) Jan 1972		
Acft Type: <input checked="" type="checkbox"/>	Log Nr. _____	

Before issuing a control number for teardown analysis of parts and components, USAAAVS must have certain information. Items needed are marked with an X in the sample request form. So, to avoid unnecessary delays please make sure you have this information when making such requests.

Control numbers may be obtained by calling AUTOVON 558-3913/3901/4202/6510.

Additionally, to insure positive control, in all cases, request that AR 95-5, par. 10-5c(10) be strictly complied with, using the after-the-fact message format as stated.

HELICOPTER DOOR, WINDOW, AND PANEL LOSSES

In-flight loss of fuselage parts is still a problem for the helo community. Although some of the fuselage panels require redesign and airframe changes, all aircrews, maintenance personnel, and supervisors must strive to reduce the panel loss rate. Good preflights, postflights, post engagement walkaround inspections, and maintenance procedures are a few of the preventive measures required. Don't let a panel loss ruin your whole day.

-MAG-26 SAFETY RAISER

UNITED STATES ARMY AGENCY FOR AVIATION SAFETY ■ FORT RUCKER, ALABAMA 36362

Prepared from information compiled by the
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Lieutenant Colonel Curtis M. Sanders, Director

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TH-55

1 Precautionary Landing ■ Pilot reported lateral vibration and noises from tail rotor. Test flight failed to duplicate discrepancy.

CH-47

4 Precautionary Landings ■ During cruise flight, No. 1 engine N1 dropped 4%-6% with noticeable drop in rotor rpm. Left fuel pressure light illuminated. Engine failed on final. Cause unknown. Condition could not be duplicated. ■ Flight engineer noted fuel leak on No. 2 engine in PZ. Fuel line fitting on fuel control connecting line to liquid cooler was cracked. ■ High frequency vibration and grinding noise in combining transmission area were noted during cruise flight. Suspect internal failure of combining transmission. ■ While repositioning aircraft from parking pad to another pad, pilot reported he was unable to land due to increasingly excessive 3:1 vibrations created when aft wheels contacted ground. After six attempts to land, each at different rotor rpm and direction to include modified running landing, low hover was made to allow two maintenance officers to board aircraft. One landing was then attempted with SAS off and was found to be no different from any other. Maintenance crew elected to put aircraft on ground while simultaneously pulling both engines to stop. Circular shuffle subsided as rpm decreased. Cause unknown. There is a possibility of failure of components on the forward head or flight control actuators. Investigation of problem in progress. □

FIXED WING BRANCH

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

1 Accident, 0 Fatalities, 0 Injuries, Estimated Costs: \$15,127

T-42

1 Accident ■ Nose gear collapsed on landing rollout, followed by main gear. Cause unknown at this time.

T-41

1 Precautionary Landing ■ Engine chip detector light came on shortly after takeoff. Cause unknown. However, excessive metal on magnetic plug justified engine change.

U-21

1 Precautionary Landing ■ Right main gear indicator light failed to illuminate and crew successfully executed emergency landing. Light was not properly grounded.

U-8

5 Precautionary Landings ■ During en route climb both engines quit within 5 seconds. Fuel selectors were switched to "AUX" and No. 1 engine was restarted. No. 2 engine would not start and single-engine landing was completed. Inspection revealed No. 2 fuel selector valve cable had slipped off drum during engine runup, causing valve to remain in crossfeed. Left main tank was found empty and all others were full. ■ Right main gear failed to indicate down. Landing was uneventful. Sensitive switch was dirty. ■ No. 1 engine quit after leveling off at 14,000 feet. Restart attempts were unsuccessful and single-engine landing was made. Automatic mixture control valve had failed. ■ No. 2 engine began running rough with cylinder head temperature and rpm fluctuation. Emergency landing was made. Caused by materiel failure of contact assembly and capacitor of left magneto. ■ During simulated single-engine training, No. 1 engine could not be restarted. Single-engine landing was successful. Prop accumulator was discharged.

From information provided by USAAVSCOM

OY-1 ENGINE OIL CONSUMPTION LIMITS

T53 engines are being returned to overhaul for oil leaks at the No. 1 bearing seal due to a misunderstanding of the troubleshooting chart criteria in TM 55-2840-233-24, Table 4-1. Item 31, "Excessive Oil Consumption," states: "If leakage is evident, engine shall be forwarded to overhaul for seal replacement." This is intended to mean that when excessive oil consumption (.3 gal/hr) is indicated and troubleshooting reveals leakage is from the No. 1 seal, the engine must be returned to overhaul, as replacement of this seal is a depot function.

Tech inspectors are rejecting engines when leakage is evident, but has not exceeded oil consumption limits. Caution must be taken, however, to insure that oil fumes are not evident in the cockpit. Oil leakage severe enough to cause fumes in the cockpit through the ECU would be cause for engine rejection even though oil consumption limits have not been exceeded. □

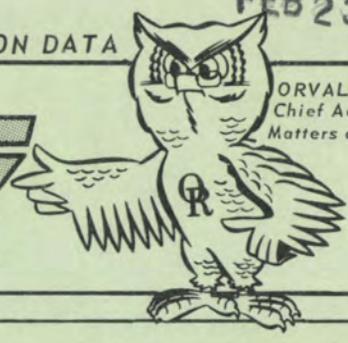
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ARMY AIRCRAFT MISHAP PREVENTION DATA



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Chief Advisor on
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A USAAVCS PUBLICATION

VOL. 4, NO. 16 ■ 11 FEBRUARY 1976

mishaps for the period of 23-29 JANUARY 1976

"NOW THAT MAKES SENSE" RECOMMENDATION

US Army Aviation Training
Fort Rucker, Alabama 36362

A review of the findings and recommendations of a recent Army aircraft accident report revealed one of those "now that makes sense" recommendations worthy of passing on to the troops. The accident board members were thinkers and doers. They had a job to do and they did it, methodically and efficiently.

The crew was assigned an aircraft with a circle red X condition. The pilot's artificial horizon and RMI were inoperative. The mission was a night troop extraction. At least one thing was in the crew's favor—there "wasn't any weather." The crew became disoriented and crashed. Right? Wrong. The inoperative instruments were not listed as a cause of the accident, but were reported as nonrelated factors in accordance with par. 14-4a, AR 95-5—factors just waiting for a chance to change their status by causing an accident.

The board came up with several good recommendations, but the one we considered worthy of publishing is simple, straightforward, and effective. Here it is: "The unit aircraft maintenance officer should establish a procedure that will insure that aircraft most suitable for the type mission flown are scheduled through the operations section. A column should be added to the aircraft status board to indicate reasons for the

aircraft being placed on a circle red X condition, thus eliminating the possibility of assigning an aircraft with specific limitations to a mission it cannot safely complete."

It's these products of someone's imagination that pay off in aviation safety. One "well done" to the members of the board.

SAFETY-OF-FLIGHT MESSAGES

■ 281535Z Jan 76, subject: Safety-of-Flight Maintenance/Technical Advisory Message No. TH-55-76-1 Concerning TH-55A Helicopter Tail Rotor Blades. *Summary:* Comply with FAA Airworthiness Directive 75-20-01 and Hughes Service Information Notice N-130 dated 23 Aug 75.

■ 281715Z Jan 76, subject: Safety-of-Flight Advisory Message (Operational) on Attaching Foreign Objects to Ignition Lockout Switch Keys for all Army Aircraft (Gen-76-5). *Summary:* Several aircraft users have attached large tags, key rings, etc., to the ignition lockout switch key to aid in the control of this key. Some of these objects have become tangled in the aircraft controls, causing operational problems. All foreign objects which may interfere with the safe operation of the aircraft should be removed from the ignition lockout switch key.

UNITED STATES ARMY AGENCY FOR AVIATION SAFETY ■ FORT RUCKER, ALABAMA 36362

Prepared from information compiled by the Directorate for Aircraft Accident Analysis and Investigation
Lieutenant Colonel Curtis M. Sanders, Director

COMMERCIAL: 255-XXXX AUTOVON: 558-XXXX
Commander/Deputy Commander 3410/3819
For Assistance in Locating Proper Directorate 6510
Aircraft Accident Analysis and Investigation 3913/4202
Technical Research and Applications 6404/6410
Plans, Operations, and Education 4812/6510
Management Information System 4200/2920
Publications and Graphics Division 6385/4218
USAR Representative 6510/4714
After-duty tape recording of incoming calls to be returned the following day (hours: 1615 to 0730) 6510

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 is authorized by AR 10-29.

TIMELY SUBMISSION OF PRAM'S

If electronic communication facilities are not available, the following addresses should be used for timely submission of PRAM's (Preliminary Report of Aircraft Mishap), Reference AR 95-5, par. 13-2.

HQDA (DACS-ZA)
 HQDA (DAIG-SM)
 HQDA (DAMO-ODA)
 HQDA (DAAR-OT)
 HQDA (NGB-OAC-AVN)

HQDA ()
 WASH DC 20310

Commander
 AFIP
 Washington, DC 20306

Commander
 USAAAVS
 Fort Rucker, AL 36362

Commander
 U.S. Army Forces Command
 Fort McPherson, GA 30330

Commander
 U.S. Army Training & Doctrine Command
 Fort Monroe, VA 23651

Commander
 U.S. Army Intelligence Agency
 Fort Meade, MD 20755

Commander
 U.S. Army Military District of Washington
 Fort McNair
 Washington, DC 20315

Commander
 Ballistic Missile Defense Systems Command
 Huntsville, AL 35809

Commander
 U.S. Army Security Agency
 4000 Arlington Blvd.
 Arlington, VA 22212

Commander
 U.S. Army Communications Command
 Fort Huachuca, AZ 85613

Commander
 U.S. Army Research & Development Command
 (AMCSF-A)
 5001 Eisenhower Avenue
 Alexandria, VA 22331

Commander
 USAAVSCOM
 St. Louis, MO 63102

Commander
 First U.S. Army
 Fort Meade, MD 20755

Commander
 Fifth U.S. Army
 Fort Sam Houston, TX 76234

Commander
 Sixth U.S. Army
 Presidio of San Francisco, CA 94129

Commander
 Naval Safety Center
 Norfolk, VA 23511

Deputy Inspector General/Safety
 Norton AFB
 San Bernardino, CA 92409

Delete: U.S. Army Air Defense Command



UTILITY/ATTACK BRANCH

MAJ William C. Childree, Chief ■ 558-4198

1 Accident, 2 Fatalities, 0 Injuries, Estimated Costs: \$293,318

UH-1

1 Accident ■ Aircraft was seen in a descending right turn. Main rotor system separated. Aircraft fell vertically, crashed, and burned. Investigation in progress.

1 Incident ■ Right synchronized elevator was found damaged on preflight. Previous mission was night insertion flown at tactical altitudes.

22 Precautionary Landings—following are selected briefs ■ Ninety-degree gearbox chip detector light came on. Metal chips were found in gearbox. ■ Unusual noise was heard from engine during flight. Aircraft landed with N2 tachometer going to zero on short final. Suspect tachometer drive gearbox failure. Oil analysis indicated high metal content. Engine was changed. ■ Master caution and engine fuel pump warning lights came on. Caused by engine fuel pump pressure switch failing intermittently. ■ Pilot had pedal control problem in flight due to tail rotor servo malfunction. ■ Aircraft was in straight and level flight, 100 feet and 90 knots, when master caution and hydraulic warning lights illuminated. Inspection revealed irreversible valve malfunction, causing total loss of fluid. ■ Pilot felt six sharp jerks in cyclic during climbout and level flight. Left cyclic servo cylinder was binding. ■ Two right fuel boost pump failures were reported. ■ Dual tachometer went to zero at hover. Postflight inspection revealed dual tachometer failure. ■ Fire warning light came on. Caused by corroded contact points on fire detection switch.

AH-1

1 Precautionary Landing ■ Pilot brought aircraft to hover and SCAS hardover in roll channel occurred. Caused by (roll) transducer malfunction. □

LOH/CARGO BRANCH

MAJ Robert P. Judson, Chief ■ 558-4202

0 Accidents, 0 Fatalities, 0 Injuries, Estimated Costs: \$103,062

OH-58

2 Precautionary Landings ■ Master caution and transmission warning lights illuminated. Metal flakes were found on both main transmission chip detector plugs. ■ Master caution and hydraulic pressure caution lights came on during climb. Hydraulic pressure switch failed.

OH-6

1 Precautionary Landing ■ Pilot heard loud bang and landed. Blood and feathers were found in area of swashplate.

CH-47

1 Incident ■ Aircraft was hovering downslope of hillside when aft rotor blades hit trees. Ground guides were being used. Three aft rotor blades were damaged.

4 Precautionary Landings ■ No. 1 engine chip detector light came on and No. 1 torque meter needle became static. Inspection revealed rotary assembly torque meter had failed. Chip detector light resulted from ball bearing which came out of torque meter rotary assembly. This is the second occurrence in the past 2 months, both involving L-7C engines. ■ Fuel leak was discovered in heater area during flight. Caused by stripped fitting in heater fuel control and in main fuel line. ■ Hot start occurred during No. 2 engine start and egt went to 980° C. for 3 seconds. Aircraft was inspected and released for one-time flight to home station. During flight, engine was shut down when egt went to 800° C. Caused by malfunction of fuel control unit. ■ After about 1 hour of flight, fuel began venting overboard from right auxiliary tank. All attempts to pump fuel out of right auxiliary tank failed. Caused by failure of right aft auxiliary fuel tank check valve.

CH-47 SAFETY ADVISORY MESSAGE

Safety Advisory Message (CH-47, 1976-1), DTG 272130Z Jan 76, indicates that a potential failure mode may exist in the CH-47 rescue hoist quick disconnect, P/N DCBL308C, and recommends that it not be used for lifting personnel until its safety is verified. □

FIXED WING BRANCH

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

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

RU-21

1 **Precautionary Landing** ■ Right main gear did not give safe indication. Unsafe gear procedures were performed without obtaining safe indication. Tower stated gear appeared down and landing was uneventful. Landing gear lock hook was out of adjustment, preventing microswitch from being activated.

OV-1

1 **Precautionary Landing** ■ Gear failed to retract after takeoff. Replaced faulty dump valve.

U-8

1 **Precautionary Landing** ■ During climb, No. 2 engine began running rough with intermittent 50 rpm drop. Landing was completed and magneto check revealed 250 rpm drop on left engine. Plug on No. 5 cylinder was misfiring due to metal deposit.

T-42

1 **Precautionary Landing** ■ No. 1 engine began running rough. Instruments read normal but black smoke trailed from left wing area. Engine was secured and single-engine landing was successful. Rocker arm on No. 1 cylinder was broken.

T-41

1 **Precautionary Landing** ■ Cylinder head temperature rose to 480° and oil pressure dropped to zero. Pilot detected burning odor. Landing was completed as soon as possible. Electrical circuit board assembly had shorted out. □

AVIATION-RELATED GROUND MISHAPS

William P. Christian ■ 558-4202

4 Mishaps, 0 Fatalities, 2 Injuries, Estimated Costs: \$51,076

OH-58

■ Armament specialist was operating Army "mule" in hangar and turned between two OH-58's. He misjudged the turn and ran into one OH-58. Driver of the vehicle was operating it without a proper driver's license. Corrective action taken was to prohibit the use of this vehicle in aircraft hangars and insure all drivers are properly licensed.

CH-47

■ Two enlisted personnel were assigned to guard duty as roving guards in an M151A2 ¼-ton vehicle on a CH-47 parking ramp. After several hours of guard duty with rest periods in between, driver of vehicle was told by the other guard to wake him up if he got sleepy or too tired to drive. A short time later the driver stopped and walked around the vehicle to stay awake. He got back in the truck and set the choke to maintain a speed of 10 miles per hour. The driver fell asleep and the truck struck a parked CH-47. Corrective action taken was to discontinue the roving guard patrol.

U-21

■ U-21 was parked on ramp with gust locks installed. Wind gust of 55 knots from west damaged rudder and rudder bellcrank. Severe weather warning had been received. Commander should have insured that

aircraft was turned into wind or hangared when informed of expected 35-knot and higher winds. Action taken was to enforce the requirement of facing aircraft into the wind or having them hangared as outlined in TM 55-1510-209-20/1.

MAINTENANCE (Aircraft Type Unknown)

■ Service member stepped off helicopter she was performing maintenance on and twisted her foot. She did not use the steps built into the aircraft to ascend and descend from work areas. Action taken was to caution personnel about the hazards of stepping off aircraft and maintenance platforms.

UH-1

■ A ¼-ton truck was being sling-loaded by a UH-1 helicopter when it fell from about 70-100 feet altitude. Examination of slings immediately after impact showed neither the slings nor the shackles failed. Investigation is being conducted to determine cause. □

MAINTENANCE MISHAPS

MSG B. R. Bailey ■ 558-3901

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

UH-1

2 **Precautionary Landings** ■ Aircraft lost hydraulic assistance and segment light came on during landing. Inspection revealed loose fitting on collective servo line. ■ Master caution and transmission oil pressure lights flickered off and on during flight, followed by loss of oil pressure. Postflight inspection revealed transmission oil line to cooler on left side of transmission had chafed and ruptured.

EIR SUBMISSION

Reference TM 38-750, par. 3-16c(3). A routine EIR must be submitted in those cases where a flight abort resulted from a materiel failure or malfunction, but the submission of an emergency EIR is not warranted. The routine EIR must reference the crash facts (PRAM) message and identify the cause of the flight abort.

In accordance with AR 95-5, par. 13-4, the PRAM will include any known or suspected materiel deficiencies. This paragraph requires that the control number of DA Form 2407 pertaining to section III, Equipment Improvement Recommendation (EIR), be listed in paragraph 14 of the PRAM.

DEFECTIVE EPOXY PRIMER

Message from USAAVSCOM, 272140Z Jan 76, subject: Maintenance Advisory Message on Defective Epoxy Primer (MIL-P-23377) (Gen 76-03)

1. Vendor attempting to pick up defective epoxy primer from all sources for remixing. Activities CONUS hold defective material until contacted by GSA region. All activities not located CONUS, dispose of defective material IAW local instructions.

2. Point of Contact: John O. Tressler, Director, Order Processing & Cont. Div., GSA, Washington, DC. Refer to FFC 296, area code 703, 557-1707.

POTENTIAL SAFETY HAZARD

The following AVSCOM message, DTG 272110Z Jan 76, is printed for your information:

SUBJECT: Maintenance Advisory Message on potential safety hazard, Category 1, NSN 6230-00-289-5879, floodlight sets, contract DSA 400-75-0-4608, manufacturer AALL Bidders Inc., and contract AF 33 (038) 16516, manufacturer unknown. (Gen 76-4)

1. Stock under contract DSA 400-75-0-4608 has been declared potentially hazardous due to inadequate spring tension on outlet and switch covers located on electrical connector box.

2. Request all units conduct a surveillance inspection on floodlights produced under contract DSA 400-75-0-4608 to determine if water penetration into the electrical components may occur. Suspend all defective units from use and issue.

3. It is further requested that floodlight sets produced under contract AF 33 (038) 16516 be suspended from use and issue immediately. These lights possibly have a two-wire system in lieu of a three-wire. Units with this type of configuration may be unsafe. Please inform Commander, DGSC, Richmond, VA, DGSC-SOSP4, AUTOVON 695-3823 (Mr. Cooper), of the number of floodlights on hand produced under this contract and state whether they have a two-wire or three-wire system. □

RECAP OF AVSCOM MESSAGES

AVSCOM Message 111012Z Jul 75, subject: Safety-of-Flight and Worldwide Technical Messages. Following is a list of all AIG 8881 addressed messages transmitted by AVSCOM (AMSAV-F) from 1 January through 31 December 1975 for the UH-1.

UH-1-75-1	(031618Z Feb 75)	Ultrasonic Inspection Main Rotor Blades
UH-1-75-2	(271300Z Mar 75)	Change to Engine Starting Procedures
UH-1-75-3	(140937Z Apr 75)	Internal Rescue Hoist
UH-1-75-5	(141840Z May 75)	Misrouted Fuel and Hydraulic Lines
UH-1-75-6	(251800Z Jun 75)	Aircraft Crashworthy Fuel System
UH-1-75-7	(152013Z Aug 75)	Safety-of-Flight Technical/Maintenance
UH-1-75-8	(291739Z Jul 75)	Crashworthy Fuel System
UH-1-75-9	(062006Z Aug 75)	Safety-of-Flight Technical/Maintenance
UH-1-75-10	(051350Z Sep 75)	Inspection of Fuel Valves
UH-1-75-11	(261611Z Aug 75)	Main Rotor Blade Maintenance
UH-1-75-12	(292029Z Aug 75)	Stabilizer Bar Tubes
UH-1-75-13	(151840Z Oct 75)	Maintenance Advisory
UH-1-75-14	(141347Z Oct 75)	Shelf Life Extension on Parts Kit, Cutter
UH-1-75-15	(301500Z Oct 75)	Maintenance Advisory
UH-1-75-16	(302452Z Oct 75)	PE Inspection of Pitot Static System
UH-1-75-17	(201426Z Nov 75)	Technical Advisory
UH-1-75-18	(171650Z Nov 75)	Safety-of-Flight Tail Rotor Grip Assembly
UH-1-75-19	(181718Z Nov 75)	Hydraulic Servo Cylinder
UH-1-75-20	(211755Z Nov 75)	Hydraulic Servo Cylinder
UH-1-75-21	(261850Z Nov 75)	T53-L-13 Engines

Other aircraft safety-of-flight and worldwide technical messages will be published in future issues of FLIGHTFAX.

DEPARTMENT OF THE ARMY
UNITED STATES ARMY
AGENCY FOR AVIATION SAFETY
FORT RUCKER, ALABAMA 36362

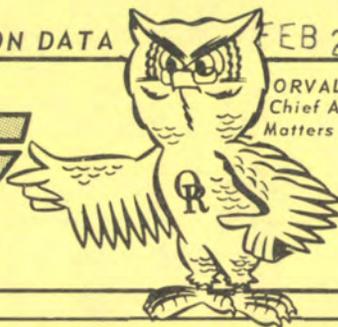
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FLIGHT FAX



ORVAL RIGHT
Chief Advisor on
Matters of Aviation

A USAAVS PUBLICATION

VOL. 4, NO. 17 ■ 18 FEBRUARY 1976

mishaps for the period of 30 JAN-5 FEB 1976

WELCOME ABOARD, STACOM

USAAVS is pleased to introduce a new feature in FLIGHTFAX which will be known as STACOM (Standardization Communication). This section of FLIGHTFAX will appear at least once each month and will be written by the Deputy for Standardization, United States Army Aviation Center, Fort Rucker, Alabama. As an extension of the Office of the Deputy Chief of Staff for Operations and Plans, Department of the Army, and as proponent agent for Flight Standardization, the Commanding General, USAAVNC, has the responsibility for monitoring and evaluating the United States Army Aviation Flight Standardization Program. The Deputy for Standardization at Fort Rucker is the action officer for this task. His team of SIPs will be providing the input for STACOM based upon their observations in the field and questions or suggestions received at Fort Rucker. We feel confident that FLIGHTFAX and STACOM together will achieve more effective communication with each Army aviator than was possible in the past. Excellence, professionalism, and unit readiness are certain to improve and those are the common goals of both flight safety and flight standardization. Welcome STACOM!

US Army Aviation Training Library
Fort Rucker, Alabama 36360

NOMEX JACKET PROBLEM

Several cases have been reported where the knit wristbands on the lightweight Nomex jacket, NSN 8415-00-217-7220, have unraveled after as little as four weeks of wear. If your unit is having this problem or any other problems with the Nomex jacket, give complete information to Mr. A.B.C.

Davis, USAAVSCOM, ATTN: AMSAV-WL, P.O. Box 209, St. Louis, MO 63166, AUTOVON 698-3241/3291. This information is needed to expedite a fix.

SIGNIFICANT CHANGES TO AR 385-40

DA Message 052033Z Feb 76 provides an interim change to AR 385-40, Accident Reporting and Records, pending publication of a complete revision to the regulation late in FY 76. One of the principal changes to the regulation is the addition of three new categories of aviation accidents. Other features clarify the regulation and bring it in tune with AR 95-5. Also included is a revised list of addresses for PRAM's. These changes are effective immediately. Changes to AR 385-40 listed in FLIGHTFAX, Vol. 4, No. 6, dated 12 November 1975, are rescinded. For more information or clarification, contact Directorate for Plans, Operations & Education, USAAVS, AUTOVON 558-6510/4714.



UTILITY/ATTACK BRANCH

MAJ William C. Childree, Chief ■ 558-4198

0 Accidents, 0 Fatalities, 0 Injuries, Estimated Costs: \$7,565

UH-1

3 Incidents ■ Tail rotor blades were found dented during postflight inspection. Cause and exact time of damage are unknown. ■ Aircraft was flying in trail formation going into landing zone. Dust was generated by other aircraft and pilot experienced partial loss of visual contact with ground, resulting in hard landing. ■ Main rotor blade damage was detected on postflight inspection. Cause and time of damage unknown.

10 Precautionary Landings—following are selected briefs ■ During hover, crew heard noise which sounded like something slapping against fuselage. Evidence of compressor stall was noted after landing. ■ Engine oil pressure warning light came on during hover. Caused by engine oil pressure gauge malfunction. ■ Smoke was detected in cockpit. Inspection revealed starter generator garloc seal was leaking engine oil. ■ Gradual loss of transmission oil pressure occurred due to cracked housing on quill assembly. ■ Transmission chip detector light illuminated. Postflight inspection revealed transmission needed replacing. ■ Transmission oil pressure relief valve caused transmission oil pressure to fluctuate. ■ Pilot noticed stiff controls. Inspection revealed internal leak in irreversible valve vent which caused loss of hydraulic fluid. ■ Tail rotor pedals became stiff. Postflight inspection revealed tail rotor servo hydraulic return line was leaking at fitting.

AH-1

6 Precautionary Landings ■ No. 2 hydraulic pressure light came on. Caused by rupture in line from No. 2 pump to hydraulic module. ■ Transmission oil pressure light came on. Caused by transmission internal oil filter gasket failure. ■ Engine fuel pump warning light illuminated. Inspection revealed pressure sensing unit had intermittent malfunction. ■ Main rotor hub feather bearing seized, causing severe vibration during gunrun. ■ Loose servo fitting caused cyclic feedback at hover. ■ Master caution light and No. 2 hydraulic pressure light came on during climb. Caused by hydraulic pressure switch failure. □

LOH/CARGO BRANCH

MAJ Robert P. Judson, Chief ■ 558-4202

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

OH-58

3 Precautionary Landings ■ During climbout at 60 KIAS and 100 feet agl, aircraft began to shudder. IP executed 180° turn and returned to helipad. Tail rotor trimmer was worn beyond tolerance. ■ After landing in LZ, engine slowly lost rpm until it shut itself off without any action taken by pilot. Caused by internal failure of fuel control. ■ Pilot heard popping noise during flight. Condition could not be duplicated.

TH-55

2 Precautionary Landings ■ Alternator failed internally while aircraft was at hover. ■ IP heard loud and unusual noise coming from area of pulley assembly and frame of main rotor belt transmission. Inspection revealed roughness and noise in upper forward frame bearing. □

UNITED STATES ARMY AGENCY FOR AVIATION SAFETY ■ FORT RUCKER, ALABAMA 36362

Prepared from information compiled by the
Directorate for Aircraft Accident Analysis
and Investigation
Lieutenant Colonel Curtis M. Sanders, Director

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FIXED WING BRANCH

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

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

U-8

4 **Precautionary Landings** ■ Left side and right outboard flaps extended fully after lowering flaps, but right inboard remained neutral. Flaps could not be retracted. Caused by failure of flap actuator. ■ No. 1 engine chip detector light came on. Inspection revealed broken wire to chip detector. ■ Right main gear indicated in transit after retraction although gear handle light indicated up. Gear was extended and landing was uneventful. Maintenance could not duplicate condition. Suspect moisture froze in gear-up indicator switch plunger. ■ Left elevator and horizontal stabilizer began to vibrate on takeoff. Cause undetermined. Aircraft was turned in to DS maintenance.

OV-1

2 **Precautionary Landings** ■ Aircraft shuddered and technical observer reported fire in No. 2 engine. Engine was secured and fire extinguisher bottles were activated. Single-engine landing was successful. Caused by internal failure of a.c. generator and cracked western gearbox. ■ After two unsuccessful attempts to get left main gear to indicate down, gear was blown down and landing was uneventful. Down-lock pressure sensitive switch had failed internally.

C-7

1 **Precautionary Landing** ■ During test flight after No. 2 engine was shut down, excessive oil was noticed around propeller area. Single-engine landing was completed. Propeller governor seal was replaced and additional checks are being made by maintenance.

U-21

5 **Precautionary Landings** ■ Right hand bleed air failure light came on. Caused by pin hole in sensing line. ■ No. 2 engine torque would not increase beyond 580 pounds. All other indications were normal. Caused by failure of fuel control. ■ IP noticed gear retracted and extended slower than normal. Tower confirmed gear appeared down and landing was uneventful. Landing gear motor relay was replaced but symptoms remained the same. Landing gear motor and gearbox assembly were then replaced and aircraft released. ■ Fuel was noticed siphoning from left wing cap. Landing was made and cap properly secured. ■ After about 12 minutes of flight airspeed indicator dropped slowly to zero. Pitot heat was applied and while airspeed was returning to normal, vertical speed indicated a descent. Erratic airspeed and altitude readings continued, confirmed by transponder checks and aircraft attitude. Alternate air source did not correct situation. Weather was clear and pilot returned to airfield for landing. Suspect moisture in both static and alternate air systems froze after takeoff. Aircraft had been deiced by high pressure fluid system the previous day and remained outside in subfreezing temperature. *Serious problems could have developed had this situation occurred during IMC.* □

MAINTENANCE MISHAPS

MSG B. R. Bailey ■ 558-3901

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

OH-58

1 **Forced Landing** ■ Pilot had just completed TEAC check and was checking autorotational rpm from 3,500 feet msl. At 2,500 feet msl pilot attempted power recovery. Throttle would not roll on and autorotation was completed. Two bolts were overtightened on control tube to gas producer fuel control lever.

U-8

1 **Precautionary Landing** ■ No. 2 engine manifold pressure fluctuated during descent. When power was reduced, throttle would not go below 26 inches manifold pressure. Approach was made to airfield and on

one-quarter-mile final throttle became operative and aircraft was safely landed. Suspect induction inlet icing. Ram air door was found to be out of adjustment. □

AVIATION-RELATED GROUND MISHAPS

William P. Christian ■ 558-4202

2 Mishaps, 0 Fatalities, 0 Injuries, Estimated Costs: \$2,043

OH-58

■ During 7-day runup procedure, aft cowling was removed to check for possible leaks. Crew chief noticed leak around oil bypass switch and attempted to wipe off oil. A rag he was using caught on drive shaft coupling. Rag was drawn into blower assembly, causing major damage to the assembly.

U-21

■ Enlisted man was driving tractor around inside hangar and hit hangar door and left wing of U-21. Action taken was to chain and lock steering wheels of vehicles. □

**THOUGHT FOR THE WEEK
THE UH-1 HANGER BEARING
HAS OF LATE STARTED WEARING
SO PREFLIGHT, POSTFLIGHT IF YOU PLEASE
AND CHECK FOR HEAT AND EXCESS GREASE**

—Courtesy of CW2 Mike Henry, Missouri National Guard

RECAP OF AVSCOM MESSAGES

AVSCOM Message 111012Z Jul 75, subject: Safety-of-Flight and Worldwide Technical Messages. Following is a list of all AIG 8881 addressed messages transmitted by AVSCOM (AMSAV-F) from 1 January through 31 December 1975 for the AH-1.

AH-1-75-1	(031618Z Feb 75)	Inspection of Main Rotor Blades
AH-1-75-2	(122145Z Feb 75)	Elastomeric Main Rotor Hub Bearings
AH-1-75-3	(271300Z Mar 75)	Change to Engine Starting Procedures
AH-1-75-4	(011900Z May 75)	Aircraft Valve, Lockout
AH-1-75-5	(021940Z May 75)	Aircraft Valve, Lockout
AH-1-75-6	(161609Z Jun 75)	One-Time Inspection AH-1/TH-1
AH-1-75-7	(261840Z Jun 75)	Cracked AH-1/TH-1 Crosstubes
AH-1-75-8	(251600Z Jun 75)	Aircraft Crashworthy Fuel System
AH-1-75-9	(161500Z Jul 75)	Check Valves
AH-1-75-10	(291739Z Jul 75)	Crashworthy Fuel System
AH-1-75-11	(062000Z Aug 75)	Safety-of-Flight Technical/Maintenance
AH-1-75-12	(051350Z Sep 75)	Inspection of Fuel Valves
AH-1-75-13	(261611Z Aug 75)	Main Rotor Blade Maintenance
AH-1-75-13	(221946Z Oct 75)	Safety-of-Flight TH-1G
AH-1-75-14	(301500Z Oct 75)	Maintenance Advisory UH-1/AH-1
AH-1-75-15	(201425Z Nov 75)	Improved Tail Rotor Kit
AH-1-75-16	(261850Z Nov 75)	T53-L-13 Engines

Other aircraft safety-of-flight and worldwide technical messages will be published in future issues of FLIGHTFAX.

MAKE AVIATION SAFETY THE SPIRIT OF '76



STACOM 1 ■ 18 FEB 1976

DEPUTY FOR STANDARDIZATION, USAAVNC, FT. RUCKER, AL 36362

HOW DO YOU RECEIVE?

Deputy for Standardization is proud to join with USAAAVS and FLIGHTFAX in a combined communications effort toward improving unit readiness. The STACOM form of communications along with our responses to your telephone calls and letters as well as our field evaluations are all intended to serve in achieving a high level of excellence and professionalism in the operation and employment of Army aircraft; hence unit readiness. We look forward to communicating with you through Army aviation's long time best seller FLIGHTFAX and hope you will contact us by phone or letter with your standardization questions and suggestions. How do you receive? Over.

POSITION REPORTS

This section of STACOM will be a regular feature and will present some of the gleanings from field evaluation observations along with questions received by phone and letter. Before getting into those, however, let's address what is, perhaps, the most common question of all. "Who are you and what can you do for me?"

The "who are you . . ." part of the question is pretty well answered in the USAAAVS welcoming article on page 1. If you are still confused, give us a call and we can outline our charter and implementing instructions in more detail. The ". . . what can you do for me?" part of the question deserves a little more space. There are very few good programs going today which don't incorporate some sort of inspection or evaluation. We do that for the U.S. Army Flight Standardization Program and the findings and recommendations of these evaluations are oriented toward improving unit readiness—the ultimate goal of flight standardization.

Our evaluation visits may be conducted on a joint basis with a FORSCOM or a USAAAVS evaluation team, or we may visit your unit independently. Formal evaluations, however, make up only a small part of our total field visit effort. The greater part of our work is directed toward assistance visits which emphasize instruction, recertification of IPs, along with thorough review of operators manuals, flight training guides, checklists, standardization files and procedures. These assistance visits can be requested by you, paid for by us, and there are no evaluation reports rattling down the chain of command afterwards. Consider an assistance visit as a booster shot for your standardization program—it's painless and it's a smart step as you build individual and unit readiness. Just call us (Evaluation Division, X3504 or 6308) and we pledge to make our assistance visit truly that.

Now let's take a look at some popular standardization questions and common observations along with the Deputy for Standardization's position on the matter:

OBSERVATION: Flight Standardization Boards are not making adequate dissemination of standardization board minutes.

POSITION: AR 95-63 is not all that clear on dissemination, but what we do look for is that the Board is making distribution to unit level. We recommend that the unit then post conspicuously, place in the aviator reading file, or distribute the minutes to each aviator. AR 95-63, par. 1-2, is the reference. We hope the new version will be more specific in that area.

QUESTION: I've got two collision lights on my CH-54 and one is inoperative. I was just told my bird is grounded . . . this can't be!

POSITION: Oh yes it can! AR 95-1, par. 3-11b(1), states that "If any light of the anticollision light system fails, flight may be continued to a point where repair or replacement can be made." Nuff said?

OBSERVATION: UH-1 and OH-58 aircraft are being continued in service with raschel knit seat covers which have exceeded their life expectancy.

POSITION: Raschel knit seat covers in UH-1 and OH-58 aircraft have a life expectancy of 24 months. If you can't replace the covers at that time, the aircraft is grounded. Holes and tears in these cushions ground the aircraft, too. References TM 55-1500-204-25/1, par. 3-310(d), and TM 55-1520-210-20, par. 4-23, AVSCOM General AD 74-32, 312000 Dec 74, which extended the life of raschel knit to 30 months, expired in June 1975.

QUESTION: The current UH-1H fuel tank configuration causes the fuel quantity in the aft cells to be reduced in flight before the two forward cells. This causes changes in aircraft moments as fuel weight is reduced. Because of this characteristic, weight and balance computations for estimated landing conditions cannot be calculated correctly by the instructions in TM 55-405-9 and TM 55-1520-210-10. How can I compute my H model's weight and balance?

POSITION: The following change will appear in a future revision to paragraph 12-6t, page 12-26, of the UH-1D/H Operators Manual:

Reference 17—Estimate and enter the weight of fuel which will be expended before landing in reference 17. Compute the moment of expended fuel as follows:

- a. Determine moment for estimated fuel on board at landing.
- b. Subtract this moment from moment established for takeoff fuel in reference 9.
- c. Enter the difference as moment in reference 17.

A production date for the new manual has not been set, so until you get the finished product in hand, use the above procedure.

AR 95-1 ETA

Draft AR 95-1 is now being readied for its final DA review and should be in your hands in May 1976. Prior to its publication, we will give you a peek at some of the key changes. At this point, we wish to express our appreciation to all units contributing comments on the initial draft. This year's input was particularly well thought out and helpful to the drafters.

DEPUTY FOR STANDARDIZATION					
COMMERCIAL: (205) 255-XXXX ■ AUTOVON: 558-XXXX					
Deputy	COL C. A. Wyllie	2603/3514	Evaluation Division	LTC R. K. Wright	3504/6308
Assistant Deputy	LTC S. H. Hoyem	3514/5411	Publications Division	MAJ P. J. Kelly	6487/6204
Staff Specialist	Mr. Hickman	5411/3589	Analysis Division	CPT J. L. Chandler	2415/2402
Admin Officer	CPT T. R. Pevey	5411/3589	Safety Officer	CW4 L. D. Johnson	3617/6204

DEPARTMENT OF THE ARMY
UNITED STATES ARMY
AGENCY FOR AVIATION SAFETY
FORT RUCKER, ALABAMA 36362

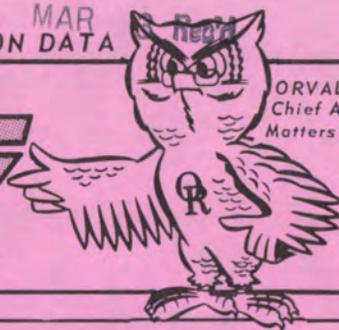
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FLIGHT FAX



ORVAL RIGHT
Chief Advisor on
Matters of Aviation

A USAAAVS PUBLICATION

VOL. 4, NO. 18 ■ 25 FEBRUARY 1976

mishaps for the period of 6-12 FEBRUARY 1976

Adapted from Air Force Systems Command Safety Management Newsletter

Pulling Circuit Breakers

It is a well-known fact that the best of business pilots "fly by the book." And to many, that book—the ops manual, company regs, FARs, ATC and approach procedures, etc.—has become a mighty thick compendium. Indeed its mass of rules and their legal implications create an almost rigid environment in which the flight crew must operate. We are told that the reason for this is safety. It leaves the biz pilot scant room for creativity.

Psychologists say that in the selection process, the best pilot candidates come from that group which has little penchant for creativity. If any creativity does exist, it is normally squelched during training.

"Do it the way the book says" is a constant admonition. Recurrent training and the checkrides reinforce this concept. They drive home the point that it is best not to rely on the creative aspect of judgment to solve critical situations in flight. In short, fly by the book—as you've been trained.

This is not a condemnation of "headwork" while flying. It is expected that we will apply previous training and experience to execute continual safe flight, the routine and expected operation of our profession. The pro never experiments while flying, particularly with passengers aboard. He never permits his technical curiosity to get the better of him while in the air. He doesn't mess with things he's not thoroughly familiar with. He believes: "If you don't know what it does, don't fool with it."

But such was not the case revealed in a recent accident report issued by the National Transportation Safety Board. A DC-10 experienced an overspeed condition in its No. 3 engine while cruising at 39,000 feet near Albuquerque. This caused the fan section of the CF6-6D turbo-fan engine to disintegrate, spewing fragments into the fuselage and into the Nos. 1 and 2 engine nacelles and the right wing area. The resultant damage caused decompression of the cabin and loss of certain electrical and hydraulic services.

The captain explained: "The flight engineer and I were speculating about where the automatic throttle system gets its various inputs—whether, for example,

from the tachometer itself, the N2 tachometer, or from the tachometer generator . . . I allowed the airspeed to stabilize at the preselected 257 knots IAS and then selectively pulled the N1 circuit breakers on the Nos. 1, 2, and 3 engines . . . I merely wanted to check and see if the throttle followed the bug speed . . . I reached in and disengaged the auto-throttles and turned to the engineer and remarked to him that I was satisfied with this functioning—and at that point the explosion took place."

In its findings, the NTSB observed that the captain and flight crew were, in effect, performing an *untested failure analysis* on the autothrottle system. The safety board stressed that the operator and the pilot-in-command should be fully cognizant of their operational responsibilities to conduct the flight in a professional manner and not to conduct experiments with aircraft systems in which they have not received specific training or instruction. In other words, *if you don't know what it does, don't fool with it!*

ADDITIONAL SKILL IDENTIFIER (ASI)

"A2, Aviation Safety" Established for NCOs

Effective 1 March 1976, graduates of USAAAVS' Aviation Accident Prevention Management Course for NCOs (AAPMC) conducted at Fort Rucker, AL, will be awarded the Additional Skill Identifier "A2, Aviation Safety," per Change 5 to AR 611-201.

The ASI pertains directly to personnel possessing MOS 67N40, 67U40, 67V40, 67Y40, 67Z50 and 71P series MOS.

Personnel in the above MOS who have attended USAAAVS' two-week resident AAPMC since 17 July 1973 are encouraged to have their records annotated by presenting their diploma to their respective personnel activities.

Commanders are reminded that the AAPMC is available to all personnel possessing an aviation-related MOS. Remember, the 67N20 you have today may be your 67N40 tomorrow.

FIXED WING BRANCH

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

0 Accidents, 0 Fatalities, 0 Injuries, Estimated Costs: \$1,272

OV-1

1 Incident ■ While taxiing to runup area, right main tire sidewall ruptured, damaging wheel housing and brake assembly.

U-21

1 Precautionary Landing ■ During engine runup prior to takeoff, No. 2 engine chip detector light came on. Engine was secured and aircraft towed to line. Caused by internal engine failure.

U-8

1 Precautionary Landing ■ Approximately 3 miles on final approach aircraft yawed to right. Pilot assumed partial or complete failure of No. 2 engine. Approach was completed with minimum power on No. 2 engine. Engine was secured after touchdown. Suspect induction icing. Temperature had risen 18° F. in 3 hours to 35° F. and dewpoint was 25° F. with high moisture content. □

MAINTENANCE MISHAPS

MSG B. R. Bailey ■ 558-3901

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

OH-58

1 Precautionary Landing ■ After takeoff, pilot noticed high frequency vibration in tail rotor pedals. Tail rotor gearbox was overfilled at one time, allowing oil to flow down control tube to bearing nut liner.

YC-7

1 Precautionary Landing ■ No. 2 propeller governor seal failed during maintenance test flight. Maintenance had not properly torqued propeller governor. Propeller governor was retorqued and aircraft released for flight.

T-42

1 Precautionary Landing ■ After takeoff, fuel began siphoning out of right main tank around fuel cap. Crew chief had adjusted fuel cap to make it easier to get on and off. Adjustment was too great, preventing proper seating of cap.

SAFETY HAZARD

DA Message 112115Z Feb 76, subject: Safety Hazard

A. FFC 261, 221615Z Dec 75, same subject.

Ref a cited below for dissemination to all subordinate safety officers concerned. In reply refer to FFC 261. Electrician's knife, NSN 5110-00-240-5943, may be safety hazard. Screwdriver blade may break or screwdriver blade lock may fail, causing injury to user. These knives were purchased from Imperial Knife Co, GSA contract GS-00S-30462, shipped UR activity September 74 through February 75, and identified by vendor's name marked on cutting blade of knife. Remove all knives this vendor and contract from service and report to GSA shipping region (when value per requisition exceeds \$10) on SF 364 (civilians) or SF 368 (military) including original requisition number. Dispose of all knives IAW local procedures. Deadline for reporting to GSA April 1, 1976.

MESSAGE RECEIVED

Maintenance Advisory Message (122140Z Feb 76) for AH-1/UH-1, subject: Daily Inspection of the Tail Rotor Drive Shaft Hanger Assemblies (AH-1-76-4/UH-1-76-3). If deficiencies are found as cited in this message, recommend an EIR be submitted in accordance with AR 38-750. □

AVIATION-RELATED GROUND MISHAPS

William P. Christian ■ 558-4202

5 Mishaps, 0 Fatalities, 0 Injuries, Estimated Costs: \$43,817

UH-1

■ During windstorm, portable maintenance tent was blown across ramp, coming to rest against UH-1 and causing damage to left elevator, tail rotor drive shaft, and cover. Action taken was to stress to all concerned that aircraft would be parked in hangars during adverse weather. An OHR was also submitted concerning loose objects around aircraft ramps. ■ POL driver was attempting to back truck (M49c, 2½ ton) into position to refuel aircraft during darkness when truck struck and damaged right elevator. Truck driver

was not using ground guide. Corrective action taken was to have all vehicle drivers to use backup guides and attend driver safety classes. Operator's license was suspended. ■ While transporting UH-1, 90° gearbox mounted on vertical fin of helicopter hit overhead bridge structure, shearing off gearbox. In the future all transportation of oversized loads will be prearranged by transportation officer.

AH-1 and OH-58

■ Maintenance tent was blown over by 31-knot wind with gusts reported at 60 knots. Tent rolled down ramp, striking AH-1G and OH-58. OH-58 forward main rotor blade was damaged as tent continued to roll. It came to rest on top of AH-1G. Both main rotor blades and canopy were damaged on AH-1G. Actions taken were to insure that if tents are going to be set up in soft ground a trench should be dug along the sides of the tent where a large pole can be buried so the tent will remain secured during high winds.

CH-47

■ A ground accident occurred when an aircraft electrician exceeded his authority in attempting to operationally check the ignition system after troubleshooting the engine starting and ignition circuit. After completion of his repair, he elected to "motor" the engine through to insure the system was operational. The engine ignited, causing the rotors to turn. Blade tiedowns were untied but not removed and their whipping action damaged the helicopter.

RECAP OF AVSCOM MESSAGES

AVSCOM Message 111012Z Jul 75, subject: Safety-of-Flight and Worldwide Technical Messages.

Following is a list of all AIG 8881 addressed messages transmitted by AVSCOM (AMSAV-F) from 1 January through 31 December 1975 for the OH-58.

OH-58-75-1	(072024Z Feb 75)	Aircraft Ignition Security Device
OH-58-75-2	(121800Z Mar 75)	Main Driveshaft Cover
OH-58-75-3	(241958Z Apr 75)	Error in TM 55-1520-228-10, change 3
OH-58-75-4	(171950Z Jul 75)	Landing Light Wires
OH-58-75-5	(111920Z Aug 75)	Fuel Shutoff Valve
OH-58-75-6	(122050Z Aug 75)	Inspection of Aluminum Link Assembly
OH-58-75-7	(172030Z Sep 75)	Collective Control Tube Assembly
OH-58-75-8	(071350Z Oct 75)	Tailboom Inspection Panel
OH-58-75-9	(161750Z Oct 75)	Mast Bearing Assembly
OH-58-75-10	(101745Z Dec 75)	Center Post Cover Screws
OH-58-75-11	(121915Z Dec 75)	Tail Rotor Gearbox

Other aircraft safety-of-flight and worldwide technical messages will be published in future issues of FLIGHTFAX.

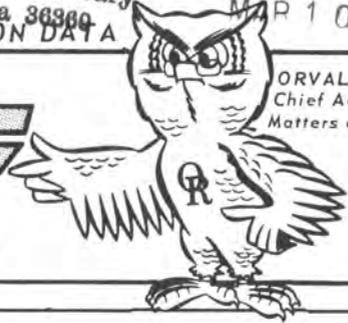
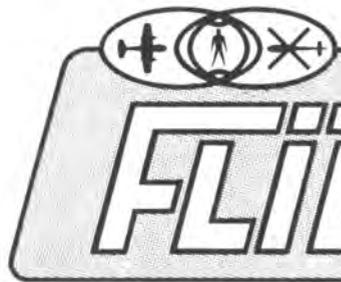
MAKE AVIATION SAFETY THE SPIRIT OF '76

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A USAAAVS PUBLICATION

VOL. 4, NO. 19 ■ 3 MARCH 1976

mishaps for the period of 13-19 FEB 1976

GOOD IDEA Bumper Pads Reduce Injuries

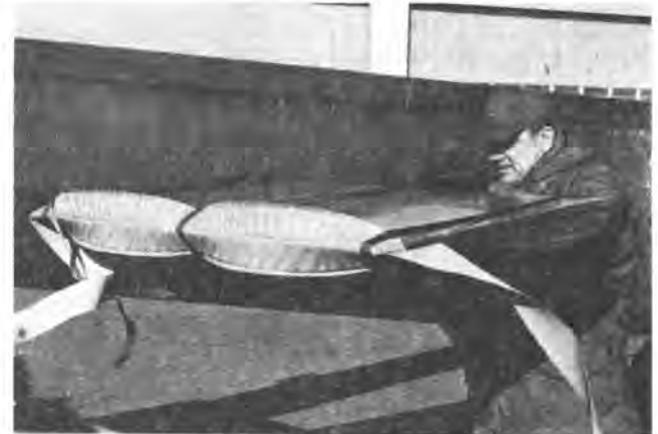
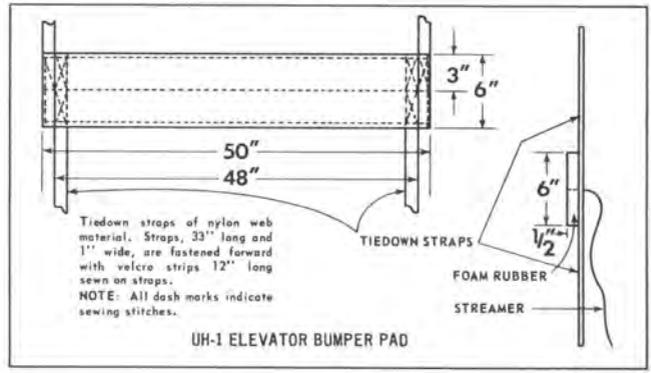
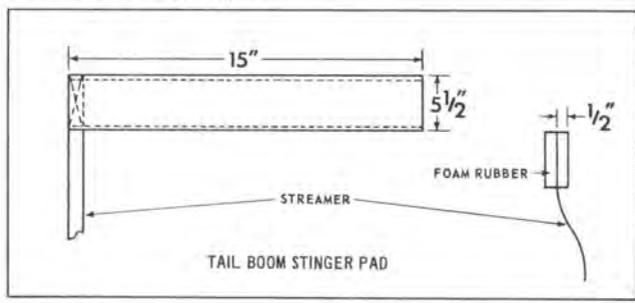
Maintenance activities are encouraged to procure preventive bumper pads for all aircraft with protruding devices that could cause personnel injury. The UH-1 bumper pads described here will help prevent serious bodily injury to personnel working or walking in the area of the elevators and tail boom stinger. The bumper pads were an idea of Joseph J. Hernandez, 198th Aviation Company, Delaware ARNG.

The bumper pads are constructed of a bright red vinyl material with a foam rubber inner pad sewn to the material. The elevator bumper pad runs the entire length of the elevator trailing edge, covering both corners. Streamers approximately 18 inches long are attached to both corners of the pads as further warning signs.

The tail boom bumper pad is constructed in the form of a boot approximately 12 inches in length, which slides and fits over the stinger. This pad also has a streamer approximately 18 inches long attached to the end.

The bright red vinyl material is in the GSA catalog. The NSN is 8305-00-935-0584. The foam rubber to be used is 1 inch thick and can be locally purchased at a cost of less than \$5.00 per section of 4'x7'. The construction of the pads can be accomplished by the fabric repair section of maintenance shops or locally procured.

The cost is minimal compared to the time saved in man-hours lost through personal injury resulting from the dangers the unprotected surfaces present. The pads are not mandatory but would promote safety for personnel working in the more crowded conditions in the maintenance hangar. However, no amount of padding will protect the individual who is careless and inattentive while on or off the job.



AN OUNCE OF PREVENTION?

TM 55-1520-210-PMS, C2, dated 22 September 1975 (URGENT), establishes a *daily, intermediate, and periodic* requirement to inspect UH-1D/H main rotor blades as follows:

Sequence number 4.3. 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.

This photo of a UH-1 main rotor blade shows what can happen to an aircraft flying at 2,000 feet and 90 knots when a severe vertical vibration develops. This situation may be avoided, however, if the above inspection is accomplished daily.



CORRECTION

Reference Maintenance Advisory Message 122140Z Feb 76 listed on page 3 of FLIGHTFAX, Vol. 4, No. 18, dated 25 February 1976. AR 38-750 should have read TM 38-750.

From the Canadian Defense Forces Air Command Aircraft Accident Prevention Safety Officers Folder

REAL EMERGENCY?

A recent MOT report brought to light a problem which could have hazardous results:

"When flying in close proximity to a military heavy-radar site, a 'Bell 206B' (similar to a Kiowa) helicopter experienced indications of engine and electrical problems. It was flying within one mile of the radiated signal from a radar transmitter. These problems included illumination of the low rotor rpm light, sounding of the engine-out warning, operation of the automatic engine relight system, zero indication on the turbine outlet temperature gauge, the chip light 'ON,' and a VHF radio deficiency."

According to the report, these and similar emergency indications, such as infra-red fire detection signals, may also occur in other types of helicopters, if they are flying in close proximity to radar transmitters. Before taking unnecessary emergency action, ensure that the indicated emergency actually exists.

However, in case of doubt, follow through with the recommended emergency procedure.

NOE FLIGHT FOLLOWING

FM 1-1, Terrain Flying, page 49, emphasizes the commander's responsibility for safety and control of NOE training as follows:

Safety and control (S&C) aircraft should be used when several aircraft are training simultaneously to: control training areas, insure traffic separation, create tactical situations, and provide rapid response in emergencies. The S&C aircraft should operate at an altitude so as not to interfere with the training aircraft. If the commander chooses not to employ an S&C aircraft, he should develop a "buddy system" to be used between training aircraft to help insure separation and provide rapid response.

The risks associated with terrain flying can be minimized with adequate supervision, control, and adherence to flight standardization procedures.

UNITED STATES ARMY AGENCY FOR AVIATION SAFETY ■ FORT RUCKER, ALABAMA 36362

Prepared from information compiled by the
Directorate for Aircraft Accident Analysis
and Investigation
Lieutenant Colonel Curtis M. Sanders, Director

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COMMERCIAL: 255-XXXX AUTOVON: 558-XXXX
Commander/Deputy Commander 3410/3819
For Assistance in Locating Proper Directorate 6510
Aircraft Accident Analysis and Investigation 3913/4202
Technical Research and Applications 6404/6410
Plans, Operations, and Education 4812/6510
Management Information System 4200/2920
Publications and Graphics Division 6385/4218
Medical Division 2091/4806
After-duty tape recording of incoming calls to be returned the following day (hours: 1615 to 0730) 6510

UTILITY/ATTACK BRANCH

MAJ William C. Childree, Chief ■ 558-4198

2 Accidents, 0 Fatalities, 7 Injuries, Estimated Costs: \$440,171

UH-1

2 Accidents ■ Aircraft landed to pick up passengers and on takeoff went IMC in dust. Aircraft crashed, resulting in four injuries. ■ Four aircraft were inserting troops in LZ. Main rotor blades of two aircraft meshed during hover before takeoff. Section of main rotor blade injured one of the troops on the ground.

6 Incidents ■ Aircraft was at hover when main rotor hit tree. ■ During landing, main rotor hit small bush. ■ Main rotor blade was damaged when passenger exited aircraft, allowing radio antenna to strike blades. ■ Aircraft was being guided by crew chief while relocating in tactical landing zone to gain concealment in tree line. Main rotor struck tree. ■ At stationary hover rotor vortices caused small tree to hit main rotor. ■ Large bird hit aircraft, destroying pilot's windshield and injuring one pilot and one passenger.

1 Forced Landing ■ Aircraft developed severe vertical vibration. Postflight inspection revealed 8-inch skin separation at spar rear edge of main rotor blade (see item on page 2).

8 Precautionary Landings—following are selected briefs ■ Transmission oil pressure light came on. Caused by failure of oil filter gasket. ■ During NOE high hover check, loud squeal was heard coming from collective servo area. Postflight inspection revealed air in hydraulic system. ■ Engine oil temperature increased to 150° during final approach. Caused by engine thermal flow valve failure.

AH-1

1 Precautionary Landing ■ Engine oil pressure dropped during NOE operations. Postflight inspection revealed engine oil pressure gauge failure. □

LOH/CARGO BRANCH

MAJ Robert P. Judson, Chief ■ 558-4202

0 Accidents, 0 Fatalities, 0 Injuries, Estimated Costs: \$7,060

OH-58

3 Incidents ■ Aircraft developed severe lateral vibration and pilot entered power-on autorotation, landing with no further damage. Aircraft lost one main rotor tip cap due to failure of bonding material and corrosion. ■ During postflight, creases were found on bottom of both main rotor blades. Tree strike had occurred during confined area operations. ■ Aircraft was being hovered backwards with crewmember as ground guide. Main rotor blade struck branch of tree, causing seam to separate on trailing edge of blade.

4 Precautionary Landings ■ Twenty-two minutes into flight, fuel filter caution light came on. Fuel filter was clogged. ■ As collective pitch was increased to bring aircraft to hover, TOT increased to 840°, N₁ remained at 96 percent, and N₂ decreased to 96 percent. Air duct segment came loose from front of firewall and restricted air inlet of compressor. ■ Tail rotor gearbox chip detector warning light came on. Large chips were found on chip detector. ■ During flight, N₂ rpm decreased to 95 percent. Linear actuator had no effect. Caused by governor failure.

TH-55

1 Precautionary Landing ■ IP heard loud, strange noise coming from area of engine. Inspection revealed failure of heater blower motor.

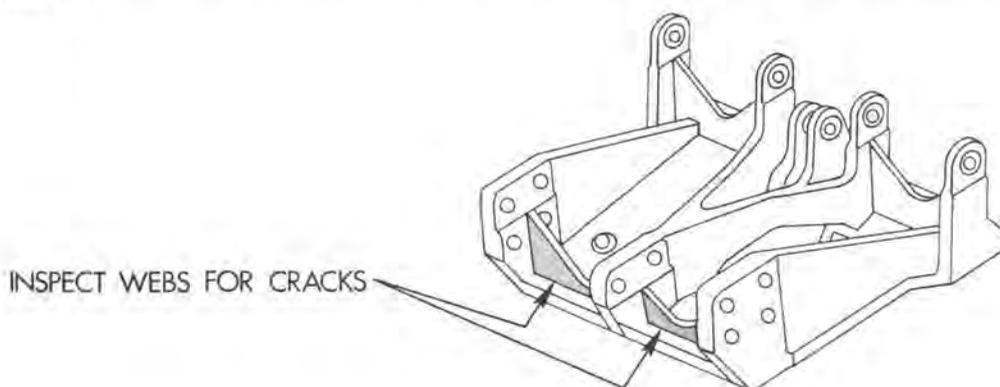
CH-47

3 Precautionary Landings ■ Transmission chip detector light came on. Inspection revealed bronze particles in aft transmission oil. Transmission was changed. ■ Utility hydraulic pressure dropped to 2200 psi during cruise flight, and smoke was seen coming from hydraulic oil cooler fan assembly. Hydraulic oil cooler motor failed. ■ Medium and high-frequency vibrations were felt in airframe on takeoff. Cause unknown. Vibrations could not be duplicated.

OH-58 SERVO ACTUATOR SUPPORT ASSEMBLY

TM 55-1520-228-20 PMP has a change forthcoming which will require an inspection of the hydraulic servo actuator support assembly, P/N 206-001-520-5, for cracks in forward web. AVSCOM will require an inspection of this area during the periodic inspection. The recommended method for the inspections is to visually inspect, using a five-power magnifying glass, the two forward webs of the support assembly

for cracks. All cracks reported in the support assembly have originated in the top edge of the forward web (see illustration). If a crack is found, remove and replace the support assembly, notify AVSCOM, and submit an EIR.



FIXED WING BRANCH

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

1 Accident, 0 Fatalities, 0 Injuries, Estimated Costs: \$6,000

T-42

1 Accident ■ Aircraft taxied forward to check brakes, and turned left to taxi to runway. Right main gear collapsed, damaging prop, gear door, and outboard wing section. Cause is under investigation.

U-8

1 Incident ■ Aircraft was taxied off hardstand and during 180° turn, propeller struck snowbank. Propeller assembly was damaged by small rocks.

U-21

4 Precautionary Landings ■ After engine shutdown during test flight, engine could not be restarted. Ignitor circuit breaker was corroded. ■ Clicking noise was heard as gear was coming up. Gear handle lights stayed on. After recycling, neither the up nor down indication could be obtained. Manual extension was used and tower confirmed gear appeared down. Landing was uneventful. Splines on gear motor and spur gear on gearbox were sheared. ■ While taxiing after completion of flight, crew noted flaps were coming up very slowly. Aircraft began filling with smoke and flap motor circuit breaker popped. Flap drive motor assembly had failed. ■ Flaps were lowered to full down and fuel fumes were detected during flight. Heater was turned off and fumes allowed to dissipate. Flaps were again lowered and fumes were detected again. Aircraft returned for landing. Crossover fuel line was inadvertently bent downward, making contact with rudder control cable which wore a small hole in fuel line.

OV-1

1 Precautionary Landing ■ No. 1 engine failed on takeoff and landing was completed. Engine compressor blade failed and was ingested by engine. □

MAINTENANCE MISHAPS

MSG B. R. Bailey ■ 558-3901

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

AH-1

1 Forced Landing ■ Aircraft had control problems during gunrun. Suspect problem was caused by contaminated hydraulic system.

1 Precautionary Landing ■ During cruise flight at 1,300 feet, master caution and chip detector warning lights illuminated. Check of chip detector quadrant revealed warning was for 90° gearbox. Pilot landed in open field. Postflight inspection revealed fuzz on chip plug. Aircraft had a history of chip detector illumination on 90° gearbox. Gearbox was replaced. Input quill was improperly shimmed during assembly at depot. WELL DONE to the maintenance section of the 35th Atk Hel Co (Cobra/TOW), Ft. Knox, KY.

CH-47

2 Precautionary Landings ■ Crew chief noticed hydraulic fluid leaking from bottom fitting on utility hydraulic pump during flight. Locknut on pump tube fitting had been improperly torqued. ■ High-frequency

vibration was heard from area of combining transmission. Caused by improperly torqued engine mount bolt.

OV-1

1 Incident ■ During climbout, left entrance hatch blew open, with handle remaining locked. Aircraft landed and copilot readjusted locking device and secured hatch. Flight was then continued. Cotter pin (NSN 5315-00-234-1856) became jammed in gears of hatch locking mechanism, allowing gears to slip.

U-3

1 Precautionary Landing ■ After takeoff, rpm controls were pulled back to reduce rpm. No. 2 propeller did not respond and rpm stayed at approximately 2400. Lock nut (MS 21044N3) came off bolt AN3-20A on propeller control assembly, causing bolt to fall out. Bolt and nut were replaced, and aircraft was released for flight. Maintenance suspected fiber lock nut had been reused.

MESSAGES RECEIVED

■ AVSCOM Maintenance Advisory Message (202030Z Feb 1976), subject: Proper Installation of Main Rotor Retention Bolt Recessed Washer, P/N 204-011-152-1, on UH-1 and AH-1 series helicopters (UH-1-76-5 and AH-1-76-5).

■ AVSCOM Maintenance Advisory Message (191850Z Feb 1976), subject: Low Reflective IR Paint (MIL-L-46159) (Gen-75-08). Flight test results indicate that rotor blades painted with subject paint may cause general performance degradation and operational safety problems. For further data concerning this message, contact Mr. F. Heacock, AVSCOM, (DRSAV-EQA), AUTOVON 698-5826.

■ Letter, AVSCOM (AMSAV-FET), 12 Feb 76, subject: "Mixing of Lubricating Oil, MIL-L-7808, and Hydraulic Oils MIL-H-5606 or MIL-H-83282A in CH-47 Transmissions." This letter provides maintenance actions required whenever transmission lubrication systems have been contaminated with MIL-H-5606 or MIL-H-83282A hydraulic fluids. TM 55-1520-209-20-1 and TM 55-1520-227-20-1 are being changed to reflect these instructions. For additional information, call Mr. Caesar, AVSCOM, AUTOVON 698-2326.

■ Letter AVSCOM (DRSAV-FET(CH-54)), 9 Feb 76, subject: "CH-54 Helicopter: Torquemeter, Engine to Main Gearbox Shaft and Gear Assy, P/N 6435-20564-042, Maintenance Procedures." This letter provides inspection criteria for this assembly. TM's 55-1520-217-20-2-1 and 55-1520-217-34-2-1 will be revised to reflect this inspection. For additional information, call Mr. Mergel, AVSCOM, AUTOVON 698-2371.

RECAP OF AVSCOM MESSAGES

AVSCOM Messages 111912Z Jul 75 and 092145Z Jan 76, subject: Safety-of-Flight and Worldwide Technical Messages. Following is a list of all AIG 8881 addressed messages transmitted by AVSCOM (AMSAV-F) from 1 Jan through 31 Dec 75 for the CH-47.

CH-47-75-1	(162130Z Jan 75)	One-Time Inspection
CH-47-75-2	(172125Z Jan 75)	Advisory Technical CH-47C
CH-47-75-3	(242025Z Feb 75)	Crashworthy Fuel System
CH-47-75-4	(281345Z Feb 75)	Reduced Inspection Requirements
CH-47-75-5	(121830Z Mar 75)	One-Time Inspection on Forward and Aft Trans.
CH-47-75-6	(312055Z Mar 75)	Hydraulic System Relief Valve
CH-47-75-7	(092013Z Apr 75)	T55-L-11A Engine
CH-47-75-7	(101900Z Apr 75)	T55-L-11A Engine
CH-47-75-8	(171930Z Apr 75)	Crashworthy Fuel System
CH-47-75-9	(232000Z Apr 75)	Insp Drive Shaft Adapters
CH-47-75-10	(201825Z May 75)	Droop Stop Installations
CH-47-75-11	(221900Z May 75)	Insp Swiveling Dual Actuating Cylinder Installation
CH-47-75-12	(121630Z Jun 75)	Insp Fuel Tank Access Door Electrical Connection
CH-47-75-13	(171555Z Jun 75)	T55-L-11A Engines
CH-47-75-14	(262300Z Jun 75)	Inspection for FOD and Compressor Blade Pin
CH-47-75-15	(021650Z Jun 75)	Inspection for FOD and Compressor Blade Pin
CH-47-75-16	(081815Z Sep 75)	Sync Drive Shaft System
CH-47-75-17	(231500Z Sep 75)	Rotor Blade Corrosion Inspection
CH-47-75-18	(241740Z Sep 75)	SOF Inspection of Engine Mechanical Transmission
CH-47-75-19	(221330Z Oct 75)	Rotor Head Assembly
CH-47-75-20	(291615Z Oct 75)	Crashworthy Fuel System
CH-47-75-21	(252110Z Nov 75)	T55-L-7C Engine

Other aircraft safety-of-flight and worldwide technical messages will be published in future issues.

WANTED

FOR CORRECTION



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

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

"FOD" MURPHY

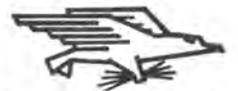
REWARD

BETTER MAINTENANCE AND SAFER FLYING

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

DEPARTMENT OF THE ARMY
UNITED STATES ARMY
AGENCY FOR AVIATION SAFETY
FORT RUCKER, ALABAMA 36362

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DOD-314

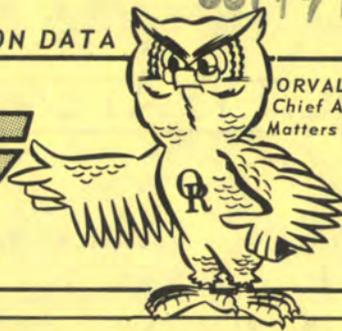
FLIGHTFAX/13-19 FEB 1976

OCT 17 Rec'd



ARMY AIRCRAFT MISHAP PREVENTION DATA

FLIGHT FAX



ORVAL RIGHT
Chief Advisor on
Matters of Aviation

A USAAVVS PUBLICATION

VOL. 4, NO. 2 ■ 15 OCTOBER 1975

mishaps for the period of 26 SEP-2 OCT 1975



US Army Aviation Training Library
Fort Rucker, Alabama 36360

THE HUDDLE

A funny thing happened at the football stadium today! After taking the opening kick-off, the home team went into a huddle as usual to get information from the quarterback and to encourage one another. Then came the unusual: The team did not break out of the huddle to move into action! Soon the yellow flag was dropped and the referee stepped off a five-yard penalty for delay of the game.

What happened (or did not happen) next will be discussed for years! The team still did not leave the huddle! They seemed to be talking among themselves and encouraging one another, but it appeared they had forgotten that the object of the game is to move to the line and carry the ball across the goal. Again the yellow flag went down! Another five-yard penalty! The crowd howled!

At this point the team was overheard talking about ways to improve the appearance of the huddle. As the crowd watched with amusement, the team changed the shape of the huddle from a circle to a triangle and then to a square. But they never left the huddle to move into action. Their coach watched them with a hurt look on his face.

Then the tailback led several players out of the huddle to the line. They wanted to get in the game, but their teammates would not join them. So they returned to the huddle to try to persuade the team to move toward the goal. The coach, now thoroughly exasperated, sent in another quarterback. And the talking continued.

Another yellow flag and another penalty. The amusement of the crowd gave way to anger. First they pleaded, then booed until they were bored. But the team kept talking in the huddle and patting each other on the back.

Then came the unbelievable conclusion. The referee ruled that the home team had forfeited the game, and he awarded the victory to its opponent. The crowd filed out of the stands, but the home team, still talking, did not seem to notice that the stadium was empty.

What has this got to do with Army aviation? Plenty. Some safety programs are just like this team—a lot of talk but little action. And some commanders are just like this coach. They do the obvious—send in another quarterback (replace the company commander)—when their safety team doesn't work. Then they stay on the sidelines and watch instead of taking the positive action needed to get things going.

In any topflight aviation unit, the supervisor supplies the leadership and never lets up. The result is a team effort that puts points on the scoreboard—another way of saying the accident rate goes down.

SUPERVISION + SAFETY = A WINNING TEAM

SURVIVAL KNIFE

Survival Knife, NSN 5110-00-526-8740, may be received in the field soon without the familiar "tit" on the screwdriver/can-opener blade. As you are all well aware, the "tit" serves as an aid to opening this particular blade since the fulcrum is such that the blade is hard to open.

The Aviation Life Support System Manager at USAAVSCOM is aware of this problem and is taking action to have the "tit" incorporated into the procurement specifications and drawings for future procurement purposes.

UTILITY/ATTACK

Fatalities: 0 ■ Accidents: 1
Injuries: 0 ■ Estimated Costs: \$49,804

BRANCH

■ CPT James M. Klina, Jr., Chief
SP6 Roland L. Allen, Jr.
558-4198

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

UH-1

3 INCIDENTS ■ During practice autorotation touchdown, tail skid made ground contact and flexed enough to allow both tail rotor blades to strike ground. Damage was discovered on postflight inspection. ■ While aircraft was being repositioned at field site, main rotor blades struck tree approximately 16 feet high and 2 inches in diameter. No mention of a ground guide being used. ■ Aircraft yawed approximately 70° to right while hovering forward. Pilot executed hovering autorotation to 12°-15° slope. One skid was damaged. WELL DONE to CW2 Marvin G. Ballard of the 243rd Aviation Company, Fort Lewis, WA.

1 FORCED LANDING ■ Engine compressor stalled and aircraft yawed on final approach. Reduced power did not stop stall. Pilot elected to autorotate to runway. Cause of compressor stall not reported. (USAR)

21 PRECAUTIONARY LANDINGS—following are selected briefs ■ Engine compressor stalled while aircraft was in cruise flight. Caused by bleed band actuator sticking. ■ Crew noticed liquid on windshield. After landing, smoke and fumes were coming from battery compartment. Caused by internal failure of battery. ■ Pedals became stiff but segment light did not come on. Hydraulic switch was turned off and aircraft landed on runway. Maintenance could not duplicate problem. ■ Aircraft lost hydraulics during hover. Caused by internal failure of right lateral cyclic irreversible valve. (ARNG) ■ Aircraft encountered collective bounce when it was picked up to hover. Caused by failure of collective friction collar assembly. ■ During approach to ridgeline two loud bangs were heard from engine, followed by yaw of aircraft. Cause of compressor stall was not reported. ■ Transmission oil pressure caution light came on. Caused by loose cannon plug. ■ Crew noticed odor of burning electrical insulation. Power transformer of directional gyro overheated. ■ Engine rpm increased to 6775. Pilot landed, using manual throttle control. Caused by malfunction of overspeed governor. ■ Four precautionary landings were made because of chip detector light illuminations. One reported metal sliver on magnetic plug and one had fuzz on plug. The other two were caused by improper installation.

AH-1

1 ACCIDENT ■ During touchdown from standard autorotation, tail skid, tail boom, and one tail rotor blade struck ground. Additional damage was sustained when one tail rotor blade flexed into tail rotor drive shaft cover.

2 PRECAUTIONARY LANDINGS ■ Engine oil pressure caution light came on and oil pressure gauge indication dropped to zero. Engine oil pressure switch failed, causing loss of engine oil. ■ Loose wire in aircraft caution panel caused master caution light to illuminate. □

SUPERVISION + SAFETY = A WINNING TEAM

LOSS OF RESOURCES FROM THIS WEEK'S MISHAPS

FATALITIES: 0
INJURIES: 0
AIRCRAFT LOSSES: 0
ESTIMATED COSTS: \$55,462

UNITED STATES ARMY AGENCY FOR AVIATION SAFETY
FORT RUCKER, ALABAMA 36362
AUTOVON
Commander/Deputy Commander 558-3410/3819
For Assistance in Locating Proper Directorate 558-6510
Aircraft Accident Analysis and Investigation 558-3913/4202
Technical Research and Applications 558-6404/6410
Plans, Operations, and Education 558-4812/6510
Management Information System 558-4200/2920
Publications and 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.

LOH/CARGO

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

BRANCH

■ MAJ Robert P. Judson, Chief
SFC D. T. Farrar/SFC R. G. Farris
558-4202

One incident and twenty-five precautionary landings were reported.

OH-58

1 INCIDENT ■ Hard landing occurred during practice touchdown autorotation.

14 PRECAUTIONARY LANDINGS ■ Tail rotor chip detector lights of five aircraft came on. Plugs on two were cleaned and aircraft were released. One gearbox was put on a special 10-hour oil sampling. One had hairlike metal particles on plug and EIR was submitted. The fifth had an electrical problem. ■ Two main transmission chip detector light illuminations were reported. Both oil samples proved negative and aircraft were released. ■ Hydraulic pressure light came on due to malfunction of switch, P/N 206-076-365-1 (note "OH-58 Hydraulic Pressure Switch" article in FLIGHTFAX, 24 Sep 75, Vol. 3, No. 48). ■ N2 rpm dropped to 90% from 103% during hover. Suspect governor malfunction. ■ Cyclic binding and feedback were noted during authorized supervised NOE flight. Caused by malfunction of hydraulic pump. EIR was submitted. ■ Pilot smelled smoke during hover. Caused by failure of drive shaft seal. EIR was submitted. ■ Main transmission low oil pressure light came on. Caused by switch malfunction. EIR was submitted. ■ Two cases of vibration were reported eight days apart on same aircraft. Vibrations were felt in pedals and airframe, and loud noise was heard with feedback in pedals.

CH-47

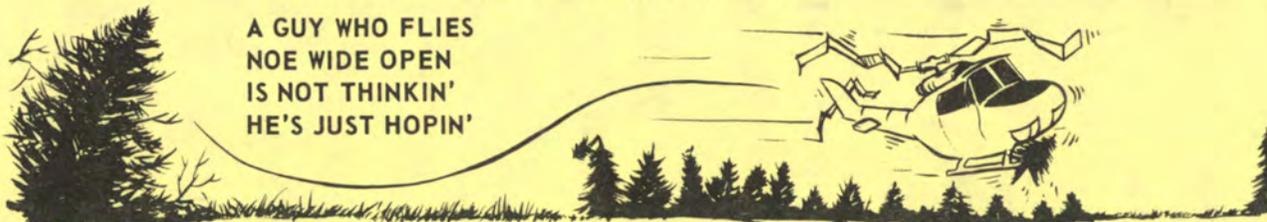
9 PRECAUTIONARY LANDINGS ■ Engine chip detector lights of four aircraft came on. All were attributed to normal wear. ■ Excessive hydraulic fluid leak was discovered at No. 2 flight boost quick disconnect test fitting. Caused by deteriorated O-ring seal. ■ No. 2 engine normal and emergency beep trim failed during flight. N2 actuator failed. ■ Pilot noticed oil leaking from forward transmission during flight. Caused by loose oil filler cap. ■ Crew chief smelled smoke in cabin during flight. Caused by overheated battery. Battery failed internally. ■ Crew smelled hydraulic oil fumes during flight. Caused by deterioration of hydraulic pump seal which allowed hydraulic fluid to come in contact with hot components and vaporize.

CH-54

2 PRECAUTIONARY LANDINGS ■ Main transmission chip detector caution light came on during climbout. Caused by excessive metal particles on chip plug. ■ Main transmission chip detector light illuminated. Caused by metal fuzz on chip plug.

THOUGHT FOR THE WEEK

A GUY WHO FLIES
NOE WIDE OPEN
IS NOT THINKIN'
HE'S JUST HOPIN'



FIXED WING

Fatalities: 0 ■ Accidents: 0
Injuries: 0 ■ Estimated Costs: \$658

BRANCH

■ MAJ William G. Daly, Jr., Chief
SFC John M. Terrell
558-3901

Two incidents and nine precautionary landings were reported.

T-42

1 INCIDENT ■ Right wing struck large bird in traffic pattern, damaging wing tip, leading edge, deicing boot, and landing light. *Bird strikes are on the increase. This is the third in 2 weeks. Keep your eyes open and watch for our feathered friends.*

2 PRECAUTIONARY LANDINGS ■ No. 2 engine began running rough during climbout and eventually failed after level-off. Single-engine landing was successful. Main fuel filter had deteriorated and clogged fuel inlet. ■ Gear failed to extend for landing and manual method was employed. Landing gear relay failed.

OV-1

1 PRECAUTIONARY LANDING ■ Left drop tank fuel cap came loose in flight, retained only by chain. Landing was made and cap secured.

T-41

1 PRECAUTIONARY LANDING ■ Engine chip detector light came on. Inspection revealed normal fuzz.

C-7

1 PRECAUTIONARY LANDING ■ Hydraulic pressure was lost. Emergency procedures were followed and gear was lowered manually. Landing was uneventful. Hydraulic hose in wing root failed.

U-21

1 INCIDENT ■ During training flight, excessive braking during landing rollout caused blowout of right main tire. Tire and wheel assembly were changed.

3 PRECAUTIONARY LANDINGS ■ IP noticed fluid bubbling between engine cowling and engine access door during training flight. Engine was secured and landing completed. Fluid was oil from No. 2 prop seal. ■ After detecting burning odor and smoke in cockpit, procedures were executed to locate source. Eventually, it was determined the cigarette lighter had shorted out. ■ Power could not be reduced below 1,000 pounds torque and 92 percent N1 on No. 1 engine for descent. Missed approach was executed when airspeed could not be reduced below 130 knots. Single-engine landing was then completed. Caused by seizure of reversing interconnect linkage rod end bearing.

U-8

1 PRECAUTIONARY LANDING ■ No. 2 engine began running rough during climb. Aircraft returned and plugs were changed. □

MAINTENANCE MISHAPS

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

Two precautionary landings were reported.

UH-1

1 PRECAUTIONARY LANDING ■ During shutdown, 90° gearbox chip detector light came on. Magnetic plug was improperly installed.

AH-1

1 PRECAUTIONARY LANDING ■ Tail rotor gearbox chip detector light came on during shutdown. Magnetic plug was improperly installed. □

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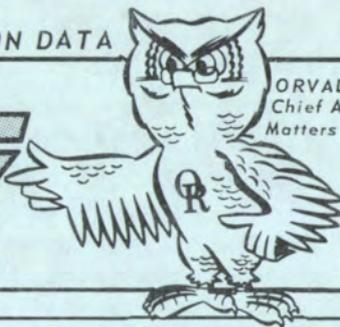
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DOD-314



FLIGHT FAX



ORVAL RIGHT
Chief Advisor on
Matters of Aviation

A USAAVS PUBLICATION

VOL. 4, NO. 20 ■ 10 MARCH 1976

mishaps for the period of 20-26 FEBRUARY 1976

SURVIVAL RADIO OPERATION

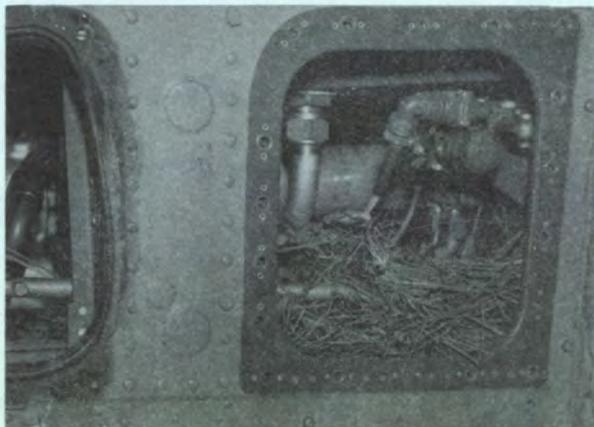
To achieve maximum performance of survival radios, crewmembers must be familiar with their capabilities and limitations. The survival radio best performs with the antenna at a right angle to the ground. So, when using the survival radios, keep the antenna straight up, rather than pointing it at the rescue aircraft. Refer to TM 11-5820-800-12 for additional information on proper operation of survival radios.

The signal pattern of survival radios is line of sight. The distance of transmission is based on maximum battery power as well as the height

of your transmitting location.

Prior to a mission, the battery should be checked with a reliable battery tester. ECOM advises that spare batteries are authorized to be carried. This will be reflected in a future revision to TM 11-5820-800-12. If spare battery is sealed in original packing material, remove and check for maximum power output. Carry extra battery in an inside pocket to keep it warmed by body heat. Cold batteries in radio may be warmed in the same fashion.

Improper storage of batteries decreases the operating life. Refer to SB 11-30 for storage instructions. For more information, contact Aviation Life Support Systems Manager, ATTN: AMSAV-WL, U. S. Army Aviation Systems Command, P. O. Box 209, St. Louis, MO 63166, AUTOVON 698-3241/3291.



This bird nest was discovered in the lower pylon area of a UH-1H during a periodic inspection in October when the access panel was removed. The aircraft had been flown 100 hours since the last periodic inspection, which was in March. It is suspected the nest was constructed during the spring nesting period at some time when the aircraft was not operated daily. The degree of chafing of the tail rotor drive shaft indicated the aircraft had operated a good portion of the 100-hour period with the nest so located. It's that time of year again, so be on the lookout.

NEW SAFETY FILMS

The following films have been released and are now available through Audio-Visual Support Centers:

■ **TF 46-4943**—The Army Oil Analysis Program—Aviation. Discusses requirements for participation in the program. Gives examples of how the program has been able to identify potential failures of engines and other vital oil wetted aircraft systems.

■ **TF 46-4942**—Teardown Analysis—Aviation. Portrays action taken to prepare equipment for shipment and teardown analysis, including actual work at teardown facility. Emphasis is placed on care needed in handling equipment to prevent further damage.

■ **TF 46-4920**—Down to Earth—NOE. Identifies nap-of-the-earth, contour, and low-level flying and points out hazards involved. Emphasis is placed on safety.

UTILITY/ATTACK BRANCH

MAJ William C. Childree, Chief ■ 558-4198

UH-1

2 Accidents, 0 Fatalities, 0 Injuries, Estimated Costs: \$67,235

1 Accident ■ Aircraft was hovered to refueling area using civilian ground guide. Crew attempted to land on uneven ground, causing aircraft to rock fore and aft. It became airborne and then struck ground in right-side-low attitude, damaging skids and underside of aircraft.

7 Incidents ■ Aircraft, scheduled for ferry mission, attempted formation takeoff with another aircraft. During takeoff engine was overtorqued. ■ Aircraft was performing authorized standardization flight. During simulated antitorque failure, aircraft landed hard. ■ Aircraft struck tree during landing. Radio interference caused pilot not to hear crew chief's warning of tree. ■ Damage to tail rotor drive shaft vertical fin cowling was discovered during preflight. Cowling was damaged on previous flight. ■ Main rotor blades struck electrical wires during takeoff. ■ Aircraft was third in a flight of six landing in trail formation with copilot in control. Visual reference with ground was lost at about 3 feet due to blowing dust. Aircraft landed hard. ■ During cruise flight crew heard loud noise and aircraft yawed right 30°. Aircraft landed and inspection revealed tailpipe cowling dropped down and dented shaft cover, which severed tail rotor shaft. WELL DONE to LT David R. Wilder, 6th Aviation Detachment, APO 09221.

15 Precautionary Landings—following are selected briefs ■ Hydraulic caution light came on. Caused by hydraulic pressure switch failure. ■ Aircraft was on downwind at 80 knots when No. 1 hydraulic caution light came on intermittently with intermittent loss of hydraulic power in antitorque pedals. Caused by hydraulic valve assembly failure. ■ Tail rotor chip detector light came on. Caused by metal contamination of 90° gearbox oil. ■ Pilot smelled smoke in aircraft. After landing, inspection revealed auxiliary exhaust heater system disk butterfly valve had malfunctioned. ■ Battery overheated in flight due to relay solenoid failure. ■ Engine oil temperature rose 120° three minutes after takeoff. Caused by thermo-bypass valve malfunction.

AH-1

1 Accident ■ Pilot was conducting autorotation during standardization checkride. Aircraft touched down heels low, then rocked forward and rearward. Main rotor blade severed aft section of tail rotor drive shaft forward of 42° gearbox.

2 Incidents ■ While directing ground personnel to extinguish ground fire, pilot allowed tail rotor to strike small tree. ■ Main rotor blade was found damaged during postflight inspection. Suspect tree strike during NOE flight training.

3 Precautionary Landings ■ Pilot pressed chip detector segment assembly and light remained on. Post-landing inspection revealed water in boot of main rotor transmission chip detector. ■ Main generator failed during takeoff. Emergency procedures did not restore generator. After landing, maintenance could not duplicate problem. Suspect rain caused malfunction and drying of electrical component cured the fault. ■ No. 2 hydraulic caution light illuminated. Caused by hose assembly rupture. □

UNITED STATES ARMY AGENCY FOR AVIATION SAFETY ■ FORT RUCKER, ALABAMA 36362

Prepared from information compiled by the
Directorate for Aircraft Accident Analysis
and Investigation
Lieutenant Colonel Curtis M. Sanders, Director

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COMMERCIAL: 255-XXXX	AUTOVON: 558-XXXX
Commander/Deputy Commander	3410/3819
For Assistance in Locating Proper Directorate	6510
Aircraft Accident Analysis and Investigation	3913/4202
Technical Research and Applications	6404/6410
Plans, Operations, and Education	4812/6510
Management Information System	4200/2920
Publications and Graphics Division	6385/4218
Medical Division	2091/4806
After-duty tape recording of incoming calls to be returned the following day (hours: 1615 to 0730)	6510

0 Accidents, 0 Fatalities, 0 Injuries, Estimated Costs: \$16,365

OH-58

2 Incidents ■ During low-level flight, left chin bubble struck bush, breaking chin bubble. ■ During landing in confined area, main rotor blades struck trees, damaging both rotor blades.

3 Precautionary Landings ■ During runup, ground personnel told pilots of unusual noises, and aircraft was shut down. Spur gear retaining nut was found loose. ■ Engine oil pressure dropped to 100 psi during flight. During landing, pressure dropped to 80 psi. Cause unknown. Engine changed. ■ Transmission chip detector light illuminated during hover. Metal particles were found on magnetic plug. Transmission changed.

TH-55

3 Precautionary Landings ■ Engine oil exceeded upper limits. Caused by failure of oil pressure sending unit. ■ After landing, pilot noted oil leaking from engine oil cooler. Oil cooler had failed. ■ Pilot noticed vibrations during flight, which increased during final approach. Flapping hinge bearing had worn beyond tolerance.

CH-47

1 Incident ■ Pilots noticed extreme vibrations during taxi after running landing. Vibrations continued after all wheels were on the ground and SAS was turned off. On shutdown, aft blades struck No. 1 tunnel cover. Two droop stops were bent below striker blocks and could not engage. Suspect ground resonance. Investigation in progress.

4 Precautionary Landings ■ No. 2 engine fire warning light came on. Caused by moisture in electrical cannon plug. ■ No. 2 engine temperature rose to 880° and torque dropped from 550 psi to 220 psi during flight. No. 2 engine was secured to ground. Egt stabilized at 550°. Caused by failure of power turbine nozzle and turbine disc. ■ High-frequency vibration was felt in flight controls. Crew reported forward transmission was making unusual noises during approach. Internal failure of forward transmission is suspected. ■ Transmission oil pressure caution light came on. No. 1 engine transmission indicated 12 to 13 psi. Pressure transmitter failed.

CH-54

1 Precautionary Landing ■ Aircraft was on base leg at 500 feet agl and 80 knots when pilots heard loud bang, accompanied by jolt. Complete TI and test flight were conducted, and no maintenance discrepancies were found. Noise and jolt were caused by wake turbulence of preceding aircraft.

CAUGHT AGAIN

It's nice to know some of you are reading our publication. Reference FLIGHTFAX, Vol. 4, No. 17, dated 18 Feb 76, under OH-58. In response to several calls, we are forced to admit we can't find a tail rotor trimmer either. Those who are familiar with the OH-58 know that "tail rotor trimmer" should read "tail rotor trunnion." Our writer is undergoing a crash course in OH-58 terminology.

HOW ARE YOUR EMERGENCY PROCEDURES?

FIXED WING BRANCH

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

1 Accident, 0 Fatalities, 0 Injuries, Estimated Costs: \$19,000

OV-1

1 Incident ■ During flight, pilot was attempting to remove navigation charts from right leg pocket of his flight suit. Glove gauntlet caught on drop tank release handle and both drop tanks were jettisoned.

1 Precautionary Landing ■ Gear handle was placed in "up" position after takeoff. Loud bang was heard and hydraulic fluid sprayed into cockpit. Hydraulic pressure dropped and gear did not retract. Emergency gear extension procedures were followed and aircraft landed. Caused by rupture of hydraulic line (NSN 4710-00-289-2791).

T-42

1 Accident ■ During landing roll, nose and left main gear collapsed. Suspect pilot intended to retract flaps and inadvertently retracted gear.

1 Precautionary Landing ■ During flight No. 2 engine oil temperature exceeded limits. No. 2 engine was shut down and aircraft landed. Caused by failure of engine gauge, P/N 96-380016.

U-21

1 Precautionary Landing ■ No. 2 engine was shut down during standardization ride and could not be restarted. Aircraft was landed. Caused by weak ignitor plugs.

AFTER-LANDING CHECK

When is this check performed in fixed wing aircraft? As the title implies, and as stated in the Operators Manual, the check is performed "after the aircraft is clear of the runway or after turning off runway," not during the landing roll.

Two recent mishaps occurred in which the landing gear collapsed during landing roll. In one it was confirmed and in the other it was strongly suspected that the gear collapse resulted from inadvertent movement of the gear handle to the up position when the pilot's intentions were to retract the flaps.

In all probability neither mishap would have occurred had the crew complied with their handbook instructions. □

MAINTENANCE MISHAPS

MSG B. R. Bailey ■ 558-3901

1 Ground Accident, 0 Fatalities, 0 Injuries, Estimated Costs: \$5,000

UH-1

2 Precautionary Landings ■ Fire warning light came on. Caused by chafed wire shorting against engine cowling. ■ Battery overheated. Voltage regulator was adjusted too high.

AH-1

1 Precautionary Landing ■ Proximity warning device coaxial cable was found jammed between right pedal and right wall, causing antitorque problem. Caused by misrouting of cable.

U-21

1 Ground Accident ■ Aircraft was on work order to maintenance activity for a malfunctioning propeller governor on No. 1 engine. Maintenance installed serviceable propeller governor. During required MOC, No. 1 engine was shut down for adjustment. Propeller was feathered and condition lever moved to fuel cutoff. Engine stabilized at 20% N1 and egt below 200°. No. 2 engine loadmeter now showed max load. No. 1 starter switch and ignitor switches were off. Pilot assumed No. 1 engine starter was energized and was about to pull starter circuit breaker when flames emitted from exhaust stacks and engulfed left side of aircraft. At this time firewall shutoff was activated and order to abandon aircraft was given. Tower was

notified that there was a fire and all electrical switches were secured. Cause of failure was short in starter generator.

MESSAGES RECEIVED

- Maintenance Advisory Message from AVSCOM, 231415Z Feb 76, subject: Correction to Maintenance Advisory Message on Low Reflective IR Paint (GEN-76-08) (GEN-76-10).
- Letter, AVSCOM, DRSAV-FET (CH-54), 24 Feb 76, subject: CH-54A Helicopter: Utility and Make-up Hydraulic System Pump (P/N 66WAP200, NSN 4320-00-705-7497) Maintenance Procedures. Letter provides for serial number identification of possibly defective hydraulic pumps and their disposition.
- Maintenance Advisory Message (261330Z Feb 76) for OV-1 with MK-J5D ejection seats, subject: Suspension Line Stowage Tray, P/N 11-1-1912, NSN 1670-00-196-1921, Used With MK-J5D Ejection Seat Parachute System, OV-1 Aircraft (OV-1-76-2). If deficiencies are found as cited in this message, recommend an EIR be submitted in accordance with TM 38-750. Also, units in CONUS will notify Mr. J. C. Dittmer, AVSCOM Aerial Delivery/Life Support Equipment Office (ADE/LSE), AUTOVON 698-3016 or 3137, WATS 314-268-3016. □

AVIATION-RELATED GROUND MISHAPS

William P. Christian ■ 558-4202

3 Mishaps, 0 Fatalities, 2 Injuries, Estimated Costs: \$21,000

UH-1

■ Because of winds in excess of 50 knots, aircraft were being moved into hangar. During removal of aircraft from hangar, mechanic was guiding aircraft as it was being backed out when he slipped on patch of ice. Tail stinger of aircraft struck concrete apron, crushing third finger of mechanic's hand. Action taken was to spread sand over ice patches. Supervisors were instructed to evaluate work areas before commencing work. Personnel were instructed to consider proper handholds when pushing or pulling aircraft to keep hands from being trapped.

OH-58

■ As helicopter was being towed over railroad tracks, tow bar came off tow ring on skids, causing aircraft to pivot and strike mechanic who was guiding tail of helicopter. Tail rotor hit mechanic in the ribs, fracturing a rib. Work order was submitted to pave over railroad tracks.

CH-47

■ A 2½-ton truck was driven onto maintenance ramp area in front of CH-47 and struck one of aircraft's forward main rotor blades. Blade was damaged and required replacement. Action taken was to restrict vehicle traffic from maintenance area by closing access to area. □

RECAP OF AVSCOM MESSAGES

AVSCOM Messages 111912Z Jul 75 and 092145Z Jan 76, subject: Safety-of-Flight and Worldwide Technical Messages. Following is a list of AIG 8881 addressed messages transmitted by AVSCOM (AMSAV-F) from 1 January through 31 December 1975.

OV-1-75-1	(211915Z Jan 75)	OV-1 Series Aircraft
OV-1-75-2	(261835Z Aug 75)	Ejection Seats
OV-1-75-3	(122045Z Sep 75)	Aux Drive (Western) Gearbox
OV-1-75-4	(161517Z Dec 75)	One-Time Inspection
U-21-75-1	(142300Z Jan 75)	Insp for U-21 Altimeters
U-21-75-2	(251230Z Aug 75)	NI-CAD Battery
U-21-75-3	(172215Z Nov 75)	SOF Wheel Brake Assembly

U-8-75-1 (141455Z Jan 75) Nut Assembly Landing Gear
U-8-75-2 (101725Z Apr 75) Wing Center Section Insp
FEP-75-1 (041350Z Nov 75) MIL-G-5572 AVGAS

Other aircraft safety-of-flight and worldwide technical messages will be published in future issues of FLIGHTFAX.



DEPARTMENT OF THE ARMY
UNITED STATES ARMY
AGENCY FOR AVIATION SAFETY
FORT RUCKER, ALABAMA 36362

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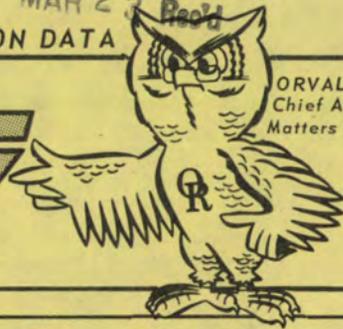
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DOD-314

MAR 23 1976

ARMY AIRCRAFT MISHAP PREVENTION DATA



FLIGHT FAX



ORVAL RIGHT
Chief Advisor on
Matters of Aviation

A USAAAVS PUBLICATION

VOL. 4, NO. 21 ■ 17 MARCH 1976

mishaps for the period of 27 FEB-4 MAR 1976

Clothing For Refueling Personnel

FM 10-68, Aircraft Refueling, dated 31 Dec 1975, answers many of the questions concerning clothing for refueling personnel. The proponent for this manual is Commandant, U.S. Army Quartermaster School, ATTN: ATSM-CTD-TL, Fort Lee, VA 23801. The portion of the FM concerning clothing follows:

5.3. CLOTHING

a. **Uniform.** To date, no regular Army uniform (suitable for everyday field wear) has been developed for personnel who handle aviation fuels. Therefore, wear the standard fatigue uniform. Aircrewmembers should wear their nylon fire-retardant uniform but should know that it loses its protective properties if it is saturated with a petroleum product. Because fatigues and flight suits are not impervious to petroleum, use great care in refueling operations to avoid spilling fuel on your clothing. If your uniform gets fuel soaked, remove it as specified in paragraph 3-15b and launder appropriately.

b. **Helmet.** Wear the motorcyclist's crash helmet (Helmet, Crash, Motorcyclists: Tank and Safety Football Type, Line Item Number (LIN) 83491N). This helmet is authorized by CTA 50-900 for ground crewmembers who work in hot refueling and persons who work at jobs where there is danger of head injury from impact with flying debris. Aircrewmembers wear their flight helmets for protection from flying debris. These helmets do not provide protection from fire or rotor-blade impact.

c. **Goggles.** Wear motorcyclist's goggles (Goggles, Sun, Wind, and Dust: Single Aperture, Two Plastic Lenses, LIN J71304, NSN 8465-00-161-4068, CTA 50-900). These goggles should be worn with the motorcyclist's helmet (b above)

to protect your eyes from dust, flying debris, and petroleum splashes. Aircrewmembers should wear their visors down when refueling or assisting in refueling operations.

d. **Hearing Protection.** You need hearing protection when working around helicopters, particularly during hot refueling when exposure to high sound levels is continuous and when working near or at a CH-47 (Chinook). The Chinook has a noise level that can permanently damage hearing on prolonged exposure. Wear either earplugs or ear muffs. (Earplugs are preferred because they can be worn with the helmet.)

(1) **Earplugs.** It is not necessary to quote an authorization document to obtain earplugs. They are a medical supply item, issued as required. The earplugs have a separate tubular plastic case with a plastic chain that snaps the case to a button of the uniform. Request earplugs as follows:

Plug, Ear: Silicone Rubber, Graduated, Sterilizable

Small Size: NSN 6515-00-082-2676

Regular Size: NSN 6515-00-082-2675

Large Size: NSN 6515-00-495-3173

Case, Earplug: NSN 6515-00-299-8287

(2) **Ear muffs.** Ear muffs (Aural Protector, Sound) are authorized by CTA 50-970 for personnel exposed to 90 decibels of sound. The standard ear muff used by the Army (NSN 4240-00-691-5617) is model M1200 procured under military specification MIL-P-38268B.

e. **Gloves.** Wear leather gloves to protect your hands (Gloves, Leather: Strap Closure, Cream, M1950, LIN J68064, NSN 8415-00-268-7868 (size 5) or 8415-00-268-7870 (size 4)). Aircrewmembers should wear their flame-retardant flight

Continued on page 2

US Army Aviation School Center
Fort Rucker, Alabama 36000

Continued from front page

gloves. These gloves are not impervious to fuel, but they will give some protection to your skin. If your gloves become saturated with fuel, replace them. Leather gloves do not offer fire protection and fire-retardant gloves lose that quality if saturated with petroleum.

f. **Boots.** Wear standard rubber-soled, all-leather combat boots. Combat boots are not impervious to splashed fuel, oil, or other flammable liquids and can become fuel saturated. If your boots are saturated, replace them. The soles of these boots will not spark on a hard surface and will prevent slipping on oily surfaces. Do not have metal heel or toe taps or cleats put on the boots. Any metal on the soles of boots could cause a spark against a hard surface on the ground. Remember that the fuel tanks of helicopters are vented under the body of the aircraft and that fuel vapors are heavier than

air, so a spark at ground level is serious. Do not wear jungle boots with nylon tops, because nylon is flammable.

5-4. WEAR OF CLOTHING AND PERSONAL ITEMS

Wear your shirt sleeves rolled down and buttoned and keep your shirttail tucked in. Do not wear or carry loose items of clothing. Don't carry anything in your shirt pocket because, when you bend over, items may fall out of them and cause sparks or drop into the fuel tank. Do not wear jewelry (such as a loose identification bracelet) that might spark against metal surfaces.

Questions or comments should be addressed to the proponent. For additional life support equipment information, USAAVS point-of-contact is MAJ Durand, AUTOVON 558-2091, and AVS-COM point-of-contact is Mr. A. Davis, AUTOVON 698-3242.



UNITED STATES ARMY AGENCY FOR AVIATION SAFETY ■ FORT RUCKER, ALABAMA 36362

Prepared from information compiled by the
Directorate for Aircraft Accident Analysis
and Investigation
Lieutenant Colonel Curtis M. Sanders, Director

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COMMERCIAL: 255-XXXX	AUTOVON: 558-XXXX
Commander/Deputy Commander	3410/3819
For Assistance in Locating Proper Directorate	6510
Aircraft Accident Analysis and Investigation	3913/4202
Technical Research and Applications	6404/6410
Plans, Operations, and Education	4812/6510
Management Information System	4200/2920
Publications and Graphics Division	6385/4218
Medical Division	2091/4806
After-duty tape recording of incoming calls to be returned the following day (hours: 1615 to 0730)	6510

UTILITY/ATTACK BRANCH

MAJ William C. Childree, Chief ■ 558-4198

0 Accidents, 0 Fatalities, 0 Injuries, Estimated Costs: \$4,000

UH-1

1 Incident ■ Pilot was repositioning aircraft into confined area for cover and concealment when tail rotor hit tree. Ground guide was used.

1 Forced Landing ■ Noise was heard coming from engine during maintenance test. Caused by internal engine failure.

16 Precautionary Landings—following are selected briefs ■ Engine chip detector light came on. Suspect Nos. 3 and 4 bearing failure. ■ Engine chip detector light illuminated due to excessive metal content in engine oil which was confirmed by oil analysis. ■ Transmission oil pressure gauge indication dropped to zero during cruise flight. Terminal wires on transmission gauge grounded each other. ■ During takeoff from confined area, copilot was using 48 pounds of torque (8 combat-equipped troops aboard). At about 30 feet pilot thought aircraft was too close to trees, took controls, and pulled 57 pounds torque to complete takeoff. ■ Electrical boost pump failed in flight and bleed air boost pump failed on short final. Aircraft was landed immediately. ■ Noise was heard from vicinity of engine during cruise flight. Postlanding inspection revealed right fuel boost pump failure. ■ Aircraft was climbing when hydraulic warning light started flickering and hydraulic controls became intermittently stiff, followed by complete hydraulic failure. Hydraulic system was found to be empty with fluid evidence in cargo suspension access area. System was refilled and aircraft was released for one-time flight. No further leakage was found and leak could not be duplicated. ■ Noises were heard from rear of aircraft during flight. Postlanding inspection revealed No. 1 tail rotor hanger bearing failure.

AH-1

1 Incident ■ While descending from high hover, pilot thought he had high rate of descent and applied collective pitch, resulting in transient overtorque to 56 psi.

1 Precautionary Landing ■ Rpm audio and master caution light came on. Caused by failure of engine tachometer. □

LOH/CARGO BRANCH

MAJ Robert P. Judson, Chief ■ 558-4202

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

OH-58

6 Precautionary Landings ■ Shortly after takeoff, engine chip detector light illuminated. Large metal pieces were found on plug. ■ N2 began fluctuating between 104% and 106% and all other engine instruments were also fluctuating. Overspeed governor was replaced. During test flight it was discovered that double check valve was also defective. ■ During hover taxi, pilot noticed drop in N1 and engine-out light and audio came on. Cannon plug was found loose on N1 tachometer generator. ■ Hydraulic caution light came on but no loss of pressure occurred. Hydraulic pressure switch failed. ■ Pilot noticed severe shudder in aircraft. Aircraft was inspected and test flown, but condition could not be duplicated. Aircraft was released for flight. ■ Pilot heard loud grinding noise and felt medium frequency vibration throughout airframe. Tail rotor drive shaft collar failed.

OH-6

1 Forced Landing ■ During hover, N2 increased and pilot performed hovering autorotation. Suspect fuel control and governor malfunction. (ARNG)

TH-55

1 Precautionary Landing ■ Throttle cable began binding during flight. Caused by worn throttle control cable.

CH-47

1 Precautionary Landing ■ Sharp jolts were felt in yaw axis on takeoff accompanied by slight booming noise. Jolts continued at unequal intervals. Test flight could not duplicate malfunction. Small correction to SAS engagement was only corrective action taken. □

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

U-21

8 **Precautionary Landings** ■ During gear retraction, gear came up only part way. Gear was lowered manually and landing was uneventful. Caused by failure of drive spur gear. ■ Crew detected burning odor after turning on overhead panel lights. Landing was completed and maintenance found two illumination bulbs shorted out. ■ During training flight on initial downwind leg, fuel odor was detected when gear was lowered. As airspeed decreased fumes became stronger. After landing, aircraft was shut down and checked by crash crew. Cause could not be determined. ■ After landing, technical operator noticed smoke coming from under No. 1 operator position. Aircraft was evacuated. Maintenance could not determine cause. ■ Fuel fumes were detected in landing configuration at or below 120 KIAS. Landing was completed and inspection was made. Cause could not be determined. ■ After takeoff on test flight, aircraft yawed and pilot noted No. 2 rpm loss, with rapid torque increase. Engine was secured and landing was successful. Caused by failure of propeller governor. ■ Reverse thrust was applied and condition levers moved from high to low after practice short field landing. No. 1 engine failed. Condition lever was out of adjustment and detent notch on quadrant was worn. Movement of lever 1/16 inch aft of detent was sufficient to shut off fuel. ■ During standardization flight IP noted fluctuation of oil pressure, then rapid drop from 65 psi to 10 psi. Engine was secured and landing was uneventful. Filler cap had not been properly secured during preflight and approximately 7 quarts of oil were lost.

U-8

4 **Precautionary Landings** ■ Crew saw smoke in cockpit and executed emergency landing. Suspect right main gear landing microswitch failed, causing stair door motor to activate and burn out. (USAR) ■ No. 2 engine failed on base leg of traffic pattern and single-engine landing was made. Engine failed internally. ■ Right main gear would not indicate down and locked, but neither warning horn nor gear handle light gave unsafe condition. Gear was pumped down. Wire between warning horn and warning light was broken. ■ Gear would not retract after takeoff. Malfunction could not be duplicated.

OV-1

2 **Precautionary Landings** ■ During training flight, No. 2 engine could not be restarted after shutdown. Starter adapter was replaced. ■ Loss of hydraulic pressure was noted on No. 2 engine, followed by loss on No. 1 engine about 3 minutes later. Emergency gear system was used and landing was completed. Pressure relief valve packing failed.

U-3

2 **Precautionary Landings** ■ No. 2 engine began running rough and landing was made using partial power. Exhaust rocker arm was broken in No. 4 cylinder. (USAR) ■ While in IMC, both engines began running rough, emergency was declared, and landing was successfully completed. Suspect fuel contamination. (USAR)

T-42 INFORMATION

■ The battery can never be totally discharged by the systems demand. When the voltage of the battery reaches approximately seven volts, the battery contactor within the master battery relay opens, thus disconnecting the battery from the system. Let us assume that both alternators have failed for one reason or another and the battery has disconnected. With the battery switch turned off, the battery will rejuvenate itself slightly. If, after manually cranking the gear down, the battery switch is turned on, there may be sufficient battery voltage available to close the battery contactor and thus illuminate the gear lights to verify the gear position. The intensity of the lights may be less than normal.

■ Letter No. 15, dated 25 Feb 76, has been published by AVSCOM concerning T-42A aircraft problems and recommended corrective action. Any T-42 users who have not received a copy can call Mr. Kirhman, AUTOVON 698-3456.

■ T-42 users should also check that they have the current Operators Manual (TM 55-1510-208-10) dated 19 December 1975 and Pilots Checklist (TM 55-1510-208-CL) dated 31 December 1975. □

MAKE AVIATION SAFETY THE SPIRIT OF '76

MAINTENANCE BRIEFS

MSG B. R. Bailey ■ 558-3901

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

UH-1

3 Precautionary Landings ■ Excessive amount of oil was found on snow below aircraft. Inspection revealed No. 2 engine bearing pack was leaking. ■ Crew noticed extensive oil leak in transmission area. Tube assembly was not properly torqued. ■ Pilot heard series of loud bangs coming from engine compartment. Postflight inspection revealed inlet guide vanes were out of adjustment.

AH-1

1 Precautionary Landing ■ Crew chief told pilot oil was leaking from engine compartment and aircraft was landed. Engine oil filter was leaking.

OH-58

1 Precautionary Landing ■ Crew heard loud squeal coming from hydraulic pump area during NOE flight. During approach, hydraulic caution light flickered on and off. Inspection revealed empty hydraulic reservoir and leaking hydraulic line. Fitting on hydraulic pressure safety line to left lateral cyclic servo was not properly torqued and consequently backed off.

MESSAGES RECEIVED

■ AVSCOM Message R261925Z Feb 76, subject: Technical Advisory on Guidance for Inspection and Replacement of Delaminated AH-1 Engine Deck Panels, AH-1-76-3.

■ DA Message R172143Z Feb 76, subject: Termination of Touchdown Autorotation in Tow-Equipped Attack Helicopters. □

AVIATION-RELATED GROUND MISHAPS

William P. Christian ■ 558-4202

1 Mishap, 0 Fatalities, 1 Injury, Estimated Costs: \$0

U-8

■ Mechanic was performing power phase of daily inspection when he inadvertently grasped pitot tube which was still hot. Mechanic sustained burns to the palm of his left hand. All maintenance personnel were briefed on this hazard.

SAFETY-OF-FLIGHT MESSAGES

Did you know that filing of safety-of-flight messages is the responsibility of aircraft maintenance quality control personnel? Filing of safety-of-flight messages is authorized under the provisions of TM 55-411, chapter 3, paragraph 7. This publication file should be established and maintained in accordance with AR 340-2 and/or AR 340-18-1, whichever is applicable. These messages will be destroyed when superseded, obsolete, or no longer needed for reference.

PROBLEM?

You are part of a flight of five UH-1H aircraft that have been assigned to pick up 25 combat troops early in the morning and transport them to a 6,000' msl pinnacle for insertion. The ground commander expects this insertion to be carried out in one sortie of your flight of five. The pinnacle is a 30-minute flight from the PZ and you plan your arrival at the PZ to have 960 pounds of fuel. Aboard each aircraft is a pilot, copilot, and crew chief. The operating weight of your aircraft upon arrival at the PZ will be 6906 pounds. Due to heavy fog in the morning, the mission is delayed until mid-afternoon. Upon landing at the PZ your OAT gauge indicates 30° C. and your elevation is 2,800' msl. The PZ is small and will require a nearly vertical departure. Can you complete this mission? What is your advice to the ground commander?

Takeoff gross weight at PZ _____

Temperature at LZ _____ Landing gross weight at LZ _____

Can you complete this mission? _____ yes _____ no

Comments _____

(Answers will be in next week's FLIGHTFAX.)

RECAP OF AVSCOM MESSAGES

AVSCOM Messages 111912Z Jul 75 and 092145Z Jan 76, subject: Safety-of-Flight and Worldwide Technical Messages. Following is a list of AIG 8881 addressed messages transmitted by AVSCOM (AMSAV-F) from 1 January through 31 December 1975.

GEN-75-1	(101718Z Jan 75)	Suspected Contamination of Lubricants
GEN-75-2	(102223Z Jan 75)	Inst of Door Lock Devices
GEN-75-3	(212022Z Jan 75)	Altimeters in All Aircraft
GEN-75-4	(242122Z Jan 75)	Status Symbols for MWO's
GEN-75-5	(062020Z Mar 75)	Detector Kit, Water/Fuel
GEN-75-6	(191804Z Mar 75)	Operator Data AAU-32/A Altimeter
GEN-75-7	(181436Z Mar 75)	Maintenance of NI-CAD Battery
GEN-75-8	(192035Z Mar 75)	MWO For Elect Ignition Device
GEN-75-9	(011430Z Apr 75)	Penetrating Oil
GEN-75-10	(312050Z Mar 75)	Hand Portable Fire Extinguishers
GEN-75-11	(161300Z Apr 75)	Hydraulic Fluid
GEN-75-12	(221243Z Apr 75)	Hydraulic Fluid
GEN-75-13	(022030Z May 75)	MWO's for Elect Ignition Device
GEN-75-14	(071829Z May 75)	Batch 858 Coast Pro-Seal
GEN-75-15	(162015Z May 75)	Non-Conforming Metal Pretreatment
GEN-75-16	(192032Z May 75)	Aircraft Grease
GEN-75-17	(231305Z May 75)	Correction to MSG GEN-75-15
GEN-75-18	(281310Z May 75)	Change to PM Cards to Reduce FOD
GEN-75-19	(232032Z May 75)	Metal Pretreatment Coating
GEN-75-20	(022010Z Jun 75)	Hydraulic Fluid Change
GEN-75-21	(051354Z Jun 75)	AVGAS
GEN-75-22	(291843Z Jul 75)	UH-1 Hydraulic Fluid Change
GEN-75-23	(062001Z Aug 75)	Identifying Aircraft Inst Radium Painted
GEN-75-24	(062000Z Aug 75)	Fire Resistant Hyd Fluid
GEN-75-25	(141553Z Aug 75)	Hydraulic Fluid Change
GEN-75-26	(151530Z Aug 75)	UH-1 Seat Belts
GEN-75-27	(211610Z Aug 75)	Contaminated Lube Oil
GEN-75-28	(021330Z Sep 75)	Engine, Transmission Oils, Fuels
GEN-75-29	(041456Z Sep 75)	Lube Oil Turbine Engine
GEN-75-30	(081825Z Sep 75)	Aircraft Door Lock Device and Ignition Switch
GEN-75-31	(101440Z Nov 75)	Removal of Armor Panels
GEN-75-32	(181706Z Nov 75)	RU-8/RU-21 Nose Wheel Tires
GEN-75-33	(211639Z Nov 75)	NI-CAD Battery Cells
GEN-75-34	(241550Z Nov 75)	MIL-C-81322 Grease
GEN-75-35	(022125Z Dec 75)	Weight and Balance, Change 7
GEN-75-36	(171930Z Dec 75)	Defective Epoxy Primer

DEPARTMENT OF THE ARMY
UNITED STATES ARMY
AGENCY FOR AVIATION SAFETY
FORT RUCKER, ALABAMA 36362

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DOD-314

FLIGHTFAX/27 FEB-4 MAR 1976



FLIGHT FAX



ORVAL RIGHT
Chief Advisor on
Matters of Aviation

A USAAVS PUBLICATION

VOL. 4, NO. 22 ■ 24 MARCH 1976

mishaps for the period of 5-11 MARCH 1976

LET'S HAVE A WORD ABOUT THE WEATHER

Do you believe weather forecasters are wrong 90% of the time? Are you guilty of predicting your own weather? If so, you're betting your flight on something as changeable as a woman deciding what to wear.

Since weather is sometimes unpredictable, you can't always accept a forecast as absolute truth—but professional advice beats amateur guesses ten to one. You can bank on that! Make it a habit to include a weather forecast as one of the essential parts of your flight plan. It could save your life.

Be sure. Insist that your weather briefing include:

- Weather synopsis (positions of lows, fronts, ridges, etc.)
- Current weather
- Forecast weather
- Alternate routes
- Hazardous weather

SAFETY-OF-FLIGHT MESSAGE

■ 162030Z Mar 76, subject: Safety-of-Flight Message: One-Time Inspection of Honeycomb Tunnel Covers on CH-47A, B, C Aircraft, TB 55-1500-210-20-30 (CH-47, 1976-3). *Summary:* A sync shaft in the tunnel area of a CH-47 was recently damaged because a short angle which is located under the handgrip of a long tunnel cover became unbonded and worked under the sync shaft. Inspection of other aircraft showed the same problem. The purpose of the TB is to inspect for loose angles and to improve their retention by adding rivets. *Contact:* Mr. J. Bramlet, AVSCOM, AUTOVON 698-2371.



WELL DONE

Congratulations to Doss Aviation Primary Division, Fort Rucker, AL, for having flown more than 27,000 hours without an accident. Their last accident occurred on 4 Nov 1975 when a solo student took off with the aircraft's control pedal retaining pins in his pocket. During the 12-month period ending Jan 1976 their accident rate was reduced from 18 to 7 per 100,000 flying hours. A special "Well Done" to all the instructor pilots and supervisors who were responsible for this.

UTILITY/ATTACK BRANCH

MAJ William C. Childree, Chief ■ 558-4198

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

UH-1

1 Incident ■ During takeoff from confined area, main rotor blade struck tree approximately 1 inch in diameter.

12 Precautionary Landings—following are selected briefs ■ Bird struck left cabin air inlet, just above windshield and No. 2 FM antenna. Aircraft altitude was 1,700 feet. ■ Rotor portion of dual tachometer failed during engine start. Aircraft was flown to airfield. Maintenance inspection revealed rotor tachometer shorted out internally. ■ During cruise flight torquemeter gauge began fluctuating and then dropped to zero. Postlanding inspection revealed broken wire on torquemeter gauge. ■ After 15 minutes of flight and during steep approach, IP heard loud noise from rear of aircraft. Maintenance inspection revealed hydraulic pump failure. ■ Upon completion of mission with fire suppression unit, aircraft picked up fireman and medic to return to ramp. En route, crew reported smoke and odor in left rear of cargo compartment. Postlanding inspection revealed pilot had failed to turn off tank pressure switch of Bell fire suppression unit.

AH-1

4 Precautionary Landings—following are selected briefs ■ During approach to confined area, engine rpm fluctuated and torque momentarily went to 54 pounds. Special inspection was accomplished and no defects were noted. ■ Pilot heard whine of hydraulic pump cavitating, and initiated descent to land. Hydraulic system No. 1 light illuminated just before touchdown. Several hydraulic lines were tightened and hydraulic system refilled. Aircraft was returned to airfield. □

LOH/CARGO BRANCH

MAJ Robert P. Judson, Chief ■ 558-4202

0 Accidents, 0 Fatalities, 0 Injuries, Estimated Costs: \$6,677

OH-58

3 Incidents ■ While hovering, aircraft encountered strong tailwinds and assumed nose-low attitude. Pilot applied aft cyclic and spike knock occurred, causing transmission isolation mount to break. ■ During approach to field site, main rotor blade hit tree, denting main rotor blade underside. ■ Pilot was backing away from observation point to depart area when right skid struck high stump, breaking off skid cap. As pilot was attempting to land aircraft, right cargo door bumped same stump, puncturing skin. As aircraft was touching down, both main rotor blades struck top of stump. Aircraft was then shut down.

2 Forced Landings ■ During cruise flight, N2 dropped below 90 percent. Pilot lowered collective and initiated power-on autorotation with N2 at 92 percent. During descent with throttle full open, power was applied and again N2 dropped below 92 percent. Pilot completed autorotation. After landing, collective was lowered and N2 returned to 103 percent. Aircraft was inspected and test flown, but condition could not be duplicated. Aircraft was released for flight. ■ During cruise flight, engine lost power, rotor rpm deteriorated, and rotor rpm warning light and audio activated. Pilot autorotated to field. Engine remained running at low power settings. Inspection revealed that one valve in double check valve appeared not to be seating properly. Double check valve was replaced. (ARNG)

UNITED STATES ARMY AGENCY FOR AVIATION SAFETY ■ FORT RUCKER, ALABAMA 36362

Prepared from information compiled by the
Directorate for Aircraft Accident Analysis
and Investigation
Lieutenant: Colonel Curtis M. Sanders, Director

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5 Precautionary Landings ■ Engine chip detector light came on. Excessive amount of metal particles was found on chip detector and high iron content was identified in oil sample. ■ Tail rotor chip detector light illuminated. Plug was cleaned and replaced, gearbox was drained and flushed, and MOC performed. ■ Master caution and hydraulic pressure lights came on. Pressure switch failed. ■ Engine chip detector light came on during takeoff. Engine had internal failure. Cause is under investigation. ■ After takeoff, pilot noticed zero reading on airspeed indicator. As pilot was returning to land, N2 dropped and stabilized at 50 percent. Pitot static system was drained of approximately one cup of water. N2 tachometer indicator had failed.

AVSCOM has added another message to the recap of AVSCOM messages listed in FLIGHTFAX, Vol. 4, No. 18, dated 25 Feb 1976. It is: OH-58-75-12 (182015Z Dec 75) Aft Section Assembly.

TH-55

1 Precautionary Landing ■ Main transmission gearbox warning light came on during hover. Main transmission temperature switch failed.

CH-47

2 Incidents ■ During load hookup simulation, aircraft settled on evergreen tree as crew maneuvered with directions from flight engineer. (Tree was being used to simulate hookup man.) (USAR) ■ While rotors were still turning, artillery gun crew was offloading M-102 howitzer when gun swung sideways into aircraft at stations 502 and 510. Gun crew attempted to offload howitzer without getting approval from aircraft crew.

1 Forced Landing ■ While in cruise flight, pilots felt shudder in aircraft that repeated itself within 2 seconds. During second shudder, copilot and flight engineer heard a noise that sounded like an explosion. Pilot then noticed a higher noise level that he interpreted to be an increase in rotor rpm. Instrument check indicated that rpm was approximately 253, with split in torque needles (No. 2 engine on high side with No. 1 engine needle straight down). Thrust was pulled to decrease rpm and emergency engine trim was used to regain engine control. Thrust was lowered and rpm began to climb again. Normal engine trim was then disabled and emergency trim used to regain normal rpm. During this period, No. 2 fire light, engine chip detector light, and transmission hot light illuminated. Fire could not be confirmed, but as smoke was beginning to enter cabin, No. 1 fire bottle was discharged into No. 2 engine area, and was followed shortly after with discharge of No. 2 fire bottle into same area. Landing was made without further mishap. Cause unknown. Engine has been submitted for teardown analysis.

1 Precautionary Landing ■ Aircraft had partial loss of pressure and hydraulic fluid in utility hydraulic system. Caused by fatigue crack in tube elbow assembly.

THOUGHT FOR THE WEEK TAKEOFF IS OPTIONAL - LANDING IS MANDATORY

FIXED WING BRANCH

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

0 Accidents, 0 Fatalities, 0 Injuries, Estimated Costs: \$1,149

U-21

1 Incident ■ During landing rollout, right wing raised to abnormal position and directional control could not be maintained with brakes. Right gear upper torque link broke, causing oleo to extend fully and break brake line.

2 Precautionary Landings ■ While extending gear, "thud" was heard from right side of aircraft. Gear was confirmed down but IP recycled gear to check for noise again. Right main would not retract. Gear was lowered again and landing was uneventful. Nut and tube assembly on landing gear jack screw actuator

had failed. ■ Following takeoff rotation, No. 1 engine rpm began dropping with rapid torque increase. Engine was secured and single-engine landing was made. Primary governor was replaced. During next runup prior to takeoff, prop low pitch stop test malfunctioned. Aircraft was placed on circled red X for flight home. After this takeoff, previous engine malfunction was duplicated and single-engine landing was made. Second primary governor was installed and engine apparently failed during low pitch stop test. Beech Aircraft Company was consulted and they advised aircraft was safe to operate with prop governor circuit breaker pulled. Suspect transient voltage to prop governor solenoid is causing prop to feather when gear safety switch is deactivated. Electrical checks were unable to trace malfunction. Aircraft was returned to home base. Continued checks of electrical system are in progress.

U-8

3 Precautionary Landings ■ No. 2 engine could not be restarted during test flight after intentional shutdown. Wire to fuel primer solenoid was broken. ■ Main tank ran dry and fuel was seen venting overboard. No. 1 engine was secured and single-engine landing completed. Pipe elbow on drain line from fuel filter to drain had broken. ■ During test flight, No. 1 engine would not come out of feather after shutdown. Radio compartment latch relay was open which rendered starter and primer inoperative.

INSTALLATION OF CONVEX MIRROR TO DETERMINE LANDING GEAR POSITION

You T-42A users who would like to put mirrors on your aircraft, see AVSCOM T-42A News Letter No. 11, dated 7 August 1974. Although the mirror will not provide a positive down lock indication, its purpose is to provide the pilot with another means of determining whether the gear is extended or not.

CORRECTION TO LETTER, T-42A AIRCRAFT PROBLEMS AND RECOMMENDED CORRECTIVE ACTION, LETTER NO. 15, DATED 23 FEB 76, T-42A AIRCRAFT (T-42-76-1)

USAAVSCOM Msg 122115Z Mar 76 is quoted for necessary action by T-42 owners:

"We have just been notified by Beech Aircraft Corporation that information supplied by them and incorporated in our letter Number 15 is incorrect. The following actions are required:

"a. Stop any action to incorporate or comply with T-42A service instructions T-42A-0001, subject: Battery Charge Current Sensor Kit Change. Those aircraft that have miniature battery packs, P/N 60-369017, installed should be left as is temporarily. If the above service instructions have been incorporated, prior to next flight remove the 5-amp fuse, placard the alternator switches "Re-Exc Inop," and make appropriate logbook entries. Failure to comply could result in possible radio damage if alternator re-excitation is attempted. Corrective information is expected to be available in 7-10 days.

"b. Stop any action to incorporate Beech Service Instruction No. 0736-211 in CONUS-based T-42A aircraft. This modification to the main landing gear uplock bracket applies only to T-42A military assistance program aircraft."

CARBURETOR ICING

Carburetor icing in U-8 aircraft continues to surface as a problem. During prolonged descent, we recommend all aviators review the carburetor heat procedures contained in TM 55-1500-201-10/4, Change 8, paragraphs 10-37 through 10-51. □

MAINTENANCE MISHAPS

MSG B. R. Bailey ■ 558-3901

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

UH-1

1 Precautionary Landing ■ During cruise flight at 1,500 feet agl, master caution light came on and transmission oil pressure went to zero. Caused by internal oil filter gasket failure. Gasket had been removed and reinstalled two previous times. TM 55-1520-210-20, page 7-31, par. 7-9c, states that a new gasket *must* be installed when filter is removed and reinstalled.

AH-1

2 Precautionary Landings ■ During pylon mount check, pilot noticed that transmission oil pressure fluctuated from 20 to 50 psi and transmission oil bypass and oil pressure warning lights illuminated. Inspection revealed No. 1 tail rotor drive shaft clamp contacted and ruptured transmission oil line. Locally manufactured hose assembly was of wrong material and wrong length. ■ Pilot noticed fluctuating transmission oil pressure, followed by master caution and transmission oil bypass and oil pressure caution lights. Aircraft was landed immediately and maintenance inspection revealed internal transmission oil filter gasket failure. Internal transmission oil filter cover was improperly torqued during PMP. □

AVIATION-RELATED GROUND MISHAPS/ACCIDENTS

William P. Christian ■ 558-4202

2 Ground Accidents, 4 Mishaps, 0 Fatalities, 4 Injuries, Estimated Costs: \$443,649

OH-58

■ Test pilot was performing maintenance troubleshooting on his aircraft for main rotor vibration. He was investigating the possibility of internal wear/play in main rotor control swashplate assembly. Aircraft was not running but main rotor was slowly turning. Pilot's left middle finger was caught in rotating portion of swashplate assembly and was cut and fractured. He was sent to a field hospital for surgery on his finger. Safe maintenance troubleshooting procedures were emphasized to all test pilots by the unit commander. ■ Crew chief was assigned as crewmember for performing maintenance operational check flight. Upon completion of flight and during rotor coastdown, crew chief was checking tail rotor drive shaft hanger bearing for overheating. He placed his right thumb and forefinger on top of bearing mount and his flight glove and jacket became tangled around drive shaft, fracturing his right thumb and forearm. Crew chief was tasked to give safety lecture to his unit (a unique idea!) and review TM 55-1500-204-25/1 for proper procedures for this type check.

2 Ground Accidents ■ While trying to isolate high frequency vibration on tail boom, damage was sustained due to disconnection of tail rotor drive shaft at Thomas (disc assembly) coupling just forward of 90° gearbox. Spline adapter on 90° gearbox was removed, and disc assembly remained on aft portion of tail rotor drive shaft. During starting procedures at approximately 150 rotor rpm, disc assembly came in contact with tail boom, cutting about one-third of circumference of tail boom. The unit indicated this procedure (although not recommended in the maintenance manual) had been used successfully in the past, and they also indicated it has been discontinued since this mishap. If there are any other units using this procedure, USAAAVS recommends it be discontinued immediately. ■ While performing 7-day runup, crew chief noticed oil leak around engine oil bypass switch, and started to wipe off excess oil to determine where leak was coming from. When he reached up to wipe off the switch, rag was caught in drive shaft coupling, pulling rag from his hand. Loose rag was drawn into blower assembly, causing damage to blower, disc assembly, and packing. That could have been an arm as well.

Aircraft Grounding Cable ■ Civilian mechanic was transporting piece of tail boom skin from helicopter to cutting saw when his right foot caught in aircraft grounding and tiedown pad. He fell to the floor, injuring his right foot and hand. Employee was cautioned to look where he was stepping.

CH-47/UH-1

■ CH-47 was slingloading UH-1 when it encountered IMC. Pilot asked tower for permission to climb to 4,000 feet. While IFR and making steep turn, pilots noticed slingload was rising alongside of CH-47 on several occasions. Fearing collision with UH-1, pilots punched the load off from 4,000 feet. Jettisoned load fell through roof of house. One occupant was slightly injured. Parts from dropped UH-1 struck Volkswagen, causing it to be consumed by fire. The paint on a house across the street was also scorched. Recommendations to prevent this type mishap were to change existing regulations to require control tower operators and weather briefers to report all cloud layers and obstructions to vision to pilots upon initial contact to airfield. (*This mishap occurred before this reporting period. However, due to the circumstances, it warrants repeating.*) □



STACOM 2 ■ 24 MAR 1976

DEPUTY FOR STANDARDIZATION, USAAVNC, FT. RUCKER, AL 36362
COL CLEMENT A. WYLLIE ■ 558-2603/3514

FLIGHT STANDARDIZATION PROGRAM

The Commanding General, USAAVNC, as proponent agent for flight standardization, has the responsibility for monitoring and evaluating the United States Army Flight Standardization Program as established in AR 95-63. This responsibility is accomplished through the Office of the Deputy for Standardization, Fort Rucker, AL, under the supervision of CG, USAAVNC, serving as an extension of the Office of the Deputy Chief of Staff for Operations and Plans, Department of the Army.

The Flight Standardization Program is proud to join with USAAVS and FLIGHTFAX in providing a once per month communication to Army aviators worldwide in the form of STACOM (Standardization Communication).

POSITION REPORTS

This section of STACOM features some of the gleanings from Flight Standardization field evaluations, assistance visits, and questions asked by phone and letter.

QUESTION: Hey, that 161920Z Oct 75, HQDA, DAMO-ODA message authorizing instrument renewals in an OH-58 when it is the aviator's day-to-day bird, makes sense—as long as you've got an OH-58 to fly! What about us guys in the Reserve components with OH-6's? Can't we get in on the action, too?

POSITION: The Cayuse Tribe must have held a war council 'cus we've been getting smoke signals via Ma Bell. We really didn't overlook the some 400 OH-6's in our One Army. Here's the problem. At the time the referenced message was dispatched, Reserve component OH-6's weren't equipped with a turn and bank indicator and therefore could not comply with AR 95-63, par. 2-20. Briefly, that paragraph says that the aircraft used for renewals must have all of the instruments, communications, and navigational equipment required for instrument flight (see AR 95-1, par. 4-22, for those items). We understand many of the Reserve component units are now upgrading their aircraft to meet the foregoing requirements. In view of that, the new AR 95-63 will provide for renewals in aircraft normally flown, providing the ship has the instruments and equipment required for instrument flight and can perform a precision and non-precision approach. PPPP (pass peace pipe, please).

OBSERVATION: Where unit standardization programs are not working effectively, it is invariably found that the governing standardization board is not getting out to assist and spot check training and facilities.

POSITION: AR 95-63, par. 1-5c(4), states that the standardization board will "conduct an active assistance visit and inspection program to include random, no-notice flight checks of aviators and spot checks of training and facilities." To successfully implement this requirement, planning, a steady effort, and funding are necessary. How does your IFSB measure up?

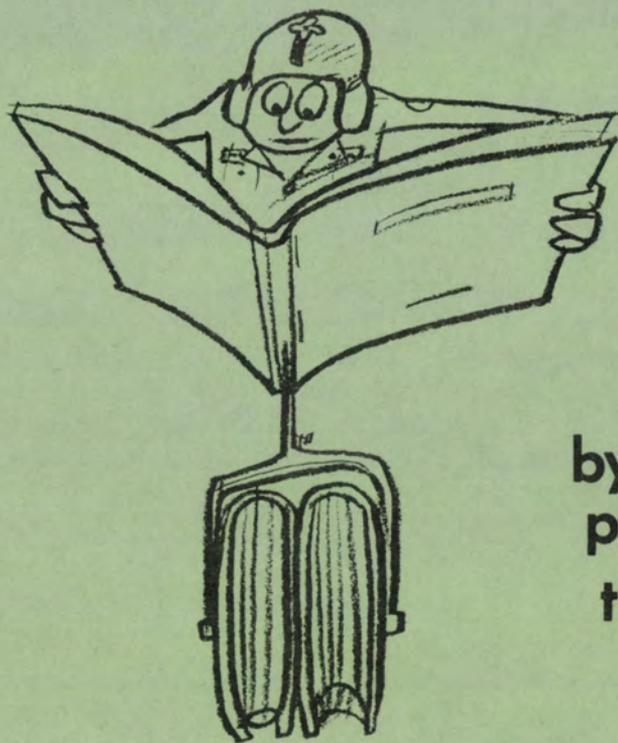
QUESTION: Can I, as a current instrument examiner, conduct instrument instruction under actual instrument conditions with a noninstrument-rated pilot?

POSITION: An examiner can fly into instrument conditions with a noninstrument-rated pilot provided he is conducting a checkride which will later determine whether the examinee becomes instrument rated. Reference AR 95-63, par. 2-21c(1). A qualified IP can fly into instrument conditions with a noninstrument-rated pilot when teaching in a USAAVNC formal course of instruction or when instructing in a formal course authorized by a major subordinate command. Reference AR 95-1, par. 4-21.

QUESTION: The New Nine Chapter Operator Manual for the T-42 is a great step forward in organization, performance charts, and simplicity. One conflicting set of figures appears, however. The maximum landing gear extension speed is shown in chapter 5, par. 5-16 as 153 KIAS. Yet, in the checklist in chapter 8, par. 2-28, 144 KIAS is shown. Which speed do I use?

ANSWER: Until an official change is published correcting the error in the checklist, you will have to continue to use 144 KIAS. The change will authorize 153 as the V_{le}. Sorry, AR 310-3, par. 2-33, prohibits pen and ink changes in the checklist.

The Deputy for Standardization is anxious to hear from Army aviators worldwide and pledges to respond to flight standardization questions within 24 hours of receipt. Readers are encouraged to use the 24-hour flight standardization information center number (AUTOVON 558-3504, Commercial 205-255-3504) or to communicate by letter if more appropriate. Address your questions or requests for courtesy assistance visits to Deputy for Standardization, USAAVNC, Fort Rucker, AL 36362. □



by the book
procedures —
the **ONLY** way

WEIGHT AND BALANCE PROBLEM AND ANSWERS

You are part of a flight of five UH-1H aircraft that have been assigned to pick up 25 combat troops early in the morning and transport them to a 6,000' msl pinnacle for insertion. The ground commander expects this insertion to be carried out in one sortie of your flight of five. The pinnacle is a 30-minute flight from the PZ and you plan your arrival at the PZ to have 960 pounds of fuel. Aboard each aircraft is a pilot, copilot, and crew chief. The operating weight of your aircraft upon arrival at the PZ will be 6906 pounds. Due to heavy fog in the morning, the mission is delayed until mid-afternoon. Upon landing at the PZ your OAT gauge indicates 30° C. and your elevation is 2,800' msl. The PZ is small and will require a nearly vertical departure. Can you complete this mission? What is your advice to the ground commander?

Takeoff gross weight at PZ 9,066

Temperature at LZ 24° C. Landing gross weight at LZ 8,776

Can you complete this mission? yes no

Comments To depart the PZ the pilot must reduce his takeoff gross weight by approximately 350 pounds, remembering to plan his flight with a 30-minute fuel reserve.

If you have any questions or comments, call AUTOVON 558-4198.



MAKE AVIATION SAFETY THE SPIRIT OF '76

DEPARTMENT OF THE ARMY
UNITED STATES ARMY
AGENCY FOR AVIATION SAFETY
FORT RUCKER, ALABAMA 36362

OFFICIAL BUSINESS

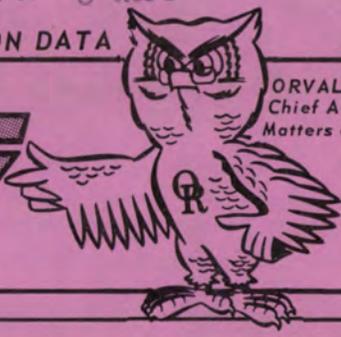


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FLIGHTFAX/5-11 MARCH 1976



FLIGHT FAX



ORVAL RIGHT
Chief Advisor on
Matters of Aviation

A USAAAVS PUBLICATION

VOL. 4, NO. 23 ■ 31 MARCH 1976

mishaps for the period of 12-18 MARCH 1976

US Army Aviation Training Library
Fort Rucker, Alabama 36360



EIR NEEDED?

Paragraph 3-16c(3) of TM 38-750 (Nov 72) says that a routine EIR has to be sent where a flight abort resulted from a materiel failure or malfunction and the sending of an emergency EIR was not warranted.

Should a routine EIR be forwarded when a chip detector light illuminates due to normal wear?

Also, paragraph 3-16c(7) says that an EIR is not needed on conditions for which a corrective action has been published in the EIR and Maintenance Digest, and on items which are being issued until the supply is exhausted. An entry in the Digest replaced an old hydraulic pressure switch with a new type.

Does this mean we have to submit an EIR on the old switch which malfunctioned, causing a precautionary landing?

The answer to both questions is "no."

Chip detectors are often set off by fuzz or other particles during the break-in of new parts. Some pubs show what type of material on the plugs is acceptable. When you decide that you have normal wear, no EIR is needed.

If that old hydraulic switch—or any part for that matter—was a danger to flight, a safety-of-flight message, a tech bulletin, or a modification work order would be issued grounding your aircraft until the new switch was installed.

That's not the case. So, it's OK to use the old hydraulic switch until the supply is exhausted.

—PS Magazine, July 1975

REPAIR OF NOMEX JACKETS

Numerous complaints are being received concerning the cuffs/wristbands of the new Nomex flyer's jacket, NSN 8415-00-217-7220, unraveling after as little as 2 weeks' wear. Action is being taken by Defense Personnel Support Center to correct this deficiency. Repair items are available as outlined:

- Cuffs/Wristbands 8315-00-275-2870
- Waistbands 8315-00-275-6195
- Nomex Thread 8310-00-492-8397

The above are S9T items and can be requisitioned from Defense Personnel Support Center (DPSC), Director of Clothing and Textiles, Philadelphia, PA 19101. Request problems be reported to Mr. A.B.C. Davis, USAAVSCOM, ATTN: DRSAV-WL, P. O. Box 209, St. Louis, MO 63166, AUTOVON 698-3241/3291.

UNITED STATES ARMY AGENCY FOR AVIATION SAFETY ■ FORT RUCKER, ALABAMA 36362

Prepared from information compiled by the
Directorate for Aircraft Accident Analysis
and 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 is authorized by AR 10-29.

COMMERCIAL: 255-XXXX AUTOVON: 558-XXXX
Commander/Deputy Commander 3410/3819
For Assistance in Locating Proper Directorate 6510
Aircraft Accident Analysis and Investigation 3913/4202
Technical Research and Applications 6404/6410
Plans, Operations, and Education 4812/6510
Management Information System 4200/2920
Publications and Graphics Division 6385/4218
Medical Division 2091/4806
After-duty tape recording of incoming calls to be returned
the following day (hours: 1615 to 0730) 6510

UTILITY/ATTACK BRANCH

MAJ William C. Childree, Chief ■ 558-4198

1 Accident, 0 Fatalities, 2 Injuries, Estimated Costs: \$513,924

UH-1

2 Incidents ■ Aircraft was sitting in LZ after dropping troops off when children started throwing rocks at aircraft, necessitating replacement of main rotor blade. ■ Crew was returning to home station after making passenger drop. Landing gear skid struck powerlines.

1 Forced Landing ■ While conducting maintenance test flight, pilot entered autorotation and inadvertently rolled throttle past flight idle stop. Autorotation was continued to ground.

27 Precautionary Landings—following are selected briefs ■ Engine fuel pump and master caution lights came on. Engine continued to operate with no other abnormal indication. Postlanding inspection revealed pressure switch failure. ■ Hydraulic pressure segment light illuminated during engine start. Aircraft was shut down and maintenance inspection revealed top cover of hydraulic pressure switch worked loose, allowing moisture to accumulate in pressure switch. ■ Crew detected odor of hot oil and transmission oil pressure fluctuation. Caused by failure of main input quill seal assembly. ■ Engine fire detection light came on. Caused by failure of fire sensing element. ■ Pilot heard loud whine coming from engine area. During approach, loud pop was heard from engine, and master caution and engine chip detector lights illuminated. Postlanding inspection revealed internal failure of starter generator and fuzz on engine magnetic plug.

AH-1

1 Accident ■ Aircraft crashed en route single ship between airfields. Investigation in progress.

10 Precautionary Landings—following are selected briefs ■ During takeoff, fuel filter light came on. Postlanding inspection revealed clogged fuel filter. ■ Burning odor was detected during approach. Caused by inverter failure. ■ Engine chip detector light came on. Postflight inspection revealed metal filings. Plug was cleaned and aircraft was cleared for one-time flight to base. Chip detector light came on again and pilot landed. Maintenance personnel cleaned plug again, flushed system, changed filter, and cleared aircraft for another one-time flight to base. Engine was changed after second flight due to more metal particles. ■ Pedals became stiff in cruise flight. Inspection revealed tail rotor push-pull tubes were binding at station number BS 143.28. ■ While firing M28A1 turret, pilot heard loud noises and noticed sharp movement in turret, followed by No. 2 hydraulic caution and master caution light illumination. Postflight inspection revealed failure of No. 2 hydraulic pressure line. □

LOH/CARGO BRANCH

MAJ Robert P. Judson, Chief ■ 558-4202

0 Accidents, 0 Fatalities, 0 Injuries, Estimated Costs: \$62,000

OH-58

1 Forced Landing ■ Engine failed as aircraft was hovering into position for takeoff. Hovering autorotation was made. Cause unknown.

5 Precautionary Landings ■ Master caution and engine oil bypass caution lights illuminated. Inspection revealed loss of engine oil. Oil was leaking from fitting at accessory gearbox. Metal tube, P/N 6859956, was cracked. ■ During takeoff, engine surged and nose of aircraft yawed to right. Engine power was reduced and aircraft was landed. Maintenance was unable to duplicate malfunction and aircraft was released for flight. ■ Fuel filter caution light came on. Power-on landing was made. Water was found in fuel filter bowl. (ARNG) ■ After landing, hydraulic pump failed. ■ Aircraft was in cruise flight at 3,000 feet agl when transmission chip detector light came on. Postlanding inspection revealed numerous metal particles on chip detector and large accumulation of particles on transmission oil filter.

TH-55

2 Precautionary Landings ■ During climb after takeoff, SP heard high-pitched squealing noise coming from area of main rotor head. Maintenance inspection revealed failure of heater blower motor. ■ IP noted fumes in cockpit. Caused by alternator failure.

CH-47

1 Incident ■ After touchdown, pilot reached for parking brake handle to set brakes. Front end of aircraft came off ground and swung slightly to right. Forward blades struck tree. Caused by copilot's thrust brake switch being operative, but pilot's was inoperative. In order for the pilot to have full control of the aircraft during flight, thrust brake was disabled by pulling thrust brake circuit breaker. While reaching for parking brake handle, pilot released thrust control. The thrust brake being disabled allowed the thrust brake to raise which, in turn, brought the front end of the aircraft off the ground.

4 Precautionary Landings ■ Forward transmission oil temperature went to 135° C. during flight. After aircraft was landed temperature returned to 70° C. and stabilized. Caused by failure of forward transmission. ■ Aircraft was on short final when No. 1 engine failed. Suspect ice in fuel lines. Discrepancy could not be duplicated. ■ During engine topping check, No. 2 engine stuck at max power 98 percent N1. Engine would not beep up or down with normal or emergency beep. Engine was brought to ground idle and running landing was made. Cause unknown. Condition could not be duplicated. ■ No. 2 engine oil low light came on and oil pressure dropped below 40 psi during flight. Engine oil filter O-ring failed.

CH-54

1 Precautionary Landing ■ No. 1 engine fire light came on. Pilot reset master fire light and circuit breaker. Light stayed out. There was no visible sign of smoke. Cause not reported. □

THOUGHT FOR THE WEEK

DON'T LET YESTERDAY'S MISTAKES INTERFERE WITH TODAY'S SAFETY

FIXED WING BRANCH

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

1 Accident, 2 Fatalities, 0 Injuries, Estimated Costs: \$1,058,540

U-21

1 Precautionary Landing ■ Right secondary idle warning light came on during climbout. Support maintenance reported cause as loose pins on caution panel cannon plug.

OV-1

1 Accident ■ Aircraft crashed during emergency landing. Cause under investigation. (ARNG)

1 Precautionary Landing ■ No. 1 and No. 2 needles of RMI started making 360° revolutions. Caused by malfunction of RMI. □

ATTENTION, ACCIDENT INVESTIGATION BOARDS

JUMPING TO CONCLUSIONS IS NOT HALF AS GOOD EXERCISE AS DIGGING FOR FACTS.

AVIATION-RELATED GROUND MISHAPS

William P. Christian ■ 558-4202

2 Mishaps, 0 Fatalities, 0 Injuries, Estimated Costs: \$654,946

OH-58

■ During winds estimated at 30 knots gusting to 50 knots, OH-58 main rotor blade became untied. Two other OH-58's were parked in close proximity, with an Army passenger bus parked in front to shield them from the wind. When main rotor blade became free it rotated into the aircraft next to it, breaking off aircraft's roof-mounted FM antenna. High winds also caused destruction of a maintenance tent. Actions taken to prevent recurrence were to roll back tent canvas when high winds are forecast and to check all main rotor blade tiedowns at frequent intervals to insure security. *USAAAVS recognizes this as a potential hazard and preparations for recommending changes to the OH-58 main rotor blade tiedown requirements are being accomplished.*

CH-47

■ CH-47 was performing external sling lift of launcher zero length (LZL) with training missile XM6 and associated fire control equipment. Aircraft was flying at an approximate speed of 60 knots and altitude of 1,300 feet above ground when LZL came free from aircraft. Jettisoned load resulted from malfunction of cargo hook. Evaluation revealed keeper cargo sling, P/N 114E5074-1, was binding and would not close with spring tension. Manual release lever, P/N 114E5023-1, was also binding and would not lock with

spring tension. Both items, the keeper and lever, had to be tripped manually for positive lock. Corrective actions recommended were to insure that rigging procedures are correctly applied and all airlift procedures are checked thoroughly. Opaque inspection panel on left side of all hooks has been removed to allow visual inspection of lever position. EIR was submitted. □

MAINTENANCE BRIEFS

MSG B. R. Bailey ■ 558-3901

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

UH-1

2 **Precautionary Landings** ■ Battery fumes entered cockpit. Caused by voltage regulator being set too high and battery overheating. ■ During flight voltmeter continuously indicated 30 volts. Aircraft was flown to home base with battery in off position. Inspection revealed voltage regulator was set too high.

OH-58

2 **Precautionary Landings** ■ While hovering aircraft, pilot noticed binding in tail rotor pedals. Inspection revealed tail rotor was out of rig. (USAR) ■ During hovering turn, tail rotor controls stuck in right pedal position. Pilot attempted to regain pedal control but was unable to do so. Successful emergency landing with reduced power was made. Inspection revealed cannon plug for KY 28 was lodged between tail rotor control tube and avionics pedestal. *They say a word to the wise is sufficient. Well, the word has been put out in FLIGHTFAX and MAINTENANCE FAX many times about cannon plugs jamming flight controls in the avionics pedestal on the OH-58. Have you maintenance supervisors put the word out to your mechanics? If not, sooner or later we will be reading about you; we can only hope it's not as a fatality.*

CH-54

1 **Precautionary Landing** ■ During flight, voice warning activated, indicating transmission fault. Transmission oil pressure caution light then illuminated and oil pressure gauge went to zero. Cracked fitting at transmission oil line reducer assembly caused system to lose oil.

DA FORM 2408-15

When preparing DA Form 2408-15 overprinted for aircraft turbine engines, close attention should be paid to columns 5A through 5I. Reference TM 38-750 w/C1, pages 4-25 and 4-26. This should eliminate any problems when filling out this form.

MESSAGES RECEIVED

- AVSCOM Message R191458Z Mar 76, subject: Maintenance Advisory Message for UH-1/AH-1 Aircraft (UH-1-76-7 and AH-1-76-6). The purpose of this message is to expand the list of bearings usable in UH-1/AH-1 aircraft oil cooler fan bearings previously listed in maintenance advisory message UH-1-75-15 and AH-1-75-14.
- DA Message R272137Z Feb 76, subject: Reduction of Aircraft Reporting-TAMMS.

DEFECTIVE MAIN ROTOR BLADES

Message 241655Z Mar 76, subject: Maintenance Advisory Message UH-1D/H Model Main Rotor Blades (UH-1-76-6). AVSCOM Message 192056Z Jan 76 provided instructions for locating, reporting, and disposing of 10 potentially defective main rotor blades. Seven of these blades have been found. Serial numbers of the three missing blades are A2-27967, A2-28023, and A2-29325. All commanders should insure that an exhaustive search has been made for the missing blades. Call AVSCOM, AUTOVON 698-6516, if additional information is needed or if blades are found. □

DEPARTMENT OF THE ARMY
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AGENCY FOR AVIATION SAFETY
FORT RUCKER, ALABAMA 36362

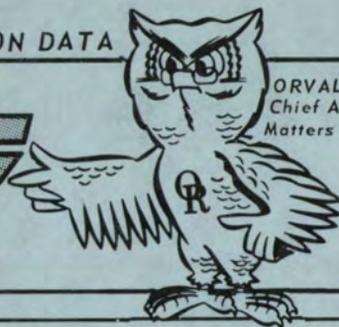
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FLIGHT FAX



ORVAL RIGHT
Chief Advisor on
Matters of Aviation

A USAAAVS PUBLICATION

VOL. 4, NO. 24 ■ 7 APRIL 1976

mishaps for the period of 19-25 MARCH 1976

ATTENTION, AAPMC ATTENDEES

The Aircraft Accident Prevention Management Course, conducted by USAAAVS at Fort Rucker, AL, for enlisted aviation personnel, is 10 duty days in length with graduation at 1030 on Friday morning of the second week.

Military students from other installations will report to the USAAVNC BOQ/BEQ Billeting Officer, building 308, for assignment of quarters. The 43d Student Company will house E-5's and below. 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. If quarters are not available, statements of nonavailability will be issued on a day-to-day basis.

Personnel will sign in at 0730, room 110, building 4905 (USAAAVS building), on Tuesday, the first day of class. Bring enough copies of your orders (Reserve and National Guard require eight copies to process through the Finance Center).

Classroom uniform can be either Nomex flight suit, fatigues, or Class A. Khaki/IW uniforms are optional between 15 March and 3 November. Due to field location of the accident investigation and airfield survey sites, attendees are advised to bring at least one pair of Nomex or 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.

Local transportation, with the exception of field trips, is not available. Each student is encouraged to make his own arrangements concerning local transportation.

Request all military personnel who have received official orders to attend the AAPMC send at least one copy of orders to Commander, USAAAVS, ATTN: IGAR-PE, Fort Rucker, AL 36362.

If further information is required, contact Chief, NCOIC, Enlisted Instructional Division, USAAAVS, AUTOVON 558-4510/3493, commercial 205-255-4510/3493.

Firm class schedules for remainder of CY 76 are:

Class No.	Reporting Date	Closing Date
76-9	12 Apr 1976	23 Apr 1976
76-10	10 May 1976	21 May 1976
7T-1	5 Jul 1976	16 Jul 1976
7T-2	2 Aug 1976	13 Aug 1976
7T-3	30 Aug 1976	10 Sep 1976
77-1	11 Oct 1976	22 Oct 1976
77-2	25 Oct 1976	5 Nov 1976

UNITED STATES ARMY AGENCY FOR AVIATION SAFETY ■ FORT RUCKER, ALABAMA 36362

Prepared from information compiled by the
Directorate for Aircraft Accident Analysis
and Investigation
Lieutenant Colonel Curtis M. Sanders, Director

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COMMERCIAL: 255-XXXX AUTOVON: 558-XXXX
Commander/Deputy Commander 3410/3819
For Assistance in Locating Proper Directorate 4479
Aircraft Accident Analysis and Investigation 3913/4202
Technical Research and Applications 6404/6410
Plans, Operations, and Education 4479/4812
Management Information System 5286/4200
Publications and Graphics Division 6385/3493
Medical Division 2091/4806
After-duty tape recording of incoming calls to be returned the following day (hours: 1615 to 0730) 6510

UTILITY/ATTACK BRANCH

MAJ William C. Childree, Chief ■ 558-4198

2 Accidents, 10 Fatalities, 2 Injuries, Estimated Costs: \$619,332

UH-1

2 Accidents ■ Aircraft crashed into trees in area of low visibility. Accident is under investigation with USAAAVS participation. ■ Aircraft crashed while attempting to operate in minimum weather conditions during severe thunderstorm. Investigation is in progress with USAAAVS participation.

4 Incidents ■ Suspect main rotor blade struck tree during night contour combat assault training. Damage was not found until preflight the following day. ■ During liftoff from hover hole, aircraft turned into wind for takeoff and tail rotor hit tree. Pilot did not think he hit tree and continued mission. Damage was noted during postflight inspection. ■ During engine start, main rotor tiedown was not removed and struck tail rotor blade. ■ Main rotor blades were found damaged during postflight inspection. Suspect damage was caused by debris in LZ or possible tree strike.

1 Forced Landing ■ Engine idle stop failed to function during practice autorotation and engine throttle was inadvertently reduced to engine cutoff. Caused by improper adjustment of solenoid.

17 Precautionary Landings—following are selected briefs ■ Hydraulic pressure and master caution light activated while hot refueling. Caused by irreversible valve failure. ■ Transmission oil pressure became erratic. Caused by transmission oil pressure gauge failure. ■ High frequency vibration was felt in pedals. Pedals then became stiff and began to motor. This condition continued in varying degrees from very stiff to free with slight motoring until running landing was made. Caused by binding of tail rotor servo. ■ During hover, pilot noticed fluid spurting through top battery vent and crew smelled fumes in cockpit area. Maintenance inspection revealed four split battery cells. ■ Hydraulic caution light came on and pilot made running landing. Caused by hydraulic pressure switch failure.

AH-1

3 Incidents—following are selected briefs ■ While pilot was maneuvering for simulated target attack, main rotor blades struck small tree. ■ During hover for takeoff, engine chip detector light came on, followed immediately by explosion. Suspect Nos. 3 and 4 engine bearing pack seized.

3 Precautionary Landings ■ Battery overheated and was destroyed. ■ Aircraft was hovering when SCAS system failed. Caused by failure of sensor amplifier. ■ Hardover in roll channel of SCAS occurred during takeoff. Pilot disengaged channel and reengaged unaffected channels. Transmission oil pressure and transmission oil bypass lights illuminated. Postflight maintenance inspection revealed oil sprayed from transmission filter seal onto SCAS (pylon rock transducer) caused short in system. □

THOUGHT FOR THE WEEK

Isn't it odd that Master Army Aviators don't get involved in "inadvertent IFR" mishaps? Yet, they must have been involved in "marginal weather" flying a lot longer than most of their current supervisors and commanders! Maybe it's time to exploit the fund of knowledge inherent to our "wreathed-wing-wearing" community—irrespective of their rank—and find out what their recommendations would be to reduce our inadvertent IFR losses!

LOH/CARGO BRANCH

MAJ Robert P. Judson, Chief ■ 558-4202

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

OH-58

5 Precautionary Landings ■ N2 fluctuated from 101-108 percent. Rotor tachometer and N1 did not fluctuate. Torque and TOT remained normal. Suspect failure of N2 tachometer generator. ■ Transmission oil pressure light came on. Caused by faulty transmission oil pressure switch. ■ While hovering from parking area to active runway, pilot felt binding in cyclic. No determination of problem has been made at this time. ■ Pilot noticed burning smell in vicinity of VHF radio. Caused by electrical arcing of loose connection to copilot's ICS box. ■ Aircraft was in right bank when tail rotor chip detector light came on. Inspection revealed electrical short in chip detector.

CH-47

3 Precautionary Landings ■ Pilot heard rpm increasing, and torque check indicated 160 and climbing with rotor rpm at 244. Control of engines was regained with emergency beep trim. Cause could have been broken wire found in copilot's thrust handle. Broken wire could have shorted out normal engine beep and caused engine malfunction. ■ High-frequency vibration was observed at station 210 and ramp area during

flight. Cause unknown. Discrepancy could not be duplicated. ■ No. 1 engine chip detector light came on. Special oil analysis revealed excessive metal contamination. Engine failed internally.

CH-54

2 **Precautionary Landings** ■ Aircraft was on short final with sling load when cockpit indicators indicated No. 2 engine failure and fire. Sling load was dropped and aircraft landed. Electrical malfunction of T-5 gauge on No. 2 engine and malfunction of No. 1 engine torque indicator indicated No. 2 engine had failed. Sunrays activated fire detector system, causing false indication of fire. (ARNG) ■ Main gearbox chip detector light came on. Transmission serviceability check was performed and light came on again. Brass and metal particles were found on chip detector and screens. Transmission failed internally. □

FIXED WING BRANCH

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

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

T-42

1 **Precautionary Landing** ■ After takeoff, landing gear stuck in transit to up position. Circuit breaker was recycled and landing gear operated normally. Caused by faulty landing gear relay.

U-21

6 **Precautionary Landings** ■ While cruising at 11,000 feet, IP noticed No. 2 engine oil pressure drop from 68 psi to 65 psi. ITT rose 5 degrees. Oil pressure continued to drop. At 62 psi, IP shut down engine. Cause was not given. ■ While in cruise flight at 9,000 feet, copilot noted fluid coming from behind right propeller spinner and streaming back beyond nacelle fuel cap. Cause was not given. ■ After takeoff, gear handle was placed in up position. Gear retracted approximately 2½ inches. Gear was selected down and would not move into down position. Gear was pumped down manually and landing was made. Caused by failure of landing gear retract actuator assembly. ■ At cruise power, 4,000 feet msl, power reduction was made to slow aircraft due to turbulence. Following power reduction No. 2 engine rpm decreased from 1900 (cruise setting) to 1750. Pilot attempted to cycle prop, but rpm remained at 1750. Power was reduced and engine feathered. Aircraft was landed without further mishap. Inspection was made of governor and MOC completed without fault. Aircraft was test flown without duplication of problem. Caused by failure of right-hand proximity switch. ■ During flat left turns, No. 1 engine torque dropped to 600 pounds. Pilot matched No. 1 and No. 2 torque settings at 600 pounds. Approximately one minute later, No. 1 engine torque surged to 800 pounds. Pilot reduced No. 1 engine to idle and engine surged to 1,000 pounds. Pilot secured No. 1 engine and landing was made. Cause of No. 1 engine torque surge was internal failure of No. 1 engine fuel control. ■ After takeoff, pilot noticed the following indications on No. 2 engine: fluctuation of ITT, 20-30 degrees; rpm, 40; N1 percent, 1-2; oil pressure, 25-30 psi. Malfunction of fuel control main turbine was given as cause.

U-8

1 **Precautionary Landing** ■ On takeoff roll, right brake appeared to grab and retarded acceleration. Insufficient runway remained to abort. IP pulled off at 80 knots, aircraft accelerated rapidly, and climbout was normal. IP landed aircraft, right brake grabbed, and aircraft began to swerve right. Right engine power and left brake kept aircraft on runway. Caused by defective hydraulic brake cylinder.

OV-1

1 **Human Factor Mishap** ■ Thirty minutes into flight, technical observer complained to pilot that he was feeling ill. Pilot initiated approach to airfield and was advised that runway was closed due to emergency on airfield. Pilot orbited airfield for 15 minutes. TO told pilot his feet and tongue were numb. Pilot again requested to land and was advised that runway was still closed and he should proceed to alternate airfield. Pilot agreed and requested that an ambulance stand by at alternate airfield. While en route, TO's hand began to shake and he began to lose consciousness. On final approach, TO became unconscious. Aircraft was landed and TO was taken to hospital. TO had the flu 2-3 days before the incident. He had little sleep and had not eaten much in the past 24 hours. *This illustrates the seriousness of flying when not medically fit. Substitute pilot for TO in the above mishap and think about possible results!* □

MAINTENANCE MISHAPS

MSG B. R. Bailey ■ 558-3901

0 Accidents, 0 Fatalities, 0 Injuries, Estimated Costs: \$6,632

AH-1

1 **Incident** ■ While aircraft was on ground and armament crew was working on weapon systems, ground crewmember threw a pair of pliers. Pliers hit main rotor blade.

CH-54

1 **Precautionary Landing** ■ Aircraft developed hydraulic leak at hover. Caused by chafed pressure line at No. 1 flight boost pump.

OV-1

1 **Incident** ■ Aircraft was at 7,500 feet straight and level when escape hatch flew off. Aircraft had flown for 1 hour since seat inspection. Suspect maintenance personnel improperly seated canopy after seat inspection. Reference should be made to TM 55-1510-204-20/1-1, page 4-21, par. 4-29, for proper installation of escape hatch.

T-42

1 **Precautionary Landing** ■ After takeoff on second test flight, pilot noticed No. 2 engine starting to run rough and lose power. Fuel pressure was dropping. Engine was secured and aircraft landed. Fuel line from ejector pump to manifold assembly became loose. Line was tightened to proper torque and aircraft was test flown and released for flight. No. 2 engine airbox and alternator had been removed during maintenance. Suspect fuel line, when reinstalled, was not properly torqued. Extensive ground runs and vibrations from airframe during first test flight may have caused line fitting to loosen.

U-21

1 **Precautionary Landing** ■ While performing before-landing check, only two landing gear lights illuminated, indicating unsafe gear. Procedures for unsafe gear indication were performed and landing was made. Inspection revealed broken wire to left main downlock switch. One wire chafed in wire bundle by upper drag brace during gear retraction and extension. Thorough maintenance or inspection could possibly have prevented this mishap. □

AVIATION-RELATED GROUND MISHAPS

William P. Christian ■ 558-4202

1 Mishap, 0 Fatalities, 0 Injuries, Estimated Costs: \$5,000

RU-21J

■ Host installation dug trench across taxi area for cable and filled trench with soft earth. No warning was posted. Pilot was taxiing aircraft to runup area for engine runup. Main gear sank in dirt, causing R&D project antenna on aircraft belly to be damaged. There was also a slight buckling of aircraft skin. □

MAKE AVIATION SAFETY THE SPIRIT OF '76

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UNITED STATES ARMY
AGENCY FOR AVIATION SAFETY
FORT RUCKER, ALABAMA 36362

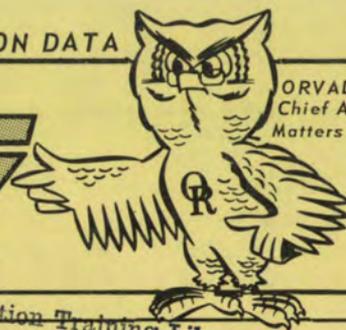
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VOL. 4, NO. 25 ■ 14 APRIL 1976

mishaps for the period 8126 MARCH-1 APRIL 1976

U-21 and T-42 Maintenance Training

Courses of instruction have been established to provide systems familiarization and line maintenance on the T-42 and U-21A and G series aircraft.

The U-21A and G course is two weeks in duration and is offered to users of the aircraft on a per man rate of \$325. The T-42 course is one week in duration at a per man rate of \$170. Both courses will be conducted at the Beech Aerospace Training Center, Suite 385, Lakeside Plaza Building, 250 North Rock Road, Wichita, Kansas, on the following schedules:

U-21A and G	T-42
19-30 April 1976	17-21 May 1976
16-27 August 1976	30 Aug-3 Sep 1976
25 Oct-5 Nov 1976	13-16 Dec 1976

Should you wish to enroll personnel in any of the courses, please direct your correspondence to Beech Aircraft Corporation, 9709 East Central, Wichita, Kansas 67201, ATTN: Frank Sulanke, Dept. 92A; or call Mr. Sulanke or Mr. John Frank at 316-682-4941. It is requested that your response be made at least two weeks before commencement of the course so necessary classroom preparations can be made.

If a unit desires to train a large number of personnel or has special training requirements involving Beech products, contact Mr. Sulanke or Mr. Frank about the possibility of on-site training classes.

COLD WEATHER OPERATION OF RADIO SET AN/PRC-90 USING BATTERY BA-1568/U

The following information was received from the U.S. Army Electronics Command, Fort Monmouth, NJ:

The next change to TM 11-5820-800-12, 30 Nov 1973, will include the following. Page 3-6, paragraph 3-7a, is changed to read as follows:

a. Operation of the AN/PRC-90 will span a wide range of weather extremes. Although the AN/PRC-90 circuits are operable over a temperature range of -30° to $+50^{\circ}$ C. (-22° to $+122^{\circ}$ F.), the battery (BA-1568/U) power supply is only effectively operable

over a 0° to $+54^{\circ}$ C. ($+32^{\circ}$ to $+129^{\circ}$ F.) temperature range. Operating at low temperatures reduces battery life. The AN/PRC-90 (less the battery) may be stored over a temperature range of -60° to $+60^{\circ}$ C. (-76° to $+140^{\circ}$ F.).

The following note is to be added after paragraph 3-7c:

When operational conditions using battery BA-1568/UR include temperatures below 50° F., the radio set and spare battery should be carried inside flight clothing to prevent cold soaking. The battery will not supply sufficient power to operate the radio if permitted to cold soak for extended periods of time at freezing or below temperatures. Therefore, the user should initiate use of radio at low temperatures with a battery that has been warmed. Batteries should be rewarmed ASAP after use to insure reliable operation of the radio. The following exposure times of the battery at the temperatures indicated are recommended:

Temperature ($^{\circ}$ F.)	Cold Soak Time
Plus 32°	30 minutes
0°	15 minutes
Minus 40°	5 minutes

From 101st Airborne Division (Air Aslt) and Ft. Campbell AVIATION SAFETY BULLETIN

AH-1G TAIL ROTOR

Due to the increased efficiency of the new anti-torque system, AH-1G pilots may encounter some safety hazards during ground operations.

During ground operations it has been discovered that on dry cement at 6000 rpm with a 1-inch input to the antitorque system, the nose of the aircraft moved 6 inches with flap pitch. The operation of this system on wet and icy surfaces can result in the aircraft spinning if the pilots are not aware of the effectiveness of the new system.

The rigging and tracking procedures are different from the old system. The new procedures are listed in MWO 55-1520-221-30-45. The in-flight rigging check is different and this information is coming from AVSCOM in a message.

UTILITY/ATTACK BRANCH

MAJ William C. Childree, Chief ■ 558-4198

1 Accident, 3 Fatalities, 0 Injuries, Estimated Costs: \$339,486

UH-1

1 Accident ■ Aircraft was chalk 2 in a flight of three searching for an LZ at night. Aircraft climbed into clouds for unknown reasons and pilot made mayday call, stating that he was spinning. Chalk 3 made a 360° turn and saw aircraft fall straight down and strike ground. Aircraft exploded on impact. All three crewmembers were killed. Investigation is in progress with USAAAVS participation.

6 Incidents ■ Four of the six involved rotor damage caused by tree strikes. One incident had rotor damage caused by striking wires. All five of these aircraft were performing *authorized/supervised* NOE. ■ During straight-in autorotation IP failed to apply sufficient collective pitch, resulting in damage to tail boom, 90° gearbox, and tail rotor.

1 Forced Landing ■ Engine failed at approximately 10 to 15 feet on short final. WELL DONE to CW2 Kieth Broeme, A Co, 2nd Avn Bn, Camp Casey, Korea, for a successful emergency landing.

9 Precautionary Landings—following are selected briefs ■ Engine fuel pump warning light activated. Engine fuel pump was replaced. ■ Transmission oil pressure gauges of two aircraft fluctuated in flight. Pressure switches were replaced on both aircraft. ■ During night approach with eight persons on board, pilot misjudged approach speed and overtorqued aircraft to 65 pounds. ■ During cruise flight aircraft began yawing left and right when power was applied. Inspection revealed small amount of water in fuel control inlet screen. ■ High frequency vibration occurred. Inspection revealed oil cooler fan bearing had failed. ■ Erratic engine/rotor tachometer readings were noted in flight. Dual tachometer indicator was replaced.

AH-1

1 Incident ■ During departure from LZ, main rotor struck tree, damaging main rotor.

5 Precautionary Landings ■ During NOE flight, aircraft departed downwind and increased power to 53 pounds of torque to avoid striking wires. ■ During conduct of simulated generator failure, generator would not come back on line. Caused by failure of generator field circuit breaker. ■ Engine fuel pump light came on during runup, followed by decrease in engine rpm. Suspect engine fuel pump failure. ■ No. 2 hydraulic caution light came on. Caused by failure of hydraulic pressure switch. ■ After completion of 20mm cannon firing while en route to engage second target, aircraft yawed to left. Inspection revealed SCAS sensor amplifier unit malfunctioned. Sensor amplifier was readjusted and aircraft released for flight. Suspect vibrations from 20mm cannon caused SCAS sensor amplifier to malfunction.

UH-1 BATTERIES

The following message from FORSCOM, 241615Z Mar 76, subject: Rotary Wing Operations Without Batteries Installed, is being repeated for informational purposes.

A. FONECON, CPT Otis, HQ FORSCOM and Mr. Kostal, AVSCOM, 22 Mar 76.

B. TM 55-1500-328-25.

1. During the recent aviation resources management survey (ARMS), it was discovered that UH-1 aircraft were operated routinely without the battery installed.

UNITED STATES ARMY AGENCY FOR AVIATION SAFETY ■ FORT RUCKER, ALABAMA 36362

Prepared from information compiled by the
Directorate for Aircraft Accident Analysis
and Investigation
Lieutenant Colonel Curtis M. Sanders, Director

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COMMERCIAL: 255-XXXX AUTOVON: 558-XXXX
Commander/Deputy Commander 3410/3819
For Assistance in Locating Proper Directorate 4479
Aircraft Accident Analysis and Investigation 3913/4202
Technical Research and Applications 6404/6410
Plans, Operations, and Education 4479/4812
Management Information System 5286/4200
Publications and Graphics Division 6385/3493
Medical Division 2091/4806
After-duty tape recording of incoming calls to be returned the following day (hours: 1615 to 0730) 6510

2. Flying without the battery installed represents an unwarranted deviation from prudent safety considerations and established operating procedures by exposing aircrews and passengers to undue risks in the event of electrical systems failures. For example, loss of the main and standby generator would result in complete electrical power failure rendering all communications, warning, caution, and instrument systems inoperable.

3. Accordingly, aircraft will no longer be operated without a battery installed except in actual operational emergencies as explained in reference B.

4. Should this action preclude accomplishment of your mission, a request for exception to policy with full justification should be submitted to this HQ, ATTN: AFOP-AV.

USAAAVS concurs with this message and recommends all aviation units be made aware of the safety implications involved. □

LOH/CARGO BRANCH

MAJ Robert P. Judson, Chief ■ 558-4202

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

OH-58

1 **Forced Landing** ■ Aircraft was in cruise flight when low rpm audio sounded. Pilot lowered collective and N2, and rotor returned to normal. Pilot then applied power. N2 immediately bled down to 80 percent and N1 dropped to 49 percent. Pilot then entered autorotation successfully touching down in open field without any injuries or aircraft damage. Engine malfunction was caused by check valve, P/N 6854622. WELL DONE to CPT Charles H. Jacobus, HHC, 1st Bde, 7th Inf Div, Ft Ord, CA.

6 **Precautionary Landings** ■ Starter button was depressed to start engine. Starter motored, but engine would not turn. Starter shaft was sheared. ■ Engine oil bypass light came on during landing. Caused by low engine oil level. ■ Transmission chip detector light came on after takeoff. Excessive amount of metal chips was found on plug. Suspect transmission failure. ■ When starting aircraft, gas producer tachometer N1 failed to give any indication. Caused by water in N1 tach generator cannon plug which caused electrical short. ■ During climbout after takeoff, burning odor filled cockpit. There was no evidence of smoke at any time. After landing, defogging blower assembly, P/N 206-070-475-3, was found defective. (ARNG) ■ During cruise flight, pilot turned on landing light to alert approaching aircraft. Pilot smelled burning odor and turned light off. Burning odor was again noticed when light was turned back on during final approach for precautionary landing. Inspection revealed that the two electrical wires leading to the landing light were burnt. AVSCOM maintenance advisory message OH-58-75-4 had not been complied with.

TH-55

1 **Forced Landing** ■ Engine quit due to fuel exhaustion after 1.9 hours of flight. Investigation revealed that fuel tank was full at start of flight. Fuel quantity indicator was in error. Indicator showed 6 gallons of fuel remaining after engine had quit from fuel exhaustion, and fuel consumption exceeded established high limit as determined by fuel consumption check.

1 **Precautionary Landing** ■ Engine oil pressure exceeded upper limit. Maintenance inspection revealed failure of oil pressure sending unit.

CH-47

1 **Precautionary Landing** ■ Flight engineer notified IP of severe high frequency vibration in engine mounting area during demonstration of single-engine failure. No. 1 engine was returned to flight. Postflight inspection revealed vibrations caused C-box oil filler cap to break off. Cause of vibrations was excessive axial play of C-box No. 2 input shaft.

MAKE AVIATION SAFETY THE SPIRIT OF '76

C-12

1 **Precautionary Landing** ■ Passenger noticed smoke coming out of upholstery panels at station 190 between two windows. Inspection revealed all cabin reading lights were wired backwards. This caused metal honeycombed material in upholstery panels to heat intensely and burn upholstery material when reading lights were turned on.

OV-1

3 **Precautionary Landings** ■ Unsafe gear indication occurred during prelanding check. After several cycles, pilot got proper gear indication. Inspection revealed broken wire in landing gear handle. ■ After unsafe gear indication, emergency system was used with no success. Flyby of tower was made and gear appeared to be down and locked. Landing was made. Cause of unsafe indication was defective down-lock switch. Switch was replaced. ■ During takeoff, immediately upon liftoff, right hatch blew open. Pilot aborted takeoff and encountered no further problems. Technical observer failed to insure that hatch was properly secured.

T-41

1 **Precautionary Landing** ■ Cockpit instrument lighting began dimming during cruise. Pilot could not determine fault, noted battery discharge on ammeter, and was able to make one transmission to ATC before all electrical power was lost. Postlanding inspection revealed materiel failure of starter contactor and alternator field circuit breaker popped. Pilot stated he found no circuit breakers popped at onset of emergency. He did not check them any more.

T-42

3 **Precautionary Landings** ■ Oil line to propeller governor broke behind fitting leading to propeller. At approximately 300 feet agl No. 2 engine went into feather. Negative indication of oil pressure was noted and engine secured. Single-engine landing was made. ■ Aircraft was at cruise when No. 1 engine began running rough. Throttle was reduced and engine smoothed out. No. 1 piston compression ring was stuck, allowing oil to seep past and foul spark plugs. No. 5 cylinder intake valve would not properly seat. Nos. 1 and 5 cylinders were reconditioned and aircraft released for flight. ■ No. 2 engine ran rough, oil temperature increased 15° above normal, and engine chip detector light came on. No. 6 cylinder had broken exhaust valve rocker arm, bent intake push rod, and cracked intake push rod housing. Cylinder was repaired and oil system flushed.

U-8

3 **Precautionary Landings** ■ After takeoff, engine surged several times and then began running rough. Engine was secured and single-engine landing was made. Caused by fouled spark plugs. ■ No. 2 engine started missing, 400 to 500 rpm drop in surges, and cylinder temperature went to 300°. Throttle was retarded and then returned at reduced power setting. Shortly afterwards cylinder temperature went to ambient air temperature. Caused by seized oil ring on No. 5 cylinder. (USAR) ■ On approach for landing, nose wheel light would not give safe down indication. Landing gear was recycled several times with no change in indication. Landing gear was manually extended and flyby of tower was made. Tower personnel indicated landing gear appeared to be down and locked. On short final nose gear light came on with safe indication. Cause of problem is unknown at this time.

U-3

1 **Precautionary Landing** ■ Left engine cylinder head temperature dropped, engine began running rough, and aircraft was landed at home station. Caused by water suspended in fuel. (ARNG)

U-21

1 **Human Factor Mishap** ■ During night training, at 12,000 feet msl, copilot complained of being light-headed. Pilot requested clearance to 9,000 feet msl and descended to that altitude to prevent

possibility of hypoxia. After 20 minutes at 9,000 feet, copilot became nauseous and complained of numbness in his hands and arms. Shortly thereafter, all functional use of his hands and arms was lost. The pilot, fearing some form of dysbalism, climbed back to 12,000 feet msl and numbness and nausea subsided. Pilot returned to home station, where copilot was medevaced to an Army hospital. Condition was diagnosed as hyperventilation. □

MAINTENANCE ADVISORY MESSAGE T-42 AIRCRAFT (T-42-76-2)

Maintenance Advisory Message No. 122115Z Mar 76, subject: Correction to Letter, T-42A Aircraft Problems and Recommended Corrective Action, Letter No. 15, dated 23 Feb 76, T-42A Aircraft (T-42-76-1). This message advised T-42A aircraft maintenance activities not to comply with Beech service instruction T-42A-0001, subject: Battery Charge Current Sensor Kit Change, because the instructions were incorrect. It was also stated that corrective information was expected to be available in 7-10 days. The instructions have now been corrected and a verification installation proved the system to work as it should.

The new system required rerouting some wires and the installation of several diodes.

Beech will furnish kits and instruction at no cost directly to each using activity by aircraft serial number within approximately 4 weeks.

If parts kit and service instructions have not been furnished your unit by 1 June 1976, please contact AVSCOM, ATTN: DRSAV-FEW, AUTOVON 698-3456.

The above information was furnished by AVSCOM in message 312135Z Mar 76.

AVIATION-RELATED GROUND MISHAPS

William P. Christian ■ 558-4202

13 Mishaps, 1 Fatality, 6 Injuries, Estimated Costs: \$33,311

UH-1

■ Mechanic was climbing down right side of aircraft when his hand slipped from hand hold, allowing his left foot to catch in fire extinguisher access door, twisting his left knee. ■ Aircraft was being towed from hangar when right synchronized elevator struck airmobile tool set. Elevator was replaced. All personnel were instructed in the proper towing procedures, and a policy was instituted to insure all obstacles and/or equipment are clear of aircraft being moved. ■ Main rotor head and stabilizer bar assembly were being lifted from ground to top of aircraft. As assembly reached approximately 9 feet, hoist (P/N T101452) broke and rotor head fell to ground, injuring mechanic's hand. EIR was submitted. Subject hoists will not be used, pending outcome of EIR. ■ After taking coffee break, mechanic was returning to his aircraft and ran into horizontal stabilizer, sustaining mild concussion. All maintenance personnel were cautioned about running in hangars. ■ While jacking up ground handling wheels on UH-1, retaining pin disengaged, causing wheels to recoil and forcing jack handle into palm of pilot's hand. Pin was not set correctly, and return spring was weak, causing pin to back out of mount and wheels to slip off skids. Unit personnel have been instructed not to attempt to work on equipment with which they are not familiar. ■ Aircraft was being disassembled for loading on C141. Disassembly went as planned until crew started lowering rotor head to ground. At this time, hoist broke, striking one mechanic in the head, causing him to fall. EIR was submitted on defective hoist. The "J" hoist will not be used pending result of EIR.

AH-1

■ After 1-hour flight, aircraft was parked for refueling. After refueling, aircraft was being towed into hangar when left front cross tube gave way. Cross tube was sent in for analysis and EIR was submitted. ■ While working on flight line, mechanic was trying to hold down aircraft tail section during high winds. Mechanic strained his back. All employees were cautioned to use two men for this procedure.

OH-58

■ Mechanic was towing aircraft along airfield ramp when ground handling tow bars became disconnected, allowing aircraft to strike rear of tug. EIR was submitted on tow bars. ■ Mechanic disconnected tail

rotor drive shaft at Thomas coupling forward of 90° gearbox to check for high frequency vibration. Maintenance personnel revealed this procedure had been successful in the past; however, during start procedure, Thomas coupling contacted tail boom. Recommend TM 15-1520-228-20 be amended to show proper technique for isolating tail rotor drive shaft high frequency vibrations in the OH-58. ■ During attempt to back aircraft into wash rack, ground handling wheels struck wash rack drain, causing aircraft nose to rise, and tail stinger struck wash rack curb, damaging tail boom. Personnel were instructed to manually ground-handle aircraft into wash rack in the future.

CH-54

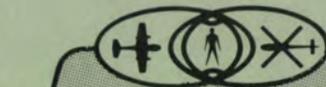
■ Mechanic was on top of aircraft attempting to jack up landing gear by use of aircraft hand pump system. In the process of bypassing the accumulator, he had connected bypass tubing from hand pump to wrong fitting in hydraulic utility subsystem of jack and kneel system. After four or five pumps on the handle, utility system line ruptured. Rupture caused mechanic to jump. As he jumped, hydraulic pump handle became dislodged and mechanic fell from aircraft and struck his head on concrete floor, receiving fatal injury. Parts which failed were sent to AVSCOM to be analyzed, and all current hydraulic pump handles will be made lockable. EIR was submitted to AVSCOM concerning this deficiency. ■ Helicopter was being removed from hangar when tail rotor blade hit overhead grounding wire, damaging tail rotor blade. Action taken to correct the situation was to have a crewmember walk as tail rotor guard and have a supervisor in charge when hangaring aircraft.

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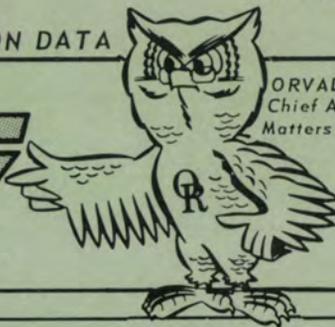
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VOL. 4, NO. 26 ■ 21 APRIL 1976

mishaps for the period of 2-8 APRIL 1976

HYPERVENTILATION CAUSES & CURES

LTC D. H. Karney, MD
Medical Division, USAAAVS

Three recent Human Factor Mishap Reports illustrate vividly the need for all aviation personnel to be thoroughly familiar with problems associated with respiratory physiology in the flight environment. In the first mishap, an aviator on a CH-54 IFR training mission in cruise flight at 3,500 feet msl became queasy and noticed a tingling sensation in his legs. He turned the controls over to the IP and shortly afterwards passed out for approximately one minute. The flight was diverted back to its home airfield, where the aviator recovered without incident. All preliminary medical tests were negative.

Two weeks later, while on a VFR test flight at cruise altitude, an OV-1 technical observer (TO) complained to the pilot that he was feeling ill. The pilot initiated an approach to his base airfield but was advised that the runway was closed due to an emergency on the airfield. The pilot then orbited the airfield for 15 minutes at which time the TO told him that his feet and tongue were numb. The pilot again requested to land but was advised that the runway was still closed and to divert the flight to another nearby airfield. He complied and requested that an ambulance stand by. En route to the second airfield, the TO's hands began to shake and he began to lose consciousness. On final approach he became unconscious. The aircraft landed and the TO was evacuated to the post hospital where he recovered completely. Medical examination and tests were negative. Contributing to the problem was the fact that he had had the "flu" for the preceding three days and had not eaten for the 24 hours before the mishap.

In the third mishap, a U-21 crew on a night IFR training mission flew for 1 hour and 50 minutes at altitudes below 10,000 feet msl, then climbed to

12,000 feet. After 20 minutes at 12,000 feet, the copilot complained of being lightheaded. The pilot then descended to 9,000 feet, assuming that the symptoms might be due to hypoxia. After 40 minutes at 9,000 feet the copilot became nauseated and complained of numbness in his hands and arms, and within 3 to 5 minutes lost all functional use of his hands and arms. Fearing some form of dysbarism the pilot initiated a climb to 12,000 feet. Passing through 11,000 feet the symptoms of numbness and nausea started to subside. After 5 minutes at 12,000 feet the pilot descended to 5,000 feet, then landed the aircraft. The copilot was medevaced by helicopter to the local Army hospital. Recovery was uneventful. Food-related gastrointestinal upset may have been a contributing factor.

All three cases are classic descriptions of hyperventilation syndrome, a physiologic condition which results simply from breathing too fast. Because it can, as illustrated, result in total incapacitation and end in a catastrophic accident, all personnel should be familiar with its cause and mechanisms involved, and know how to prevent and treat it.

What happens in hyperventilation? Normally, oxygen (O₂) is transferred from the air into the blood and carbon dioxide (CO₂) from the blood into the air through the lungs so that a proper balance of these gases exists in the body. When there is a normal increase in breathing rate, e.g., during exercise, this balance is maintained because both O₂ utilization and CO₂ production are increased. If breathing is increased without a need for additional O₂, an excessive amount of CO₂ is eliminated through the lungs since additional CO₂ is not being produced. This occurs with deliberate voluntary overbreathing and with involuntary overbreathing due to hypoxia or to apprehension and anxiety. The latter can occur at sea level, is the most common, and may result in a vicious cycle as the effects of hyperventilation produce anxiety and anxiety in turn aggravates hyperventilation.

Above altitudes of 10,000 feet, hyperventilation

Continued on page 2

Continued from front page

can occur through a normal reflex mechanism if hypoxia (oxygen deficiency) develops because oxygen equipment is not used or if it is not functioning properly. This is the body's attempt to compensate for the diminished oxygen supply at higher altitudes. The end result is the same—excessive CO₂ is eliminated, the blood contains less acid (CO₂ and water combine in the blood to form H₂CO₃, carbonic acid) and the condition of alkalosis (the blood becomes more alkaline) develops. This triggers the sequence of events known as the hyperventilation syndrome.

The physiologic effects of alkalosis secondary to hyperventilation include decreased O₂ supply to brain tissue (in spite of rapid breathing) by interfering with normal use of oxygen by brain cells and decreasing blood flow to the brain through spasm of arteries which supply blood to the brain. This can eventually lead to unconsciousness, at which time the low CO₂ content of the blood affects the breathing center of the brain to slow breathing, CO₂ reaccumulates, the balance is restored, and the individual recovers—provided there has been no accident as a result of the incapacitation. It can be difficult to tell the difference between hyperventilation in its early stages and hypoxia since the former secondarily produces hypoxia of the brain. Both produce euphoria (a sense of well being), affecting judgment. Most people have a feeling of shortness of breath.

Alkalosis also causes irritability of nerves and muscles resulting in numbness and tingling sensations around the mouth and in the arms and legs, usually first noticed in the fingers and toes. Muscle control and coordination deteriorate and muscle spasms (cramps) also occur. In extreme cases where all body muscles are involved, the rigid, shaking, unconscious person may mistakenly be thought to be having a convulsion.

While alkalosis causes spasm of blood vessels supplying the brain, it has the opposite effect of dilating blood vessels to the rest of the body. If this becomes severe enough, the blood pressure drops and shock may result. Fortunately, in most instances, unconsciousness returns the breathing to normal before this happens (there may be a brief period of slower than normal breathing during recovery) and recovery is complete and uneventful.

How is hyperventilation prevented?

■ Know and understand the psychological and physiological mechanisms of hyperventilation. Don't panic when early symptoms occur. Voluntarily control your breathing.

■ Never fly when physically ill or fatigued or when under psychological stress.

■ When flying above 10,000 feet, use supplemental oxygen provided by an adequate, well-maintained oxygen system.

What are the signs and symptoms of hyperventilation?

■ A sense of euphoria.

■ A feeling of shortness of breath, usually when there is no difficulty in breathing.

■ Numbness and tingling of the extremities and around the mouth.

■ Deterioration of muscle control and coordination.

■ Mental confusion progressing to unconsciousness.

How is hyperventilation treated when it does occur?

■ Voluntarily reduce the breathing rate when symptoms first appear. Don't give the cycle a chance to get started. If symptoms persist, land the aircraft (carefully, of course) at the nearest adequate airfield or landing zone before more serious problems develop.

■ If symptoms occur at altitudes above 10,000 feet, give your oxygen system a PRICE check, descend to below 10,000 feet, and land as soon as possible. Since symptoms of hyperventilation may be confused with hypoxia, assume the latter until proven otherwise.

■ Consult your flight surgeon after any suspected episode of hyperventilation or hypoxia.

■ A quick and easy treatment for moderate symptoms is to have the individual breathe slowly into a paper bag held firmly over the nose and mouth until symptoms subside. Carbon dioxide will accumulate in the rebreathed air faster than oxygen is used and relief is usually rapid. If this procedure relieves the symptoms, it essentially confirms the diagnosis of hyperventilation syndrome.

■ More serious cases obviously require medical attention.

It should be obvious from this discussion that hyperventilation is not to be taken lightly. It is not just a rare condition that develops at altitude when a sophisticated oxygen system goes on the blink. It can happen at any altitude. Be aware of its hazards.

How about making hyperventilation a topic for discussion at your next safety meeting? Better yet, corner your flight surgeon and have him review respiratory physiology for all your aircrewmembers in a special presentation. Someone's life, perhaps yours, may depend on it.

UTILITY/ATTACK BRANCH

MAJ William C. Childree, Chief ■ 558-4198

1 Accident, 0 Fatalities, 0 Injuries, Estimated Costs: \$24,394

UH-1

1 Accident ■ During practice autorotation, aircraft landed tail low. Tail rotor and 90° gearbox separated from aircraft.

2 Incidents ■ Main rotor blade was found damaged during postflight inspection. Suspect main rotor blade contact with tree. ■ During postflight inspection both main rotor blades were found damaged beyond limitations. Aircraft was performing supervised NOE flight.

21 Precautionary Landings—following are selected briefs ■ Egt gauge began fluctuating. All other instruments were stable and within normal operating range. Pilot made power-on landing. Maintenance inspection revealed failure of hot air valve. ■ Left-hand fuel boost segment light and master caution light came on. Caused by failure of left-hand fuel boost pump. ■ Transmission oil hot light came on. Inspection revealed temperature sensitive switch failure. ■ During takeoff, right-hand boost pump warning light came on intermittently, accompanied by loud squeal. Caused by right-hand boost pump failure. ■ Crew detected smoke in cockpit. Maintenance inspection revealed failure of copilot's attitude indicator. ■ Twenty-minute fuel warning light illuminated. Unforecast head winds were encountered en route.

AH-1

7 Precautionary Landings—following are selected briefs ■ While at hover to check binding cyclic, pilot put hydraulic switch in No. 2 position to check No. 1 system. When pilot went back to both, system did not recover. Master caution and No. 1 segment light remained on. Caused by ruptured hydraulic pressure line. ■ Loud noise was heard from engine area and aircraft yawed slightly. Aircraft was landed and shut down. As engine was turning down grinding noise was heard from compressor section. Suspect failure of No. 4 compressor wheel. ■ Engine oil bypass light came on during hover. Engine oil pressure fluctuated but oil temperature remained normal. Inspection revealed engine oil level was low. □

LOH/CARGO BRANCH

MAJ Robert P. Judson, Chief ■ 558-4202

0 Accidents, 0 Fatalities, 0 Injuries, Estimated Costs: \$19,048

OH-58

2 Incidents ■ Blade strike occurred while hovering. Damage was found on postflight. ■ During NOE flight, pilot misjudged main rotor distance from tree and both main rotor tip caps were damaged.

5 Precautionary Landings ■ Master caution light came on, followed by tail rotor chip light. Chip detector was defective. ■ During takeoff, loud siren-type noise was heard by pilots and surge in power was noted. Partially deteriorated compressor discharge tube seal allowed compressed air to escape. Escaping air caused siren-type noise. ■ Transmission oil hot light came on during takeoff. Inspection revealed transmission oil temperature switch had failed. ■ When aircraft was picked up to hover, engine and rotor rpm bled off. Maintenance inspection showed grit and dirt in pilot's throttle control which kept throttle from opening fully. Control was cleaned of foreign matter, and aircraft was released for flight. ■ Hydraulic pressure segment warning light illuminated. Caused by failure of hydraulic pressure switch.

OH-6

1 Forced Landing ■ When collective was increased to initiate climb, torque meter began fluctuating, and aircraft yawed. All other instruments appeared normal. Pilot initiated power-on descent. Engine-out warning light and audio signal activated simultaneously with decreased collective application. Pilot made engine-out autorotative landing to potato field. Cause of engine failure is unknown at this time. WELL DONE to Major John M. Sivilla, A Co., 26th Avn Bn, Windsor Locks, CT. (ARNG)

TH-55

1 Incident ■ During supervised solo flight period, SP overcontrolled helicopter and landed hard, resulting in incident damage.

2 Forced Landings ■ SP was adding power for maximum performance takeoff when engine quit. Maintenance operational check and test flight failed to duplicate the condition. Aircraft was released for flight. ■ IP reduced throttle to split engine and rotor tachometer needles for entry into simulated forced landing. Engine rpm continued to reduce toward zero, and engine would not respond to throttle application. Engine quit and pilot made forced landing. Maintenance inspection and test flight failed to reveal any reason for engine to quit.

2 Precautionary Landings ■ SP noted engine rpm needle fluctuating during flight. Maintenance inspection revealed failure of rotor and engine tachometer. ■ IP reported that he smelled cockpit fumes similar to burning paper. Caused by failure of alternator.

CH-47

1 Incident ■ During final approach to LZ with sling load of one M102 Howitzer, load began to oscillate and Howitzer trail contacted aircraft at station 470, penetrating aircraft skin.

THOUGHT FOR THE WEEK

If you have a maintenance problem and don't know the answer, look it up in the proper TM or ask someone who knows! □

FIXED WING BRANCH

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

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

T-42

3 Precautionary Landings ■ On climbout, pilot noticed fuel siphoning from right auxiliary fuel tank filler cap. Aircraft was landed. Inspection revealed pilot had not properly secured fuel cap. Cap was repositioned and mission continued. ■ IP was demonstrating engine shutdown and restart. On attempted restart of No. 1 engine, prop would not come out of feather. Aircraft returned to home station and single-engine landing was made. Charge on No. 1 accumulator was low. Accumulator was serviced and aircraft released for flight. ■ After approximately 30 minutes into flight at 11,000 feet msl, oil pressure on No. 1 engine dropped to about 35 psi and cylinder head and oil temperature remained constant. As aircraft descended out of 11,000 feet msl, while returning to home station, oil pressure returned to middle green range approximately 40 to 45 psi. After landing, No. 1 engine was checked, oil level brought back up to 12 quarts, and mission continued. Oil pressure was 35 to 40 psi until mission was completed and aircraft was returned to home station. Caused by weak tension on oil pressure relief valve spring.

U-3

1 Precautionary Landing ■ No. 1 engine began running rough during training flight. Engine was shut down and aircraft landed. Inspection of No. 1 engine revealed broken exhaust rocker arm on No. 1 cylinder. Cylinder was replaced. (USAR)

SAFETY OF FLIGHT ON C-12A

On 30 March 1976, a C-12 had a fire in the cabin area at station 190. All cabin lights were found to be wired backwards. This caused the metal honeycombed material in the upholstery panels to heat intensely and burn the upholstery material when the reading lights were turned on. This information was provided by AVSCOM.

The following was furnished by Beech Aircraft Corporation. Remove lens cover (pulls out) of each reading lamp. Remove bulb. With lamp switch on, take multimeter and check for voltage at contact tab.

If no voltage is present, check side of socket. If voltage is present here, the lamp wires are connected backwards at the lamp with hot wire on the ground terminal. This could possibly cause the honeycomb panel to radiate heat and lamp still operate. If this situation is not corrected, further damage could be caused by current flow from the honeycomb panel to the fuselage structure. Check all eight cabin reading lamps using this same procedure.

ONE-MAN LIFE RAFTS USED WITH OV-1 OVERWATER SURVIVAL KITS (OV 76.4)

Recent preventive maintenance inspections of inflation valves, P/N MIL-V-25492, on PK-2 life rafts have revealed that some inflation valves are being safety wired with .025 diameter steel safety wire. This renders the life raft unusable! Using activities will perform a one-time inspection of inflation valve, P/N MIL-V-25492 (see figure 2-43 in TM 55-1680-317-23 & P), to insure that steel safety wire is not being used.

Inflation valve, P/N MIL-V-25492, must be safety wired using aluminum wire .032 inch diameter temper 0 conforming to QQ-A-225/1, NSN 9525-00-596-3347, and lead seal, NSN 5340-00-598-3427. Route the safety wire around the base of the valve over the handle and through the lanyard attachment ring and through the lead seal, twist safety wire together, place lead seal over twist, and crimp.

Replace defective valves with FLU-2A/P valve and cylinder, NSN 4220-00-920-3651/NSN 4220-00-565-3276, or FLU-6/P valve, NSN 4220-00-152-1327. Do not safety wire FLU-2A/P or FLU-6/P inflation assemblies.

The 5-year service life for CO₂ cylinders used on one-man life rafts has been deleted. This information will be included in the next change to TM 55-1680-317-23 & P.

The above information was provided by AVSCOM/DRSAV-FRPL in message number 081625Z April 1976. □

MAINTENANCE BRIEFS

MSG B. R. Bailey ■ 558.3901

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

AH-1

1 Precautionary Landing ■ Master caution light and forward fuel boost light illuminated. Caused by improperly connected cannon plug which came loose in flight.

OH-58

2 Precautionary Landings ■ Flight crew heard loud banging noise from rear of aircraft. Suspect wire from disconnected proximity warning device in avionics compartment was striking skin of aircraft. ■ During climbout from airfield, TOT gauge reading dropped to 200° indicated and fluctuated. Maintenance inspection found TOT harness wire frayed and intermittently shorting out.

CH-47

1 Precautionary Landing ■ As aircraft lifted to hover, heater control panel on overhead panel began to spark and smoke. Heater was turned off and smoke and sparks ceased. Caused by d.c. power lines from heater switch chafing on former behind panel and shorting out.

CH-54

1 Precautionary Landing ■ Aircraft was at hover with 12,000-pound load. Voice warning gave transmission fault, transmission pressure went to zero, and transmission oil pressure caution light illuminated. Aircraft was landed and shut down. When APU was cranked, main transmission chip light came on. Numerous metal particles were found on chip plug and in transmission filter. Caused by internal failure of main transmission. □

MAKE AVIATION SAFETY THE SPIRIT OF '76

AVIATION-RELATED GROUND MISHAPS

William P. Christian ■ 558-4202

6 Mishaps, 0 Fatalities, 0 Injuries, Estimated Costs: \$13,251

UH-1

■ Mechanic was ground handling UH-1 with ground handling wheels installed. Wheels attached to right skid sunk into mud, causing aft end of right skid to scrape edge of cement wash rack, damaging skid. ■ UH-1H was jacked up to change rear cross tube. Skids and rear cross tube were removed. To reinstall skids, aircraft had to be raised. As aircraft was jacked higher, it shifted forward and fell to floor. Axle type jacks were used. These jacks are unsafe for jacking aircraft. All maintenance personnel were instructed to use a wrecker attached to the mast when axle jacks are being used or use hydraulic tripod jacks. ■ While sweeping hangar floor, sweeper lowered hydraulic maintenance workstand located between two aircraft, and he did not insure there was proper clearance. Workstand came down on top of right horizontal stabilizer of one aircraft, requiring replacement of stabilizer. All personnel were instructed that no ground equipment would be moved without one ground guide to insure proper clearance. ■ All UH-1 aircraft were tied down and secured in normal manner. However, unforecast high wind conditions occurred during the night, causing several main rotor blade tiedowns to loosen, damaging one main rotor blade of one aircraft and tail rotor drive shaft and tail boom of another. Blade tiedown ropes are being modified by extending hooks that attach to blade.

OH-58/U-8

■ Aircraft were hangared due to weather warning. During security check in hangar area, mechanic saw debris falling from hangar wall and door area. Two aircraft, a U-8 and OH-58, were moved to a different location. Engine cowling, main rotor blade, and windshields of OH-58 were damaged. U-8 had damage to right wing, right elevator, and cabin roof. Damaged hangar areas will be repaired. □

UNITED STATES ARMY AGENCY FOR AVIATION SAFETY ■ FORT RUCKER, ALABAMA 36362

Prepared from information compiled by the
Directorate for Aircraft Accident Analysis
and Investigation
Lieutenant Colonel Curtis M. Sanders, Director

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COMMERCIAL: 255-XXXX	AUTOVON: 558-XXXX
Commander/Deputy Commander	3410/3819
For Assistance in Locating Proper Directorate	4479
Aircraft Accident Analysis and Investigation	3913/4202
Technical Research and Applications	6404/6410
Plans, Operations, and Education	4479/4812
Management Information System	5286/4200
Publications and Graphics Division	6385/3493
Medical Division	2091/4806
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DEPARTMENT OF THE ARMY
UNITED STATES ARMY
AGENCY FOR AVIATION SAFETY
FORT RUCKER, ALABAMA 36362

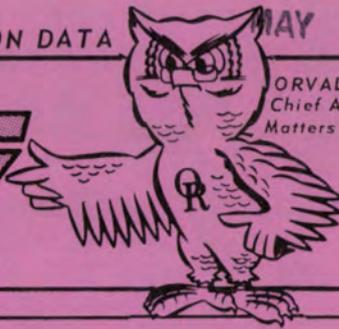
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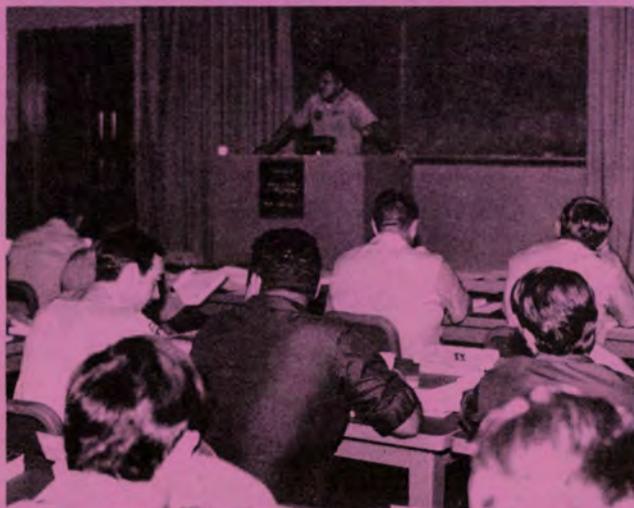
CORVAL RYCHT
Chief Advisor on
Matters of Aviation

A USAAAVS PUBLICATION

VOL. 4, NO. 27 ■ 28 APRIL 1976

US Army Aviation Training Library ^{mishaps for the period of 9-15 APRIL 1976}
Fort Rucker, Alabama 36360

Aviation Safety Officers Course



Beginning in FY 77, the United States Army Agency for Aviation Safety (USAAAVS) will conduct all formal Army MOS-awarding aviation safety officer (ASO), flight safety technician training. This training will replace the ASO Course currently taught under contract by the University of Southern California. The decision to transfer the training to USAAAVS considered both cost savings to the Army and training requirements based on the identified needs of the ASO for job performance.

The course development closely followed TRA-DOC Regulation 350-100-1, Systems Engineering of Training (Course Design). Initial input was accomplished through personal interviews with ASO's at several major installations, as well as information gleaned from questionnaires sent to the major commands. The 8-week program of instruction focuses on mishap prevention. Other subject areas presented in both the classroom and during practical exercises include Accident Investigation; Aviation Physiology, Psychology and Technology; Management, Communications; Occupational Safety and Health Act (OSHA); and Aviation Law. A practical exercise on the accident prevention survey will be conducted at a major installation other than Fort Rucker, which has been excluded only because of the large exposure

it already gets from other aviation safety training exercises.

The new ASO Course is being critiqued by students in an evaluation course which will be completed in May 1976. The 32 commissioned and warrant officer students attending this course were selected from 109 nominations received from the major commands. The class composition includes trained ASO's, individuals who have expressed a desire to serve as ASO's, and USAAAVS personnel. Untrained students who successfully complete this course will be awarded the appropriate MOS/ASI.

Quotas for the ASO Course will be controlled by the Deputy for Professional Development, MILPER-CEN. A circular will be published soon listing course dates and quotas available.

CRASH PLAN GUIDE

It has been brought to our attention that semantics/terminology used during daily tests of the crash alarm system and weekly reviews of crash plan implementation has resulted in confusion among participants.

AR 95-5, Appendix A, paragraph A.2.a, requires the primary crash alarm system be tested daily. Paragraph A.2.b of the above reference describes the secondary crash alarm circuit and subparagraph (5) (d) requires the aviation safety officer to review implementation of the crash plan and to insure that all applicable agencies conduct weekly tests to insure adequacy of the plan for all phases and circumstances.

The confusion stems from aviators declaring "simulated" emergencies in conjunction with approaches, DF steers, radar vectors, etc., without properly advising control tower/operations personnel.

Confusion can be avoided if the requirements of AR 95-5, Appendix A (described above), are initiated by lead-in phraseology such as "This is a test exercise, crash alert; this is a test exercise." We recommend that the methodology be incorporated into unit SOP so everyone concerned understands what is really going on under each set of circumstances.

UTILITY/ATTACK BRANCH

MAJ William C. Childree, Chief ■ 558-4198

1 Accident, 0 Fatalities, 2 Injuries, Estimated Costs: \$522,115

UH-1

2 Incidents ■ Both incidents involved main rotor blade damage caused by tree strikes. Aircraft were performing authorized/supervised NOE flight.

1 **Forced Landing** ■ SP performed practice maximum performance takeoff. At approximately 100-150 feet agl, SP reduced collective and lowered nose of aircraft to resume normal climb. Low rpm audio activated and IP took controls, entered autorotation, and landed.

24 **Precautionary Landings**—following are selected briefs ■ Shortly after takeoff, strong smell of hydraulic fluid was present in cockpit area. Postlanding inspection revealed irreversible valve failure. ■ Transmission oil pressure light came on. Caused by failure of oil pressure sending unit. ■ On landing approach, pilot smelled and saw fumes coming from battery compartment. Postlanding inspection revealed internal battery failure. ■ As pilot increased collective to take off, aircraft started pivoting to right on ground. Left pedal was not effective. Pilot in another aircraft advised tail rotor was barely turning. Takeoff was aborted. Caused by sheared 42° gearbox output shaft coupling. ■ Master caution and 20-minute fuel caution light illuminated during flight. Aircraft was not properly preflighted by flight crew for fuel quantity. ■ During runup before flight, transmission oil pressure warning light would not go out and transmission oil pressure would not go above 20 psi at flight idle. Transmission internal oil filter was found to have a large amount of cloth strands in it. Transmission oil pump screen was tightly saturated, packed with lint and thread fibers. Cloth shop towel was also found at this location.

AH-1

1 Accident ■ While at hover during maintenance test flight, aircraft crashed. Investigation is in progress.

3 **Precautionary Landings** ■ Master caution light came on intermittently. Aircraft was returned to airfield. Ninety-degree gearbox oil sample was taken before flight and chip detector was not reinstalled. This was overlooked on preflight. ■ Pilot felt binding in cyclic and landed. Cause undetermined. ■ During landing, pilot smelled strange odor and saw smoke. Inspection revealed that the battery had failed. □

LOH/CARGO BRANCH

MAJ Robert P. Judson, Chief ■ 558-4202

4 Accidents, 2 Fatalities, 2 Injuries, Estimated Costs: \$3,337,831

OH-58

2 Accidents ■ Tail rotor control was lost during authorized low-level flight. Aircraft made five 360-degree right turns and impacted in right nose-low attitude. Right skid collapsed, transmission and main rotor separated from fuselage, and aircraft came to rest on right side. Suspect failure of nut which allowed the disc and adapter on tail rotor drive shaft to separate. ■ Main rotor blade struck tree during reposition at high hover in confined area. Pilot entered autorotation and rotor blade separated. Aircraft crashed and came to rest on right side.

1 Incident ■ Aircraft was moving out of a masked position and tail rotor struck tree. Pilot landed 40 feet from tree.

1 **Forced Landing** ■ At 4 feet skid height during normal approach, aircraft made loud popping sound, nose yawed left, and TOT rose to 1,000°. Engine failure was caused by gas producer gear coming loose from mount.

UNITED STATES ARMY AGENCY FOR AVIATION SAFETY ■ FORT RUCKER, ALABAMA 36362

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8 Precautionary Landings ■ Engine chip detector light illuminated. Large chips were found on both chip detectors. ■ Transmission chip detector light came on. Large chips were found on plug. ■ Engine chip detector light came on. Chips were found on plug. Engine is being changed. ■ Generator segment light illuminated and electrical power could not be regained. Generator was changed and aircraft was put back in service. ■ Engine oil pressure gauge failed during cruise flight. Replaced gauge. ■ Pilot turned on landing light and complete electrical failure occurred. Voltage regulator failed. ■ After level-off, pilot heard noise and noticed that bottom hinge pin of left door had come loose. Inspection revealed door pin assembly handle was still safetied. Pilot removed doors and continued mission. ■ Pilot and passenger entered aircraft without removing main rotor tiedown. Pilot started engine without noticing any unusual indications during start. Maintenance officer heard loud pop after start and left tent to investigate. He noticed part of tiedown strap on No. 5 hanger bearing bracket and tail rotor gearbox output shaft. He ran out to LZ and signaled pilot to land and shut down. Preflight inspection and engine runup were not conducted using operator's checklist.

TH-55

1 Accident ■ During practice autorotation, aircraft touched down with fast ground slide and drifted to right edge of runway. IP took controls and attempted a power recovery. Engine and rotor rpm were low and directional control was lost while at 6-inch hover. Aircraft landed hard from right spin and while moving rearward. Main rotor blades, center frame, landing gear assembly, tail rotor blades, tail rotor drive shaft, and tail boom were damaged.

3 Precautionary Landings ■ Engine oil pressure exceeded upper limit. Oil pressure sending unit failed. ■ Engine oil pressure fluctuated excessively during approach. Oil pressure sending unit failed. ■ Engine began running rough during flight. Caused by failure of right magneto.

CH-54

1 Accident ■ Aircraft on night takeoff from field location struck trees and crashed. Mishap is under investigation with USAAAVS participation.

CH-47

5 Precautionary Landings ■ Aircraft lost No. 2 flight boost pressure during flight. Caused by crack in hydraulic line between pressure reducer and No. 2 SAS filter. ■ Aircraft was carrying load when two loud bangs were heard in aft portion of aircraft. No changes were noted on any of the instruments, but crew elected to land and have aircraft checked out. Visual inspection and test flight were performed and aircraft was released for flight. After an additional 1.5 hours' flight time, master caution light began flashing so rapidly that pilots could not see which light was flashing for several minutes. They finally ascertained it was the transmission chip detector light and made a precautionary landing. On landing, light went out and did not come on again. Large chips were found on forward transmission chip detector. Caused by internal failure of forward transmission. ■ Aircraft was being shut down for maintenance check when flight engineer noticed that aft yellow droop stop was not retracting. Aircraft was moved, and an attempt was made to shut down into the wind, but to no avail. Aircraft was then flown to another area to refuel and await arrival of fire truck with high pressure hose. On shutdown, aft head was sprayed with high pressure water, and droop stop retracted properly. Water pressure idea was a last-ditch effort in order to save the blade and prevent aircraft airframe damage. While it worked this time, it may not work in all cases. Aircraft had been working in extremely sandy and dusty conditions, and that, in addition to factory paint and grease, had contributed to the inoperation of the stop. Inspection of droop stop indicated that attaching bolt was nearly frozen. This bolt can only be inspected when droop stop is removed. Well done, crew! ■ Aircraft was on climbout when No. 2 engine transmission chip detector light illuminated, followed by transmission oil hot light. Caused by normal fuzz in debris detection system. This system is new and will, in some cases, illuminate both lights on the caution panel. ■ Flight engineer detected hydraulic leak in ramp override valve during flight. Caused by defective O-ring.

ATTENTION CH-47 USERS

Be advised that there is a difference in the swiveling actuator mount bearings of the CH-47A, B, and C aircraft. The A and B models use a 3/8" ID bearing, while the C model uses a 1/2" ID bearing in the aft position. Special emphasis should be placed on this area when installing swiveling actuators to insure that the correct bearing is installed.

THOUGHT FOR THE WEEK

To date (FY 76) Army aviation has had 76 accidents, resulting in 51 fatalities and 70 injuries. Are you doing your part to reduce this increasing trend of accidents and loss of lives? □

FIXED WING BRANCH

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

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

OV-1

1 **Precautionary Landing** ■ After takeoff, landing gear handle was placed in "up" position. Gear would not fully retract. Two recycles were unsuccessful. Emergency gear release was used due to unsafe gear-down indication. Aircraft was landed without further incident. Caused by failure of right main gear timer sequence valve (NSN 4820-00-971-3567).

T-42

1 **Precautionary Landing** ■ After takeoff, pilot moved throttles aft to obtain climb power settings. No. 1 engine responded but No. 2 engine remained at full power. Pilot continued flight until over end of runway and cut No. 2 engine with mixture. Emergency landing was completed without further incident. Inspection of No. 2 engine revealed throttle control cable had broken about 1½ inches from end at engine throttle lever.

U-8

2 **Precautionary Landings** ■ (G models) During cruise flight, No. 2 engine began intermittently running rough, with 500-600 rpm drops, and backfiring. Approximately 30 miles from airfield, engine would not develop sufficient power to maintain altitude and engine was secured. Aircraft continued to airfield and safe single-engine landing was made. Cause of failure is under investigation. ■ Gear failed to fully retract on takeoff. Gear handle light stayed on and reflection from cowling showed nose gear partially retracted. A safe gear-down indication was received when gear handle was placed in down position. Aircraft was put on jacks and gear cycled with no problem. Aircraft was released for one-time flight back to home station. Cause is under investigation.

U-21

2 **Precautionary Landings** ■ (A model) Gear handle was placed in down position for slow flight maneuvers. Left main gear green light did not come on and red light in gear handle would not go off. Emergency procedures were followed and gear pumped down with same unsafe indication. Tower flyby indicated gear appeared down. Caused by failure of gear down limit switch. ■ (D model) Fuel flow gauge failed after takeoff and crew smelled JP-4 fumes in cockpit. Aircraft was returned to home station and landed without further incident. Maintenance was unable to determine source of fumes. It is a possibility that fumes came from fuel solenoid valve on heater. Solenoid was disconnected and no further problems were reported.

C-12A LANDING RESTRICTIONS

AVSCOM message 221420Z Jan 76 advised C-12A users that AVSCOM was conducting flight tests to develop data to provide them with established short-field landing and takeoff procedures and define the aircraft's capability to operate on other than smooth, hard-surfaced runways.

AVSCOM message 191625Z Apr 76 establishes the following operations as a result of tests conducted to date:

"a. Operations from hard, smooth surfaced runway and/or fields with firm, smooth surfaces (i.e., firm sod, hard clay or packed smooth gravel type runways) are permitted.

"b. Operations into and out of soft (i.e., less than a firm soil or sod) fields are permitted. Pilots are cautioned against excessive braking (to prevent tires from skidding).

"c. Intentional landings on 'rough' (rocks, potholes and/or deteriorating paved runways) are prohibited.

"d. If unintentional landings on rough fields do occur, use reverse thrust after touchdown to slow the aircraft. Use moderate braking only below 40 knots and attempt to prevent tires from skidding."

Change paragraph 2b7 of AVSCOM message 052340Z Mar 76, subject: C-12A Short-Field Procedures, to read: "Brakes—moderate use only—do not allow tires to skid." □

MAKE AVIATION SAFETY THE SPIRIT OF '76

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

TH-55

1 **Precautionary Landing** ■ During cruise flight, pilot noted cyclic control system feedback that increased in intensity. As pilot was preparing to declare and make precautionary landing, he heard loud bang and noted decrease in engine and rotor rpm. Suspecting engine failure, pilot entered autorotation. He noted that cyclic feedback reduced in intensity during autorotative descent and that engine was still running. At 100 feet agl, he attempted power recovery and abrupt throttle application caused engine rpm to surge above rotor rpm as indicated by tachometer split with engine needle on high side. He then closed throttle and landed. Engine was stopped by using ignition key. Inspection revealed failure of bolt which holds upper link to upper swashplate. Upper link then dropped down enough for lubricating point to strike lower swashplate. Upper bearing was frozen due to possible lack of lubrication.

CONTAMINATED HYDRAULIC FLUID

USAAVSCOM Message 162125Z Apr 76, subject: Maintenance Advisory Message, Contaminated Hydraulic Fluid, MIL-H-5606, NSN 9150-00-223-4134, Contract DSA 600-74-C-1368, Royal Lubricants, CO, Lot 73 (GEN-76-9)

A. DGSC Richmond VA, Msg dated 061638Z Apr 76, subject as above.

1. Ref A reported subject product found to contain approximately thirty percent water.
2. Recommend all Army activities under your command be notified to place subject material in hold status, repeat, place only Royal Lubricants CO Lot 73, contract DSA 600-74-C-1368, in hold status.
3. Report locations and quantities of subject product placed in hold status to DGSC, Richmond, VA/DGSC-OB2, with info copy to USAG MPA, STSGP-FT, by 21 Apr 76. Negative replies not required.
4. Further analysis will be performed to verify suspected contamination. Disposition instructions will follow.

AH-1 ACCIDENTS

FORSCOM Message 160251Z Apr 76, subject: Restricted Operations for AH-1 Aircraft

1. This command has experienced two AH-1 aircraft accidents this month. Conclusive evidence as to definite cause factors has not been determined, but will be provided upon completion of investigations and teardown analysis. However, indications are that in both accidents the aircraft yawed left resulting from materiel failure or a malfunction of the stabilization system.
2. In view of the necessity to prevent further accidents the following guidance is provided:
 - a. Only operational support flights will be conducted effective upon receipt of this message.
 - b. Each AH-1 aircraft will receive a technical inspection to verify the operational status and identify and correct any unsafe conditions. This inspection will be accomplished NLT COB 23 April 1976 and will be recorded on DA Form 2408-13 and 2408-15.
3. Normal flight operations may be resumed after each AH-1 aircraft has received a technical inspection and its safe operational status verified. □

AVIATION-RELATED GROUND MISHAPS/ACCIDENTS

William P. Christian ■ 558-4202

4 Mishaps, 0 Fatalities, 1 Injury, Estimated Costs: \$10,002

UH-1

■ Aircraft repair inspector was observing testing of prototype utility trailer and was helping slide a UH-1 off the trailer when it suddenly slid backwards, causing tail to dip to hangar floor. When this occurred, inspector was unable to release quickly enough, causing back injury.

AH-1

1 **Ground Accident** ■ During rundown after shutdown procedures following an MOC, tail rotor blades, at very low rotor rpm, contacted vertical pylon, causing minor skin damage to blades and pylon.

CH-47

■ While towing utility trailer, driver failed to realize he had one of the side doors open in the extended (raised) position. As trailer passed CH-47, door struck one main rotor blade. All employees received special instructions on vehicle operation and the driver was counseled by his supervisor.

C-12

1 Ground Accident ■ Aircraft was conducting experimental testing in accordance with AVSCOM Test Directive. The purpose of the test was to determine the capability of the aircraft to operate on unimproved fields with offsets of up to 2 inches. Two by four boards were placed at 4-foot intervals. Twenty-nine runs were completed over the boards at speeds of 20-90 knots and the observed loads did not reach or exceed the maximum limits recommended. On the thirteenth pass through the course at 40 knots, light braking was applied prior to entering the obstacles and the right main gear collapsed 55 feet after leaving the obstacles. Instrumentation showed excessive loads on right main drag brace just before failure. Examination of course revealed skid marks starting between the fourth and fifth obstacles which indicate unexpected locked brakes and correlate with the excessive loads and subsequent failure of right main gear. □

CATALYTIC CONVERTERS

DA Message 230105Z April 1976, subject: Catalytic Converters

A. Letter, DAIG-SD, 25 Aug 75, subject: Potential Hazards Associated with Catalytic Converters.

B. Letter, DAIG-SD, 9 Sep 75, subject same as reference A.

1. Based on test findings and evaluations performed by the U.S. Army Tank-Automotive Command and other agencies, the guidance previously published in the referenced letter has been reassessed. In order that the Army can more effectively fulfill its mission and where safety has not been compromised, relaxation of some of the requirements previously established has been initiated.

2. Consequently, the referenced letters are rescinded and the following policy will be observed:

a. Catalytic converter equipped vehicles may be operated within ammunition/explosives areas, but will not be permitted to stand or park within 50 feet of any structure containing ammunition/explosives or any outside facility containing such commodities.

b. Vehicles equipped with catalytic converters will not be used for transporting ammunition/explosives.

c. Vehicles equipped with catalytic converters will not be permitted to stand or park in areas where vegetation or other combustible materials beneath the vehicle may catch fire from converter heat.

d. Catalytic converter equipped vehicles may operate within the general POL areas, but not stand or park within 50 feet of any fuel storage tank, pump or dispensing unit. (This provision does not prohibit servicing of such vehicles with fuels at motor pools or base exchange service stations.)

e. Catalytic converter equipped vehicles will not be operated inside facilities where there is considered to be a high potential for accidental fire. This includes buildings such as hangars, machine shops, etc.

3. In addition, commanders will insure that:

a. Vehicle control officers provide a positive means of apprising all drivers under their control of the potential hazards of catalytic converters and further assure that vehicle malfunctions are properly and immediately reported to the appropriate officials.

b. As part of scheduled maintenance, vehicle maintenance personnel will assure that vehicles timing and dwell settings are properly set and will certify that such actions have been completed.

c. A placard or dash decal is installed in all converter equipped vehicles to alert drivers to the potential hazards associated with catalytic converters and advising them to remove the vehicle from service when an engine malfunction occurs.

d. An external decal or placard of sufficient size to be immediately recognized or other means of ready identification is applied to all converter equipped vehicles stating that the vehicle contains a catalytic converter.

e. Vehicles with catalytic converters are equipped with at least one 5 BC rated fire extinguisher.

f. Push-starting of vehicles equipped with catalytic converters is prohibited.

4. Commanders will insure that military police and applicable staff agencies take necessary measures to assure adherence to the above restrictions.

5. Commanders will report any unusual incident or accident attributable to catalytic converters to HQDA (DAIG-SD).

6. Request this office be advised of receipt of this change NLT 2 weeks after above date time group. Telephonic notification is not desired; copies of implementing communication are acceptable.



STACOM 3 ■ 28 APR 1976

DEPUTY FOR STANDARDIZATION, USAAVNC, FT. RUCKER, AL 36362
COL CLEMENT A. WYLLIE ■ 558-2603/3514

FLIGHT STANDARDIZATION PROGRAM

The Commanding General, USAAVNC, as proponent agent for flight standardization, has the responsibility for monitoring and evaluating the United States Army Flight Standardization Program as established in AR 95-63. This responsibility is accomplished through the Office of the Deputy for Standardization, Fort Rucker, AL, under the supervision of CG, USAAVNC, serving as an extension of the Office of the Deputy Chief of Staff for Operations and Plans, Department of the Army.

The Flight Standardization Program is proud to join with USAAVNS and FLIGHTFAX in providing a once per month communication to Army aviators worldwide in the form of STACOM (Standardization Communication).

POSITION REPORTS

This section of STACOM features some of the gleanings from Flight Standardization field evaluations, assistance visits, and questions asked by phone and letter.

QUESTION: How can an IP obtain a current Flight Training Guide?

ANSWER: 1. Order guides from Catalog of Instructional Material, dated January 1976, furnished by the Extension Training Management Division, Fort Rucker, Alabama 36362.

2. If catalog is not available, write: Extension Training Management Division, U.S. Army Aviation Center, ATTN: ATZQ-T-E, Fort Rucker, Alabama 36362.

QUESTION: As a commander of a VIP Flight Detachment, am I required to have a Combat Readiness Flying Training Program?

POSITION: In accordance with AR 95-1, "Commanders will insure that a Combat Readiness Flying Training Program is established." A sample program is outlined in AR 95-1. The spirit of the regulation is that all Army aviators maintain full combat readiness and proficiency regardless of present duty assignment. This philosophy further enhances standardization as an individual will be proficient and combat ready as he moves from one unit to another.

QUESTION: I am a fixed wing examiner and have been asked to administer a checkride in an aircraft in which I am not rated. Can I do it?

ANSWER: No. Both the applicant and the examiner must be rated in the aircraft category and currently proficient in mission type, design, and series aircraft in which the qualification is sought and administered. Also, the examiner must be appointed or approved by the applicant's Flight Standardization Board prior to the actual conduct of the flight examination. (Reference: AR 95-63, par. 2-20 and par. 2-8)

QUESTION: AR 95-1, paragraph 3-10, provides guidance on simulated single-engine operations, but only addresses fixed wing aircraft. What about multi-engine rotary wing aircraft?

POSITION: The guidance in AR 95-1 is provided in recognition of the critical nature of fixed wing single-engine operation in regard to airspeed and runway length requirements, neither of which would be applicable to a helicopter. The revised AR 95-1, to be published shortly, however, will also prescribe the conditions for single-engine helicopter operations.

QUESTION: Am I within regulations if I have my identification tags in my pocket when traveling in aircraft?

POSITION: No. IAW AR 606-5, Section XII, identification tags are required to be suspended from the neck underneath the clothing.

QUESTION: If I do not have over 500 hours in aircraft category and have not logged at least one flight of more than one hour duration, but several flights within 30 days of less than one hour (which total more than one hour) am I considered current?

POSITION: The intent of AR 95-1 was to consider an aviator current if he flies at least one hour and makes at least one takeoff and landing within a 30-day period. Aviation unit commanders are reminded of AR 95-1, paragraph 2-9c, on unit training programs appropriate to unit mission and aircraft to insure combat readiness of assigned aviators and maintenance of basic flying skills of assigned aviators. Effective training programs would maintain aircraft currency.

QUESTION: In STACOM 1 you offered assistance visits to units wherein you would recertify IP's and look over the entire Standardization Program. Will you do that for my National Guard unit?

ANSWER: You bet. There is only one Army today and that includes Active, Reserve, and National Guard. Call our Army Standardization Information Center, AUTOVON 558-3504 or commercial (205) 255-3504, for scheduling.

OBSERVATION: Some units do not properly maintain the medical section of the Individual Flight Record Folders (IFRF).

POSITION: IAW AR's 95-64 and 40-501, a copy of current annual physical examination and Medical Clearance for Flying (DA Form 4186) will be present in the IFRF for the aviator to be considered medically qualified.

The Deputy for Standardization is anxious to hear from Army aviators worldwide and pledges to respond to flight standardization questions within 24 hours of receipt. Readers are encouraged to use the 24-hour flight standardization information center number (AUTOVON 558-3504, commercial (205) 255-3504) or to communicate by letter if more appropriate. Address your questions or requests for courtesy assistance visits to Deputy for Standardization, USAAVNC, Fort Rucker, AL 36362. □

DEPARTMENT OF THE ARMY
UNITED STATES ARMY
AGENCY FOR AVIATION SAFETY
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. 4, NO. 28 ■ 5 MAY 1976

mishaps for the period of 16-22 APRIL 1976



Do you know that fewer than 10 percent of all Army aviators/crew chiefs are aware that there are two types of fire extinguishers installed in AH, UH, and OH type aircraft? These extinguishers operate differently. The one with the brass head (A) requires only the pulling of the pin and squeezing of the handle, whereas the aluminum head variety (B) requires that the pin be pulled and the metal block be removed, which will then allow the handle to be squeezed.

EXPERIENCE - an element of safety



Accident records show that a great number of aviation accidents occur during the aviator's first 1,000 hours of flying experience. The distribution of aviator experience within a unit should be considered as another element of a unit's safety program along with maintenance and training. All too often, the experience is found not in the cockpit, but behind the desk.

The Army's aviation training programs are designed to teach the "rules of engagement"; however, experience is the ultimate teacher. Increasing the cockpit employment of senior officers serves not only as a means of transferring this experience to more junior officers, but also increases the overall capabilities of the flight crew and enhances flight safety.

TRAINING FOR HYDRAULIC REPAIRMEN

In 1974, the Army consolidated their training of hydraulic repairmen with the Air Force. Since that time feedback has been received from the field that the training was inadequate for the Army in the areas of forms and records, fabrication of lines, and rebuild of helicopter-associated components.

These inadequacies have been recognized by TRADOC and action is being taken to resolve this problem. TRADOC has prepared a 40-hour block of instruction and identified two instructor positions at

Chanute AFB to be filled by Army personnel. This 40-hour block of instruction will be a preloading of the present course being taught at Chanute AFB. This plan is programmed for implementation 1 July 1976 and should resolve the problem.

USAAAVS assistance visit teams will continue to gather feedback and monitor the results once this program is implemented. For further information, contact SFC Gipson, MOS Testing, Transportation School, Fort Eustis, VA, AUTOVON 927-2391.

UTILITY/ATTACK BRANCH

MAJ William C. Childree, Chief ■ 558-4198

2 Accidents, 0 Fatalities, 1 Injury, Estimated Costs: \$585,296

UH-1

1 Accident ■ Tail rotor and 90° gearbox separated from aircraft at 3,000 feet msl. IP took control of aircraft and autorotated to airport. Aircraft hit level at 10-12 knots, bounced slightly, and yawed right about 85°, touching down on left skid. Skid collapsed and main rotor blade struck ground. Aircraft remained upright. Accident is under investigation.

1 Incident ■ Aircraft was on GCA when bird hit and broke left chin bubble.

12 Precautionary Landings—following are selected briefs ■ Hydraulic pressure caution light came on, with no loss of hydraulic pressure or fluid. Inspection revealed hydraulic pressure switch failure. ■ Whistling noise was heard, followed by one-to-one vertical vibration. Postflight inspection revealed main rotor blade bonding separation on top side approximately 2 feet from blade tip. ■ Pilot smelled hydraulic fluid during takeoff. Maintenance inspection revealed O-rings between collective irreversible valve and collective servo were flat, brittle, and cracked. ■ Hydraulic caution segment light came on during runup. Caused by hydraulic switch failure. ■ Transmission oil temperature light came on. Maintenance was unable to duplicate discrepancy.

AH-1

1 Accident ■ On short final, aircraft yawed left. Correction was made and aircraft struck ground and bounced. Pilot lost control. After ground contact, main rotor severed tail boom and aircraft came to rest, heading 85° to left of approach axis. Pilots exited with no injuries. Accident is under investigation.

1 Incident ■ Both main rotor blades were found damaged on postflight inspection. Suspect tree strike. Aircraft had been performing authorized, supervised NOE flight.

1 Precautionary Landing ■ Pilot noticed resistance in cyclic controls when applying aft cyclic. Cause undetermined. □

LOH/CARGO BRANCH

MAJ Robert P. Judson, Chief ■ 558-4202

1 Accident, 0 Fatalities, 0 Injuries, Estimated Costs: \$18,066

OH-58

2 Incidents ■ Aircraft was flying low-level recon of range area, and struck commo wire, causing incident damage. Same flight path had been flown that morning; however, ground personnel had strung wire across flight path in the interim. ■ Aircraft was flying 1,000 feet agl, 85 KIAS over trees, when nose yawed 90° to right. Pilot reduced power and entered autorotation. Pilot decelerated to zero airspeed prior to touch-down, and during collective pitch application, aircraft turned 90° to left before stopping upright. Inspection revealed that self-locking nut backed off, causing failure of No. 5 Thomas coupling. EIR was submitted.

UNITED STATES ARMY AGENCY FOR AVIATION SAFETY ■ FORT RUCKER, ALABAMA 36362

Prepared from information compiled by the
Directorate for Aircraft Accident Analysis
and 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 is authorized by AR 10-29.

COMMERCIAL: 255-XXXX	AUTOVON: 558-XXXX
Commander/Deputy Commander	3410/3819
For Assistance in Locating Proper Directorate	4479
Aircraft Accident Analysis and Investigation	3913/4202
Technical Research and Applications	6404/6410
Plans, Operations, and Education	4479/4812
Management Information System	5286/4200
Publications and Graphics Division	6385/3493
Medical Division	2091/4806
After-duty tape recording of incoming calls to be returned the following day (hours: 1615 to 0730)	6510

2 Precautionary Landings ■ During flight, aircraft yawed to left, then to right. N1 and N2 went to max indication two times in pulsating manner. Pilot initiated successful autorotation. N2 governor failed.
■ Instrument inverter light illuminated. Inspection revealed loose ground wire.

TH-55

1 Accident ■ During takeoff by student pilot, aircraft would not climb. Student elected to make precautionary landing, and engine quit about 20 feet agl. Aircraft landed hard and rolled onto right side, resulting in major damage.

1 Incident ■ During student pilot's first supervised solo flight, he noticed vibration through entire aircraft. He landed upslope in open field. Tail rotor blades struck ground.

1 Precautionary Landing ■ Engine oil pressure was fluctuating excessively during flight. Caused by failure of oil pressure sending unit.

CH-54

1 Precautionary Landing ■ Crew chief saw something fall from top side of aircraft during flight. Inspection revealed that "cover assembly, rotary" was missing. Cause undetermined.

MESSAGES RECEIVED

■ Message, AVSCOM/DRSAV-FET, 202145Z April 76, subject: Maintenance Advisory on CH-54B Main Gearbox (MGB) Lubrication System. Advises users of possible damage to main gearboxes at run-in and increases inspection criteria of suspect MGB. Also provides for MGB lubrication oil to be changed to NATO standard 0-149 oil.

■ Message, AVSCOM/DRSAV-FEP, 202045Z April 76, subject: Maintenance Advisory on CH-47C/T55-L-11 Engine Dual Chip Detector. Message provides for a resistance check of the dual chip detector every 25 hours.

■ Maintenance Advisory Message, UH-1-76-9, Replacement Glass Windshields for UH-1B/C/D/H/M Aircraft. □

FIXED WING BRANCH

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

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

OV-1

3 Precautionary Landings ■ (B model) Hydraulic pressure was lost on No. 2 engine. Intermittent hydraulic pressure continued on No. 1 engine. Aircraft returned to home station. Pilot used emergency gear extension and landing was uneventful. O-ring (NSN 5330-00-805-2966) in No. 2 hydraulic pressure transmitter failed. ■ (B model) On takeoff roll, cockpit filled with blue smoke. Pilot aborted takeoff. Maintenance was unable to determine cause. (ARNG) ■ (D model) After aircraft climbed to final altitude, pilot noticed no gain in airspeed at normal cruise power setting. Visual check was made and gear was found in down position. Pilot returned to home station and landed. Gear and flap circuit breakers were found popped. Circuit breakers were reset and gear retraction test was performed. No faults were found during retraction test or in the electrical system.

T-42

1 Precautionary Landing ■ During cruise flight, fuel leak was noted from left engine. Engine was secured before landing. Inspection revealed broken primer line. Line was replaced and aircraft released for flight.

RU-21

1 Precautionary Landing ■ (D model) Airspeed indicator would not indicate above 90 knots during takeoff. Discovery was made at rotation point of takeoff roll. Aircraft was returned immediately for landing. Visual

inspection revealed pitot line drain cock on underside of left inboard center wing section was not fully closed. Aircraft was on first flight following PMI.

FUEL NOZZLE STRAINER

Are you looking for a new strainer for the 1½-inch fuel nozzle on your M49 series 2½-ton fuel service tank truck? It's not in the truck parts manuals, but it is in TMs for the M-131 series 5,000-gallon fuel service tank semitrailers. It's strainer, NSN 4930-00-954-1317, in TM 9-2330-272-14 (Jun 72) and TM 9-2330-286-14 (Nov 68).

POL personnel: Information concerning the M49A2C refueling tanker is contained in PS Magazine, issue 279, Feb 76. □

AVIATION-RELATED GROUND MISHAPS

William P. Christian ■ 558-4202

2 Mishaps, 0 Fatalities, 1 Injury, Estimated Costs: \$29,500

CH-47

- Combustion section of CH-47 auxiliary power unit exploded, causing minor structural and sheet metal damage to aft pylon area near APU exhaust outlet. APU compressor was being cleaned with PD680 solvent by spraying short bursts into the air intake while APU was operating. After applying the fifth burst of solvent, APU hot end blew apart. Maintenance personnel did not perform by-the-book maintenance.
- During process of washing CH-47, mechanic was walking on top of soap-covered aircraft when he lost his balance and fell to ground. Individual sustained head injury. This accident was discussed at a safety meeting for all maintenance personnel. □



MAKE AVIATION SAFETY THE SPIRIT OF '76

DEPARTMENT OF THE ARMY
UNITED STATES ARMY
AGENCY FOR AVIATION SAFETY
FORT RUCKER, ALABAMA 36362

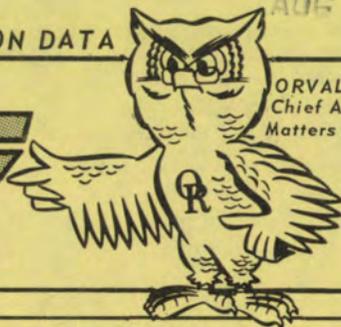
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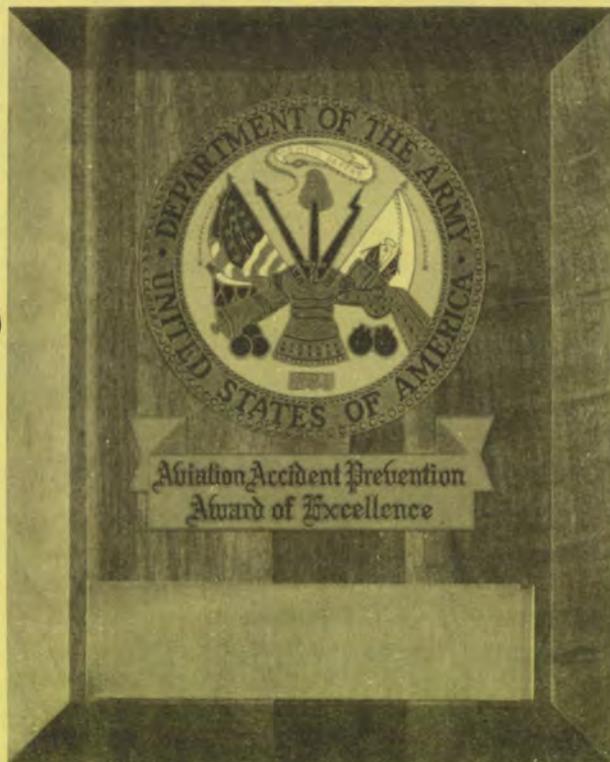
VOL. 4, NO. 29 ■ 12 MAY 1976

mishaps for the period of 23-29 APRIL 1976

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Fort Rucker, Alabama 36360

CHANGES TO AR 385-10, ARMY SAFETY PROGRAM

NEW AVIATION SAFETY AWARD



USAAAVS has developed a new aviation accident prevention award as a companion to the Award of Honor and Award of Merit. The new award is the Department of the Army Aviation Accident Prevention Award of Excellence adopted by The Inspector General and Auditor General and the Army Safety Director. This award will be presented to aviation company size units that achieve 72 consecutive months of accident-free flying in lieu of a second Award of Honor. Nominations for the Award of Excellence are being accepted as of 17 April 1976. Mail nominations to Commander, USAAAVS, ATTN: IGAR-PP, Fort Rucker, AL 36362. Authorization for the award is contained in DA Message R170017Z April 1976.

Revision of AR 385-10, Army Safety Program, is expected to be completed by early FY 77. In the meantime change the current regulation as follows:

Add after the last sentence in par. 7-2a, "Activity pertains to an organizational entity, e.g., detachment, company, battalion, group, etc. The Award of Merit and Award of Honor will be conferred in the form of a certificate suitable for framing. The Award of Excellence will be conferred in the form of a wall plaque. Multiple awards will not be conferred concurrently for the same calendar period, e.g., the Award of Merit is intended to be an interim recognition while attaining eligibility for a greater award; consequently, when an activity is eligible for the Award of Honor, an accompanying Award of Merit is not authorized. Awards of the same type will not be conferred for overlapping calendar periods, e.g., when an activity has received an Award of Honor for the calendar period 25 Apr 1970 to 25 Apr 1973, that activity may not receive another Award of Honor for the period 25 Apr 1971 to 25 Apr 1974. The effective date of the awards program is 25 Apr 1970 and only flying occurring subsequent to that date will be considered for award eligibility."

Change par. 7-2B(1) to read: "Department of the Army Aviation Accident Prevention Award of Merit. Awarded to activities upon completion of 12 or more consecutive months of accident-free flying."

Change par. 7-2B(2) to read: "Department of the Army Aviation Accident Prevention Award of Honor. Awarded to activities upon completion of 36 or more consecutive months of accident-free flying."

Add new subpar. 7-2B(3) to read: "Department of the Army Aviation Accident Prevention Award of Excellence. Awarded to company level and above activities upon completion of 72 consecutive months of accident-free flying."

Change par. 7-2C to read: "Nominations: Activities meeting the criteria outlined in B above may be nominated for these awards by the next higher headquarters provided that headquarters certifies the activity is continuing to pursue an active and effective accident prevention program. Nominations will

Continued on page 2.

Continued from front page.

be forwarded to Commander, U.S. Army Agency for Aviation Safety, ATTN: Safety Awards Program Officer, Fort Rucker, AL 36362. Nominations will include unit identification code (UIC) and calendar period for which nominated."

Change par. 7-3A to read: "A. The Broken Wing Award will be in the form of a broken wing lapel pin. A certificate suitable for framing will accompany the pin."

Change par. 7-3B to read: "B. Applicability. The provisions of this award are applicable to military and civilian personnel, including student pilots,

authorized to pilot or serve as crewmembers of Army aircraft. The aircraft must be owned or leased by the Army at the time of the occurrence."

Change par. 7-3C(1), line 11, the word aviators to read "personnel."

Change par. 7-3C(2) to read: "Normally, only one individual will be nominated to receive the award for a single in-flight emergency. However, in those cases where more than one crewmember clearly contributed to the actual recovery from the in-flight emergency, all concerned to include enlisted personnel may be considered for nomination."

UTILITY/ATTACK BRANCH

MAJ William C. Childree, Chief ■ 558-4198

1 Accident, 0 Fatalities, 0 Injuries, Estimated Costs: \$310,528

UH-1

1 Accident ■ During climbout, at approximately 2,500 feet agl over water, engine chip detector light illuminated. Pilot executed immediate turn to return to base. Engine oil pressure warning light came on, followed by banging sound in engine area. Engine rpm decreased rapidly to zero. Autorotation was initiated and ditching procedures planned. Aircraft was abandoned after successful autorotation and ditching, and sank approximately 20 seconds later. Crew was equipped with life preservers and had one 7-man life raft. All life support equipment functioned properly. Accident investigation is in progress.

10 Precautionary Landings—following are selected briefs ■ Engine chip detector light activated. Maintenance replaced engine. ■ Battery overheated. Caused by improperly adjusted voltage regulator. ■ Engine chip detector light activated during hover. Maintenance replaced engine. ■ Aircraft was in cruise flight when odor of raw fuel was detected by crew. Aircraft was landed without further incident. Maintenance personnel inspected aircraft and could not find fuel leak. Aircraft was released for flight. ■ Crew chief noticed electrical shorting in tail rotor drive shaft compartment. Fire extinguisher was used on electrical wiring to anticollision light. Suspect fatigue of wiring insulation of plug and connector.

AH-1

2 Incidents ■ Main rotor blade struck tree on rotor coastdown. ■ When aircraft was shut down for fuel, tear in main rotor blade was discovered. Suspect blade strike while engaging in NOE gunnery training.

5 Precautionary Landings—following are selected briefs ■ Transmission oil pressure and bypass light illuminated, transmission oil pressure dropped to 10 psi, and transmission temperature was 65° C. Maintenance inspection revealed ruptured internal transmission filter gasket. ■ Aircraft was flying recon of wires in NOE area when hydraulic caution light illuminated. Hydraulic pressure was never lost and landing was uneventful. Caused by hydraulic pressure sending unit failure. ■ Pilot noticed unusual vibration in aircraft and landed. Cause is under investigation. □

MAKE AVIATION SAFETY THE SPIRIT OF '76

UNITED STATES ARMY AGENCY FOR AVIATION SAFETY ■ FORT RUCKER, ALABAMA 36362

Prepared from information compiled by the
Directorate for Aircraft Accident Analysis
and Investigation
Lieutenant Colonel Curtis M. Sanders, Director

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COMMERCIAL: 255-XXXX AUTOVON: 558-XXXX
Commander/Deputy Commander 3410/3819
For Assistance in Locating Proper Directorate 4479
Aircraft Accident Analysis and Investigation 3913/4202
Technical Research and Applications 6404/6410
Plans, Operations, and Education 4479/4812
Management Information System 5286/4200
Publications and Graphics Division 6385/3493
Medical Division 2091/4806
After-duty tape recording of incoming calls to be returned the following day (hours: 1615 to 0730) 6510

LOH/CARGO BRANCH

MAJ Robert P. Judson, Chief ■ 558-4202

1 Accident, 0 Fatalities, 0 Injuries, Estimated Costs: \$26,122

OH-58

1 Accident ■ Aircraft encountered spike knock on touchdown autorotation. Investigation is in progress.

1 Incident ■ During NOE recon, aircraft was repositioning after emplacing Cobra. Pilot turned aircraft downwind and aircraft settled. Blades struck tree.

2 Forced Landings ■ Rpm audio warning activated at approximately 200 feet on final approach to field site. Pilot saw N2 decreasing from 103 to 80 percent. Reduction of collective failed to regain N2. N2 continued to decrease and pilot made autorotation. Engine stabilized at flight idle. Inspection revealed check valve, P/N 6854622, was sticking. ■ High side governor failed. Pilot entered autorotation and landed in remote rugged ravine. WELL DONE to CW2 Dale Jones, 3/5 Cav, Fort Lewis, Washington.

8 Precautionary Landings ■ Engine oil bypass caution light came on. Starter generator seal was leaking. ■ During runup, after hydraulic off check, pilot rolled throttle to 93 percent N2 when copilot saw white cloud of smoke and heard low whine. Pilot rolled throttle to flight idle detent and engine quit. Suspect No. 2 bearing failure. ■ During cruise flight, before entering NOE environment, engine oil temperature gauge read 110° with single fluctuation of up to 125°. Caused by failure of engine oil temperature sending unit. ■ After start, during hydraulic off check, generator failed. Inspection revealed generator shaft was sheared. ■ During climbout, hydraulic pressure caution light came on. Caused by failure of hydraulic pressure switch. ■ Master caution light, low rpm warning light, audio warning, and hydraulic warning light illuminated. Pilot noticed stiffness in controls and landed in open field. Inspection revealed rotor tach generator failure. Cause of hydraulic failure was not reported. ■ Cyclic was binding in cruise flight. Cyclic was freed by applying force to controls. Caused by improper friction between uniball and swash-plate assembly. ■ During maximum performance takeoff, transmission chip detector light illuminated. Maintenance found excessive metal on plug.

TH-55

2 Precautionary Landings ■ Engine rpm dropped 400 during magneto check prior to takeoff from confined area training site. Maintenance inspection revealed failure of right magneto and fouled spark plugs. ■ IP noted severe vibration in fuselage. Caused by failure of forward upper bearing of belt drive frame.

CH-47

3 Precautionary Landings ■ No. 2 engine oil temperature rose and right gearbox temperature hot light came on. Temperature limits of gearbox had been exceeded. Caused by internal failure of gearbox. ■ No. 2 engine oil pressure dropped to zero. Engine was secured and running landing made. Caused by malfunction of oil pressure transmitter. ■ Flight engineer detected utility hydraulic leak during flight. Inspection revealed deteriorated packing at top of utility motor pump. □

FIXED WING BRANCH

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

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

T-42

2 Precautionary Landings ■ IP gave single-engine failure. Pilot shut down No. 1 engine. On attempted restart, propeller would not come out of feather. Aircraft returned to home station and single-engine landing was uneventful. Caused by low charge on No. 1 accumulator. ■ No. 2 engine began to run rough. Caused by failure of left magneto.

U-3

1 Precautionary Landing ■ On crosswind, pilot noticed landing gear was not fully retracted. Circuit

breaker was popped. Circuit breaker was reset and gear retracted completely. On base, switch was put in down position. Right gear appeared down and locked. Left main and nose gear were in an intermediate position. Landing gear switch was recycled and grinding and slipping noise was heard, with no response by faulty gear. Flyby of tower was made and tower personnel confirmed that all gears were not down and locked. Circuit breakers were checked in, landing gear was manually extended, and landing was made. Caused by failure of torque tube (Cessna P/N 0843510-14). This initial failure caused further damage to three pushpull tubes and one fork bolt, and internal damage to gearbox mechanism.

U-21

2 Precautionary Landings ■ (A models) After takeoff, gear handle was raised and gear failed to retract. Aircraft remained in traffic pattern for landing. Caused by failure of landing gear circuit breaker. ■ Fuel was noted siphoning out of No. 2 engine nacelle filler cap. Caused by excessively worn filler cap.

U-8

1 Human Factors Mishap ■ (F model) Pilot was starting No. 1 engine for flight when outboard exhaust stack caught fire. Fire guard extinguished fire. Extinguisher agent sprayed in fire guard's eyes. He was taken to base medical facility where his eyes were flushed and examined. No adverse results were noted. □

MAINTENANCE MISHAPS

MSG B. R. Bailey ■ 558-3901

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

CH-47

1 Precautionary Landing ■ Immediately after takeoff, No. 1 engine work platform came open. Crew failed to insure that all cowlings were secured before flight. □

AVIATION-RELATED GROUND MISHAPS/ACCIDENTS

William P. Christian ■ 558-4202

1 Ground Accident, 8 Mishaps, 0 Fatalities, 3 Injuries, Estimated Costs: \$100,900

UH-1

■ Mechanic was in the process of removing main rotor head from UH-1 and was going to move helicopter so a crane could be used to hoist rotor head. He started to remove his toolbox from top of aircraft when he lost his balance, causing toolbox to strike upper right-hand window, cracking it. Corrective action taken was to establish a policy prohibiting toolboxes on top of aircraft. ■ During severe weather warning, all vehicles were moved in front of parked aircraft to serve as wind blocks. Strong wind rotated a UH-1 approximately 70°, and aircraft's chin bubble struck vehicle, knocking window out. Corrective action will be to park vehicles further away and move aircraft off PSP onto skid-resistant surface.

CH-47

■ During flight, cargo external load was inadvertently dropped. Hook was in armed position. No caution lights or other warnings were noted. Inspection of aircraft revealed no mechanical problems with aircraft or hook operation. EIR was submitted to modify grip assembly to prevent inadvertent release of loads. ■ During tactical field exercise involving internal loading of M-102 Howitzer, crew was required to lift trail of gun with its basic load while gun was being winched into aircraft. Crew failed to do this and as a result gun tube hit and damaged intermediate former on interior ceiling of aircraft. As corrective action, artillery commander has been advised that no gun will be loaded in an aircraft unless every item of extra equipment is removed from the gun; i.e., A-22 bags and duffle bags.

OH-58

■ Mechanic was removing cowlings from aircraft. When he turned to step down to floor, he missed bottom step of two-step stepstool, resulting in back injury. Subject stepstool has been removed from use and all personnel have been so advised. ■ Ground accident—While troubleshooting for high frequency vibration,

tail rotor drive shaft was disconnected, and disc assembly was removed just forward of 90° gearbox. During startup, drive shaft flexed downward, resulting in damage to tail boom. Drive shaft required replacement. *Does this mishap sound familiar? Another unit was troubleshooting for a high frequency vibration using this same procedure, which also resulted in damage to the tail boom. In FLIGHTFAX, Vol. 4, No. 22, dated 24 March 76, USAAAVS recommended that this procedure be discontinued. Consult TM 55-1500-228-20, page 7-3, change 7, for the correct troubleshooting procedure.*

C-130

■ During performance of engine running offloading operations, offloading ramp aboard an Air Force C-130 fell on equipment storage specialist's foot, causing serious injury. An air-loading safety briefing was restructured to include safety procedures for handling aircraft ramps.

OTHER TYPE MISHAPS

■ An individual was rappelling with all combat equipment, using a double rope and Swiss seat from a hovering helicopter. About 50 feet above the ground, individual lost control of rope and fell to ground, landing on 6" x 6" wooden timber. Corrective action was taken to increase the emphasis on duties of belay man and to clear debris from all rappelling zones. ■ Crew chief noticed there was damage to forward red main rotor blade tip of his aircraft. Damage was a gouge approximately 3/4 inches deep by 3 inches long and 2 inches wide. Cause undetermined.

FIRE EXTINGUISHERS

As summer approaches, we will again have problems with discharging hand portable fire extinguishers. Extensive tests have proven that, despite its high temperature vulnerability, the fire extinguisher presently in use is the safest and most effective extinguisher available for Army aviation use. Therefore, AVSCOM listed the following instructions in Message 312050Z March 75:

"For AH-1 and TH-1T aircraft only.

"When Cobra aircraft are to be parked where ambient temperature equals or exceeds 90° F., the fire extinguisher shall be removed until the next mission.

"Should an extinguisher be left in an aircraft inadvertently during a high temperature period, the extinguisher shall be weight checked prior to the next mission.

"The requirement for a weight check every 6 months remains in effect.

"These requirements pertain to all extinguishers issued under NSN 4210-00-555-8837, regardless of manufacturer.

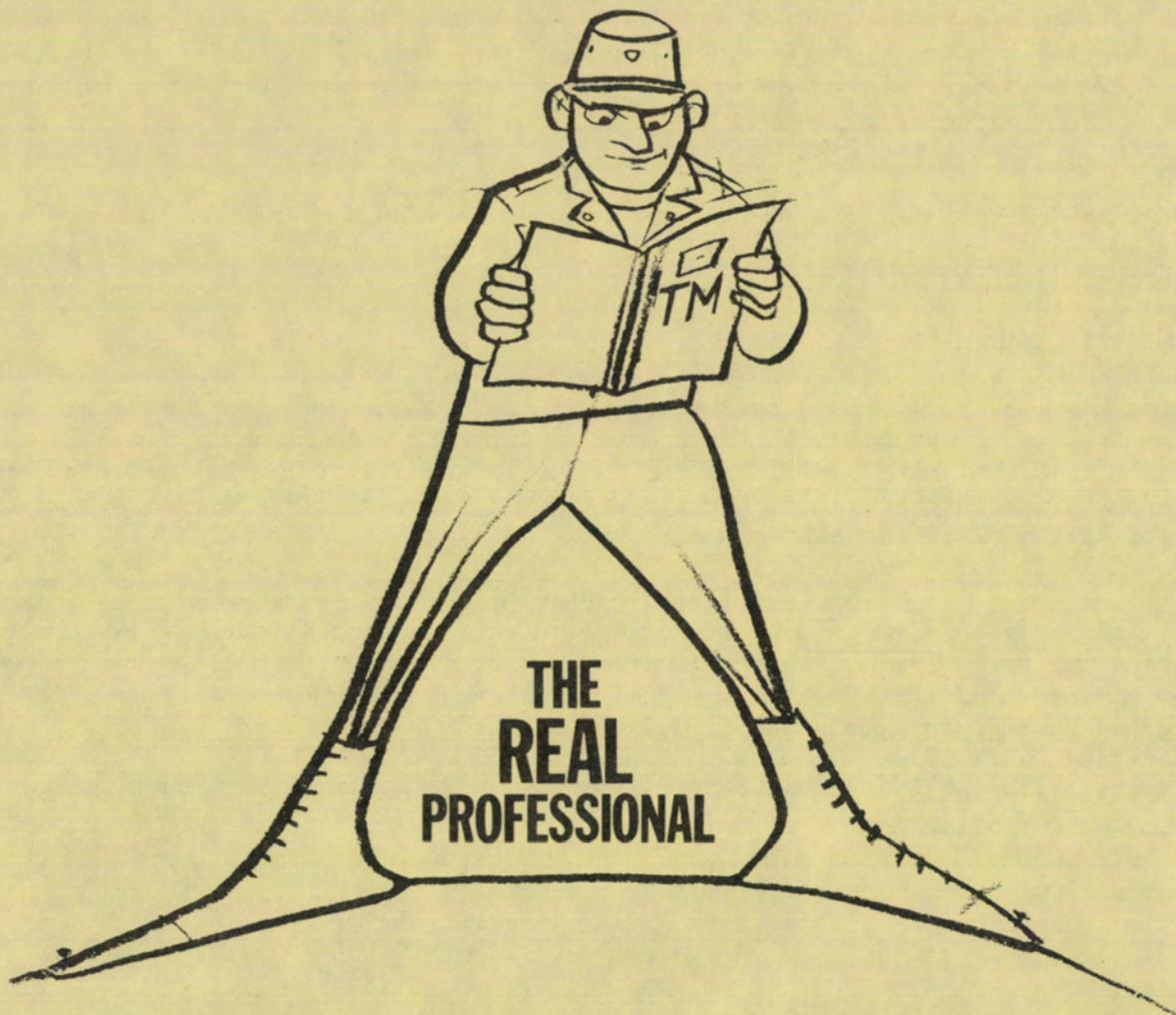
"All other aircraft will revert to the 6-month weight check." □

ATTENTION RT-10 SURVIVAL RADIO USERS

Replacement "Piggy Back" batteries for your Survival Radio Set, ACR RT-10, NSN 5820-00-192-4480, are available from the San Antonio Air Materiel Area. Submit funded requisitions for Battery, Type K308-A, NSN 6135-00-930-0810, to: FPZ

San Antonio Air Materiel Area
Kelly AFB, TX 78241

For further information, contact Commander, AVSCOM, ATTN: DRSAV-WL/Aviation Life Support Systems Manager, P. O. Box 209, St. Louis, MO 63166, AUTOVON 698-3241/3291.



DEPARTMENT OF THE ARMY
UNITED STATES ARMY
AGENCY FOR AVIATION SAFETY
FORT RUCKER, ALABAMA 36362

OFFICIAL BUSINESS

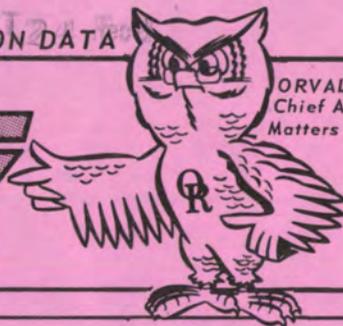


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FLIGHTFAX/23-29 APRIL 1976



FLIGHT FAX



ORVAL RIGHT
Chief Advisor on
Matters of Aviation

A USAAAVS PUBLICATION

VOL. 4, NO. 3 ■ 22 OCTOBER 1975

mishaps for the period of 3-9 OCTOBER 1975

US Army Aviation Training Library
Fort Rucker, Alabama 36360

USE YOUR FLIGHT SURGEON

Human error factors continue to be a major problem in Army aircraft accidents. Your flight surgeon's mission is to care for the men who maintain and fly Army aircraft. Section III, AR 40-5, dated 25 September 1974, defines the Army's aviation medicine program. All aviation personnel should be familiar with this program. Use your flight surgeon!

AVIATION MEDICINE PROGRAM

4-12. Objectives. The Army Aviation Medicine Program is multi-disciplined to promote aviation safety and prevent illness and injury of Army aviators and aviation support personnel. General preventive medicine, environmental medicine and occupational health are closely allied as related to the special environment of aviation operations. Other program elements include the clinical specialties.

4-13. Specific Aims of the Program.

a. Promote the health and safety of aviation personnel through appropriate preventive medicine practices.

b. Assure a safe, toxic-free environment for aviation personnel.

c. Evaluate personal equipment and man/machine interface for toxic and hazardous conditions prevention.

4-14. Responsibilities.

a. Unit commanders and commanders of medical activities authorized a flight surgeon (MOS 3160) will insure adequate time and support are made available to flight surgeons to accomplish the program objectives.

b. Flight surgeons will establish an aviation medicine program tailored to specific needs of supported aviation populations.

c. The Surgeon General will initiate policies, prepare directives and provide technical advice as required to assist program objective fulfillment.

4-15. Scope. The Army aviation medicine program includes but is not limited to the following:

a. Periodic medical examinations as prescribed by AR 40-501 and special medical examination when indicated.

b. Routine aviation personnel medical care and, whenever possible, their dependents.

c. Implementation of a general preventive medicine program for all aviation personnel.

d. Active support of aviation safety program through presentations at safety meetings and participation in accident investigations (AR 40-21).

e. Medical representation on Flying Evaluation Boards (AR 600-107).

f. Hospital and installation aeromedical activities supervision or coordination as appropriate.

g. Supervision of fitting and use of personal safety equipment.

REFLECTIVE TAPE AND SHEETING

It has been brought to our attention that some units have not been able to procure the reflective tape and sheeting using the National Stock Numbers (NSN's) which appeared in the article "Illuminate With Tape" in the July 1975 U.S. ARMY AVIATION DIGEST. The NSN's for the different colors and sizes of reflective tape and sheeting and for the silver white sew-on type reflective fabric listed in this article were taken from the General Services Administration (GSA) Contract No. GS-07S-07233.

Checking into this matter, we found that the tape is not an Army-adopted item and, therefore, has not been federally catalogued. However, requisitions for this tape can be filled by local purchase means using DD Form 1348-6. Requisitions should be placed against GSA Contract Number GS-07S-07233, and ordering agencies should refer to Federal Supply Schedule Group 93, Part II, Non-metallic Fabricated Materials Class 9390—Sheeting and Tape, Reflective. The complete description of the tape to include nomenclature should be entered either in block 7 or 9 of DD Form 1348-6, rather than in the space provided for the manufacturer's code and part number.

GSA Contract GS-07S-07233 expires 30 November 1975, but is being renewed. As of 1 December 1975, requisitions should be placed against the new contract number GS-07S-00225.

Copies of the contract may be obtained from the Federal Supply Service, 819 Taylor Street, Fort Worth, Texas 76102.

UTILITY/ATTACK

BRANCH

Fatalities: 5 ■ Accidents: 1
Injuries: 5 ■ Estimated Costs: \$297,663

■ CPT James M. Klina, Jr., Chief
SP6 Roland L. Allen, Jr.
558-4198

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

UH-1

1 ACCIDENT ■ After takeoff, aircraft entered right descending turn into canyon and crashed into canyon wall approximately 150 feet below canyon rim. Five fatalities, three major injuries, and two serious injuries resulted. Initial investigation with USAAAVS participation revealed that aircraft was approximately 900 pounds overweight for density altitude at takeoff point and had a history of engine problems.

3 INCIDENTS ■ While hovering, aircraft shuddered and yawed, followed by sudden rpm loss. Pilot initiated a hovering autorotation resulting in bent front cross tube on touchdown. After touchdown, engine rpm stabilized at 1000. Caused by fuel control malfunction. ■ At cruise airspeed, 500 feet agl, bird struck left chin bubble. Bird, about the size of a dove, made 3-inch hole in plexiglass but did not enter cockpit. ■ Expended parachute flare fell out of cargo door and damaged aft cross tube. *The preflight checklist specifies that cargo and loose equipment will be secured before takeoff.*

6 FORCED LANDINGS ■ Engine and rotor rpm increased. Suspect failure of overspeed governor. ■ Aircraft was unmasking at 30-foot hover when severe compressor stall developed and rpm decayed rapidly. ■ Low-level practice autorotation rpm check revealed N1 going through 10 percent. Autorotation was completed with no further problems. Inspection could not identify cause of reduction of engine rpm. ■ In level flight at 3,500 feet, crew heard loud noise followed by loss of rpm. Emergency governor procedure was initiated and engine appeared to operate normally for approximately 2 minutes. Engine then failed and autorotation was accomplished. Suspect compressor failure. (ARNG) ■ N2 rpm decreased to 5000. Pilot autorotated to road and landed. Maintenance could not duplicate problem. ■ Engine lost power on final approach. Pilot entered autorotation and landed. Suspect fuel control malfunction. (ARNG)

15 PRECAUTIONARY LANDINGS—following are selected briefs ■ On takeoff N2 rpm bled off to 6100. Crew regained rpm to 6600 but maximum power available was 28 pounds of torque. Variable inlet guide vanes failed in closed position. (ARNG) ■ Right fuel boost pump caution light came on. Filter screen in cross fitting assembly became clogged due to lint buildup. ■ Cyclic control was binding in flight. Caused by malfunction of hydraulic irreversible valve. ■ Main transmission oil pressure caution light came on and pressure gauge indication dropped to zero. Transmission lost oil when internal filter gasket failed. ■ Aircraft suddenly lost power. N1, N2, torque, and egt began rapid fluctuation. N2 fell off to approximately

LOSS OF RESOURCES FROM THIS WEEK'S MISHAPS

FATALITIES: 5
INJURIES: 5
AIRCRAFT LOSSES: 1
ESTIMATED COSTS: \$343,092

UNITED STATES ARMY AGENCY FOR AVIATION SAFETY
FORT RUCKER, ALABAMA 36362 AUTOVON
Commander/Deputy Commander 558-3410/3819
For Assistance in Locating Proper Directorate 558-6510
Aircraft Accident Analysis and Investigation 558-3913/4202
Technical Research and Applications 558-6404/6410
Plans, Operations, and Education 558-4812/6510
Management Information System 558-4200/2920
Publications and 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.

6000. Aircraft landed with partial power. Caused by governor malfunction. (ARNG) ■ After start, master caution and engine oil pressure lights illuminated. Engine oil pressure gauge was in green range. Caused by failure of oil pressure transmitter. ■ Chip detector lights of three aircraft illuminated. Two had metal particles on magnetic plug. The third had metallic fuzz.

AH-1

5 PRECAUTIONARY LANDINGS ■ Crew felt high frequency vibration that varied in intensity during power changes. Inspection revealed preformed packing for tail boom skid had deteriorated, allowing tail boom skid to vibrate in support lock. ■ Air inlet light came on. Caused by electrical short in wiring. ■ Three chip detector light illuminations were reported. One had chips on magnetic plug and the other two reported metallic fuzz. □

LOH/CARGO

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

BRANCH

■ MAJ Robert P. Judson, Chief
SFC D. T. Farrar/SFC R. G. Farris
558-4202

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

OH-6

3 PRECAUTIONARY LANDINGS ■ Main transmission chip detector light came on. Cause not reported. (ARNG) ■ Engine oil cooler bypass light came on. Suspect internal malfunction of engine oil pump. (ARNG) ■ Engine oil pressure exceeded limits due to short in pressure sending unit.

OH-58

2 FORCED LANDINGS ■ During cruise flight at 500 feet, pilot heard bang, aircraft yawed, and autorotation was made. TOT was noted at 1,000° after touchdown. Suspect engine malfunction. ■ IP rolled throttle off to perform practice autorotation and engine stopped. Caused by excessively worn bolt which connects gas producer control rod to lever on fuel control. (ARNG)

7 PRECAUTIONARY LANDINGS ■ Engine chip detector light came on. Special oil sample was taken and aircraft was serviced and released. ■ Main transmission chip detector light came on. Metal particles were discovered in transmission oil. ■ Loud banging noise was heard on takeoff. Noise could not be duplicated and aircraft was released. ■ Excessive engine oil temperature was noted during cruise. Suspect short in indicator wiring. (USAR) ■ N2 dropped to zero during flight. Maintenance tightened N2 cannon plugs. ■ N1 decreased and pilot entered autorotation. Power was regained when initial pitch-pull was made and aircraft was landed with power. Caused by malfunction of double check valve. ■ Vibration in pedals was caused by malfunction of hydraulic pump, P/N 206-076-030-3.

TH-55

2 PRECAUTIONARY LANDINGS ■ Manifold pressure reading went to 30 inches during flight because manifold pressure flex line ruptured. ■ While on ground at 2900 rpm, IP felt aircraft shudder, followed by smoke and smell of rubber. Caused by malfunction of "H" frame assembly and bearing, P/N's 269A5516-5 and 269A5050-57.

CH-47

1 INCIDENT ■ FOD screens were removed before flight due to anticipated icing condition at altitude. As aircraft was brought to hover, crew chief saw sparks and pieces of metal coming from No. 2 engine inlet. No. 2 engine stopped and aircraft was landed. Postflight inspection revealed FOD to one aft blade and No. 1 engine had occurred subsequent to No. 2 engine failure. Cause undetermined. Suspect FOD ingestion by No. 2 engine.

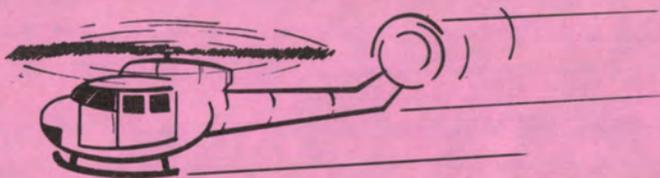
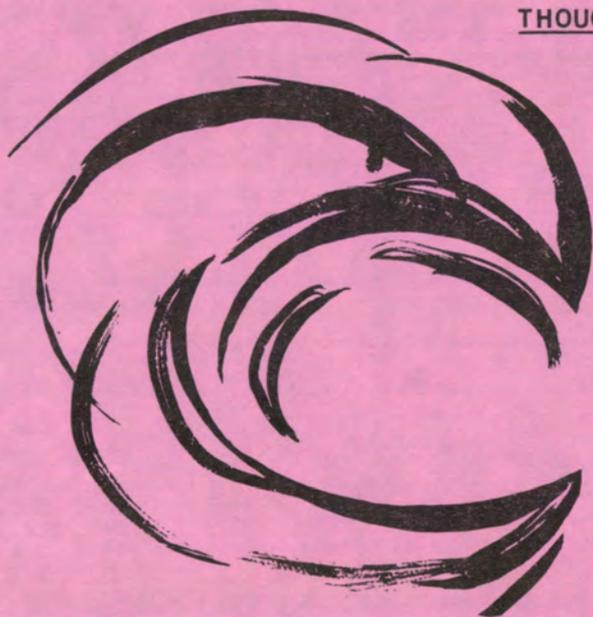
3 PRECAUTIONARY LANDINGS ■ Aircraft was on ILS approach when pilot attempted to extend landing light but increased engine beep trim instead. Rotor rpm increased to 255. Pilot thought high speed governor had failed and regained rpm control with emergency engine trim. ■ No. 1 engine chip detector light came on at hover. Caused by loose wire on detector. ■ Left fuel low light was on continuously during flight. When right fuel low light and fuel pressure lights illuminated, pilot elected to land and refuel on site. Aircraft has no history of excessive fuel consumption. Cause unknown. Maintenance found no fuel system discrepancies.

CH-54

1 PRECAUTIONARY LANDING ■ No. 2 engine fire warning light came on. Caused by glow of aft rotating beacon light reflecting off bottom of rotor blades.

THOUGHT FOR THE WEEK

**AIRCRAFT WAS READY
WEATHER WAS NOT
THUNDERSTORMS WERE PRESENT
X MARKS THE SPOT**



FIXED WING

BRANCH

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

■ MAJ William G. Daly, Jr., Chief
SFC John M. Terrell
558-3901

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

U-9

1 ACCIDENT ■ Pilot felt violent vibration during takeoff. Power was reduced and nose gear collapsed as aircraft slowed down. Various parts of nose gear assembly and tire and wheel were destroyed. Wheelwell skin damage also occurred. Suspect chimney dampener failed.

T-42

1 INCIDENT ■ Bird struck right wing outboard of engine, causing dent in leading edge.

T-41

1 PRECAUTIONARY LANDING ■ During touch-and-go landings, rpm fluctuated during takeoff run. Takeoff was aborted. Plugs were fouled on No. 6 cylinder.

U-8

4 PRECAUTIONARY LANDINGS ■ No. 1 engine began running rough and backfiring. Power reduction failed to improve situation and engine was secured. Landing was successful. Internal cylinder damage caused backfires. ■ During climb, No. 2 engine backfired several times and cylinder head temperature rose rapidly. Power was reduced and temperature returned to normal. Landing was made. Inspection revealed approximately one-fourth of the piston in No. 5 cylinder and part of No. 1 cylinder piston were burned away. ■ No. 2 engine began running rough and gradually losing power. Landing was made and No. 5 cylinder and piston were changed. ■ Landing gear failed to extend and manual method was used. Down-lock switch failed. (ARNG)

U-21

2 PRECAUTIONARY LANDINGS ■ Heater switch was turned on to clear windshield before taxiing. Smoke began pouring from around instrument panel. Crew left aircraft and found smoke coming from heater compartment. Crash crew used extinguishing agent in heater compartment. Heater pressure switch failed and burned. ■ Fuel was noticed siphoning from right nacelle tank filler cap. Right transfer pump was turned off but siphoning continued. Aircraft was landed and filler cap reseated. Flight continued without further incident. Pilots said cap had been checked before departure. *The large number of nacelle-cap-associated precautionary landings should tell U-21 pilots that a glance at the cap during preflight inspection is somehow insufficient.* □

MAINTENANCE MISHAPS Fatalities: 0 ■ Accidents: 1 Injuries: 0 ■ Estimated Costs: \$29,429

One ground accident and five precautionary landings were reported.

AH-1

1 PRECAUTIONARY LANDING ■ During runup, transmission oil pressure and transmission oil bypass lights came on. Wrong gasket was installed on internal transmission oil filter.

UH-1

1 PRECAUTIONARY LANDING ■ Transmission oil pressure gauge fluctuated between 0 and 40 psi. Maintenance inspection identified loose cannon plug on transmission oil pressure transmitter. Cannon plug had been overtorqued, causing excessive wear on snap ring which allowed cannon plug to disassemble in flight.

OH-58

1 GROUND ACCIDENT ■ During maintenance ground runup, throttle was left open upon start. Engine accelerated rapidly and pilot was unable to abort start because N1 was binding in open position. During maintenance, N1 bolt was torqued so tightly that no movement between torque tube and bellcrank was possible. Mechanic, technical inspector, and pilot did not insure freedom of throttle movement during their respective checks.

CH-47

1 PRECAUTIONARY LANDING ■ Crew reported excessive hydraulic leak in No. 2 flight boost during flight. Aircraft landed and No. 2 hydraulic boost system failed during shutdown. Caused by chafed tube assembly.

U-8

1 PRECAUTIONARY LANDING ■ When IP tried to shut down one engine on pilot, engine continued to run. Pilot feathered engine and violent vibration occurred. Screw holding link, P/N A979, to piston

came out of piston due to stripped threads in piston. Screw used was too long, approximately one-fourth inch longer than proper screw, P/N S35266-61, NSN 5305-00-543-2753. Suspect screw was stripped when maintenance tried to tighten it down after it bottomed out in threaded hole.

T-4i

1 PRECAUTIONARY LANDING ■ Cockpit filled with burning electrical odor at cruise power. All switches were turned off and aircraft landed without further mishap. Suspect crew chief failed to properly tighten battery filler caps. Caps were found loose or dislodged on postflight inspection.

TBO COMPUTATION PROBLEMS ON DA FORM 2408-16

It has been brought to our attention that some units are having problems computing TBO times on DA Form 2408-16. Those units having problems in this area should refer to TM 38-750, w/change 1, par. 4-15c (17)(a) through (d). If this doesn't solve the problems, contact your maintenance supervisor or maintenance officer. Further information can be obtained by calling SFC Terrell at AUTOVON 558-3913/3901.

CHANGE TO UH-1 PMS CARDS

Message from USAAVSCOM, St. Louis, MO 151840Z Oct 75, subject: Maintenance Advisory Message Concerning All UH-1 Series Helicopters (UH-1-75-13)

1. Purpose of Message: The purpose of this message is to provide advanced information concerning a change to the UH-1 series PMS cards which will reduce the required tail rotor tracking and balancing interval from the third periodic inspection to every periodic inspections.
2. Pending receipt of formal changes to the UH-1 series PMS cards, the following pen and ink changes shall be made to TM 55-1520-210-PMS, Seq. No. 6.15; TM 55-1520-219-PMS, Seq. No. 8.8.4; and TM 55-1520-220-PMS, Seq. No. 6.6:

Item and Procedure

D I P

Balance and track tail rotor assembly. Check flapping motion
for proper clearance between vertical fin and tail rotor blade tip.

X

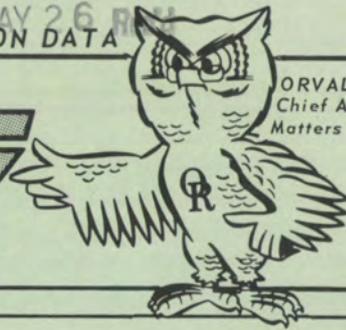
3. This change to the PMS requirement shall become effective at the next scheduled periodic inspection of the helicopter.

DEPARTMENT OF THE ARMY
UNITED STATES ARMY
AGENCY FOR AVIATION SAFETY
FORT RUCKER, ALABAMA 36362

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Chief Advisor on
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FLIGHT FAX

A USAAAVS PUBLICATION

VOL. 4, NO. 30 ■ 19 MAY 1976

mishaps for the period of 30 APR-6 MAY 1976

-From ROTORWASH

Chinook Trailing Vortices Versus Lear Jet

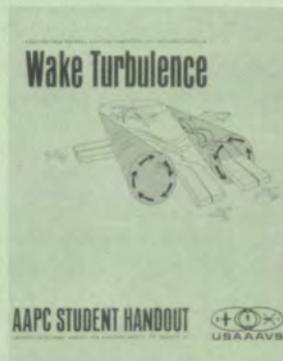
A Lear jet being flown by a pilot on checkout was involved in a dangerous encounter with the trailing vortices from a Chinook helicopter.

The Chinook had air-taxied to the runway threshold, hovered for one minute, then was cleared for departure along runway 14 with a right turn out. Soon thereafter the Lear jet was cleared to land; the surface wind was 110° at 10 knots.

Approximately 30 seconds after the helicopter departed the runway threshold, the jet, which was now at 50-75 feet agl, suddenly, and violently, banked 70° to the right despite the efforts of both pilots who were applying full left aileron and full left rudder. Control was regained as the Lear jet flew out of the Chinook vortices which had been created as the helicopter commenced transition to forward flight.

Pilots should be aware of the possible dangers of vortices from all types of aircraft, relative to their own, and that vortices from helicopters are generally much stronger than

those from fixed wing aircraft of comparable weight. Because studies underway in a number of countries have not yet precisely defined the potential dangers from helicopters in forward flight, pilots of fixed wing aircraft should make allowance for possible turbulence when in the vicinity of helicopters. Helicopter pilots should avoid flight across approach and departure paths of active runways at altitudes which would constitute a danger to landing or departing aircraft.



A USAAAVS pamphlet on the hazards of vortex wake turbulence and recommended operational procedures is available. For copies write to: Commander, U.S. Army Agency for Aviation Safety, ATTN: IGAR-PG, Fort Rucker, AL 36362.

US Army Aviation Training Library
Fort Rucker, Alabama 36360



FOD

This Dzus fastener was found on a UH-1H during PMI #2. The aircraft had been flown 50 hours since the last PMP when the aft left Dzus fastener on the engine exhaust cowling was changed and the old Dzus fastener was left under the drive shaft cowling. The Dzus fastener had become lodged under the #2 hanger bearing and was very difficult to see.

If the Dzus fastener had come loose and come in contact with the drive shaft or drive shaft clamp it could have caused excessive damage to the aircraft.

FOD can be prevented. You can help.

UTILITY/ATTACK BRANCH

MAJ William C. Childree, Chief ■ 558-4198

0 Accidents, 1 Fatality, 1 Injury, Estimated Costs: \$8,224

UH-1

4 Incidents ■ A sport parachutist was part of parachute demonstration team. At 10,000 feet his main parachute was inadvertently deployed while he was repositioning inside aircraft. Chute was pulled outside aircraft and opened, pulling jumper out. Parachutist was fatally injured when his head struck door frame. Left door frame and seat brace of aircraft were damaged. ■ Pilot was flying an approved low-level route when left chin bubble of aircraft struck sea gull. ■ Pilot was advised by another aircraft that tail rotor drive shaft cover was loose. Aircraft landed and inspection revealed tail rotor drive shaft was scratched. ■ During NOE hover, pilot allowed aircraft to drift right and forward and main rotor blade struck tree branches.

19 Precautionary Landings—following are selected briefs ■ Master caution and engine chip detector caution lights came on. Large metal particles were found on magnetic plug. ■ Rpm dropped to 6000, collective was lowered, and rpm stabilized at 6400. During termination of approach, rpm went to 5800. After landing, fuel sump was drained and water was found in fuel. ■ Copilot noticed fluctuation in egt indications. Gauge fluctuation was from 250° to 500°. Caused by failure of egt gauge. ■ Aircraft approached LZ with slow airspeed, sink rate increased, and power was applied. Pilot applied 55 pounds of torque to prevent hard landing. ■ After takeoff, aircraft was making climbing right turn at 80 knots. Ninety-degree gearbox chip detector light illuminated, then began to flicker on and off for about 10 seconds. Maintenance inspection revealed excessive amount of grease in 90° gearbox.

AH-1

4 Precautionary Landings ■ Abrupt aft cyclic was applied during right turn to avoid hitting large bird. Engine oversped to 7000 rpm and rotor rpm climbed to 345. Aircraft was landed immediately. ■ On takeoff, aircraft yawed rapidly 30° left. SCAS card balanced and aircraft was released for flight. ■ While at flat pitch and retarding throttle, pilot stated that compressor stall occurred, resulting in egt climb and loud noises from engine. Aircraft was shut down in place and engine replaced. ■ During cruise flight at 80 knots and 2,500 feet, pilot heard loud muffled explosion similar to compressor stall from engine compartment. N2 fluctuated and aircraft yawed. Pilot reduced power and made power-on approach to field. Maintenance replaced engine. □

LOH/CARGO BRANCH

MAJ Robert P. Judson, Chief ■ 558-4202

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

OH-58

1 Incident ■ Aircraft was hovering NOE, attempting to locate an infantry squad on the ground in an ambush position. Main rotor blades struck tree limb on left side of aircraft. Pilot was flying from right seat.

1 Forced Landing ■ Partial power failure occurred in cruise flight. N2 decayed to 90 percent. Pilot lowered collective and N2 rose to 103 percent. N1 was noted at 75 percent. Pilot attempted to increase collective, and N2 decayed to 90 percent again, while N1 appeared to operate normally. Pilot elected to

UNITED STATES ARMY AGENCY FOR AVIATION SAFETY ■ FORT RUCKER, ALABAMA 36362

Prepared from information compiled by the
Directorate for Aircraft Accident Analysis
and Investigation
Lieutenant Colonel Curtis M. Sanders, Director

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COMMERCIAL: 255-XXXX AUTOVON: 558-XXXX
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Aircraft Accident Analysis and Investigation 3913/4202
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land using partial power. During termination of landing, N2 again decayed. Landing was made with no further difficulties. WELL DONE to CW2 Peter M. Daily, ACT 20 ACR, Feucht AAF.

9 Precautionary Landings ■ Aircraft was hovering to parking area when multiple engine surges occurred. TOT fluctuated from 400° to 760°; N1 fluctuated from 80% to 104%; N2 fluctuated from 80% to 107%; torque fluctuated from 25 psi to 88 psi. Fuel control was replaced. ■ During quick stop, low rotor rpm warning light illuminated and audio came on. IP noted N2 at 90% and rotor rpm returned to normal. Aircraft was test flown, and problem could not be duplicated. Aircraft was released for flight. ■ During takeoff from LZ, N2 rpm bled from 103% to 96%. Aircraft was landed. Maximum obtainable rpm on the ground was 102%. Maintenance was unable to duplicate problem, and aircraft was released for flight. *USAAAVS recommends that before release of an aircraft which has had a loss of engine power, check valve, P/N 6854622, be inspected and cleaned.* ■ Engine-out audio sounded, but no warning light came on. Pilot lowered collective, notified control agency, and landed with power. Tachometer generator was replaced. ■ Aircraft was holding outside control zone for SVFR clearance for 10 minutes to land when 20-minute fuel warning light illuminated. Aircraft landed immediately. ■ Generator drive shaft sheared during landing. ■ During climbout, transmission oil hot light came on. Precautionary landing was initiated. On short final, warning light went out. Suspect temperature switch failure. ■ While flying at approximately 15 feet at 35K indicated airspeed, hydraulic pressure light came on with partial loss of hydraulic pressure. Hydraulics-off emergency landing was made. Inspection revealed internal failure of hydraulic pump. ■ Small abrupt aft movement of cyclic was noted in cruise flight. Master caution and hydraulic pressure light illuminated. No loss of hydraulic pressure or further involuntary movement of cyclic was noticed. Aircraft was flown to home station without further incident. Aircraft was inspected and ground run, but condition could not be duplicated.

Human Factor Mishap ■ Pilot became ill after takeoff and returned to home station. Pilot was admitted to hospital with gastroenteritis.

TH-55

1 Precautionary Landing ■ IP reported rough running engine. Exhaust valve on No. 2 cylinder was stuck in open position.

CH-47

1 Forced Landing ■ During climbout at 6,900 feet msl, 1,000 feet agl, No. 1 engine dropped to 70%. Egt went to 790° C. No. 1 engine emergency beep would not control engine. Rotor rpm decayed and single-engine landing was made. WELL DONE, crew. *Even though the CH-47 is a multi-engine aircraft, this mishap points up the necessity of being prepared to land should an engine failure occur and aircraft weight is in excess of single-engine capability. The pilot should always be aware of his weight and balance condition relative to density altitude. If the aircraft weight is in excess of single-engine capability, the pilot should fly as our single-engine brethren do; i.e., keeping within reach of suitable forced landing areas.*

4 Precautionary Landings ■ Transmission oil temperature selector switch short circuited and overheated during flight. Cause unknown. ■ No. 2 engine flamed out during flight. Flare fitting on connector assembly to fuel manifold broke. (ARNG) ■ Flight engineer noticed sparks coming from wire bundle B63 at station 125. Three electrical wires in bundle B63 were chafed from unknown causes. ■ No. 1 engine N1 indicator dropped to zero during flight. Engine tachometer generator failed.

CH-54

1 Precautionary Landing ■ While aircraft was hovering with sling load, "second stage servo" caution light illuminated. Load was landed and unhooked, and aircraft landed. Servo pressure switch failed.

MAKE AVIATION SAFETY THE SPIRIT OF '76

MESSAGES RECEIVED

- AVSCOM message 052000Z May 76, subject: Safety-of-Flight Message No. OH58-76-2, One-Time Inspection for OH-58A Main Rotor Hubs and Latch Bolts.
- AVSCOM message 061850Z May 76, subject: Safety-of-Flight Message No. OH-6-76-1/OH58-76-3 (Technical) for Inspection of the T63-A-5A/A700 Power Turbine Governor. □

FIXED WING BRANCH

MAJ William G. Daly, Jr., Chief ■ 558.3901

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

C-54

1 **Precautionary Landing** ■ After transitioning to climb power, pilot noted rpm drop and backfiring of No. 3 engine. Caused by failure of No. 10 cylinder on No. 3 engine.

OV-1

2 **Precautionary Landings** ■ (C series) Aircraft was on approach and gears were lowered. Gear appeared to extend normally, but left main gear indicated in transit. Approach was continued and gears were recycled three or four times with no change in indication. Gear was extended by gear emergency extension system and aircraft landed without incident. Micro switch on left main gear drag brace failed. ■ (D series) Technical observer noticed loss of hydraulic pressure and notified pilot. Emergency landing gear extension system was used and aircraft landed. Left main gear hydraulic actuator O-ring failed.

T-41

1 **Precautionary Landing** ■ At approximately 200 feet during climbout, fuel was seen on windshield. Spray was seen coming from center cowling seam and oil cover. Fuel injector line to No. 6 cylinder was ruptured.

T-42

2 **Precautionary Landings** ■ When landing gear selector handle was placed in down position, gear did not come down. Selector was recycled with same results. Both alternator circuit breakers popped. Landing gear was extended manually with unusual binding experienced initially. Inspection revealed faulty gear motor. ■ No. 1 alternator was seen to go off line and No. 2 alternator gauge pegged to maximum load during normal cross check. It was determined that No. 1 alternator circuit breaker had popped. When reset, both gauges pegged past 50 amps, then stabilized at approximately 30 amps each. Ground wire on No. 2 alternator broke and shorted out.

U-8

3 **Precautionary Landings** ■ (D series) Gear was lowered on practice instrument approach and left main gear light failed to indicate down. Gear was recycled, and all gear lights indicated properly. On approach to home station, left main gear again did not indicate down. Gear was lowered manually and visual check that gears were down was made by helicopter. Emergency was declared and after touch-and-go landing, successful landing was made. Helical spring (NSN 5360-00-327-1368) came off during flight. ■ (F series) Pilot placed gear handle down for landing. Handle light illuminated but gear light indicators showed gear still in up position. Pilot checked, reset circuit breakers, and recycled gear handle. Gear still indicated up. Pilot lowered gear manually and landed without further incident. Retraction test was made and visual and system check of all electrical and mechanical components revealed no malfunction. Aircraft released for flight. ■ (G series) On ILS final approach, pilot could not get left gear down indication. After recycling gear several times, he still could not get safe indication. Aircraft was landed. Aircraft was put on jacks and gear was cycled many times with no problems. All rigging was checked, gear attaching points relubricated, and no problems were found. Aircraft was test flown and released for flight.

U-21

3 **Precautionary Landings** ■ (A series) Gear handle was raised after takeoff. Handle illuminated but gear

did not retract. Tower flyby was completed to confirm gear status and landing was made. Crew chief, flying in right seat, did not fully seat landing gear motor circuit breaker during cockpit check. Circuit breaker was pulled as a precaution during previous maintenance. ■ (A series) While aircraft was in level flight, fuel was noticed siphoning from left nacelle fuel filler cap. Fuel cap was properly secured before flight. Cause was bent flange on fuel filler neck. ■ (D series) Engine lag occurred during flight. At 10,000 feet msl, descent was made to home station. No. 1 engine torque would not decrease below 700 pounds torque (power lever at idle). Complete loss of power lever control for No. 1 engine was noted at this time. Any movement of power lever made no change in torque of No. 1 engine. Engine was secured and single-engine landing made without further incident. Caused by failure of No. 1 engine fuel control. □

MAINTENANCE MISHAPS

MSG B. R. Bailey ■ 558-3901

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

C-12

1 Precautionary Landing ■ No. 2 propeller rpm increased, then tried to feather and then back as if an over-speed. Engine was secured and landing made. Propeller governor and secondary low pitch stop system was inspected before flight. Mishap was caused by improper in line wire splice. As wires separated, instruments indicated low pitch failure, decrease in propeller rpm, and increase in torque. As wires touched, high side governor failure, increase in propeller rpm, and decrease in torque were indicated. □

AVIATION-RELATED GROUND MISHAPS

William P. Christian ■ 558-4202

4 Mishaps, 0 Fatalities, 3 Injuries, Estimated Costs: \$958

OH-58

■ Mechanic was repositioning helicopter under overhead chain hoist when he allowed chin bubble to contact metal worktable. Contributing factors were crowded conditions in the hangar and the fact that the mechanic attempted to move aircraft by himself without someone acting as guide. ■ Individual was driving aircraft tug and another individual was standing on aircraft's left skid as a guide and to maintain balance. Rear of right skid tube hit hangar door gust lock plate as aircraft crossed overhead door threshold. Force of contact was sufficient to tear towing eye from skid tube. Gust locks are a known hazard and have been marked with yellow paint. However, the yellow paint which indicates the gust lock is the same color as the guidelines inside the hangar which indicate desired path to move aircraft. Investigation into modification of gust locks to prevent damage to aircraft is underway. Caution markings on outside of hangar will be color-coded differently from guidelines inside hangar.

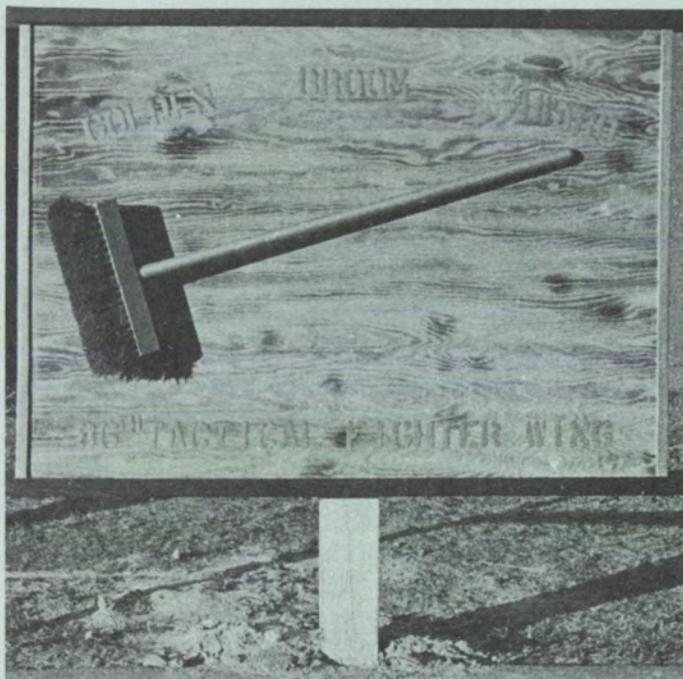
CH-47

■ Mechanic was tasked with the removal of right forward inner tire on CH-47. He and another mechanic removed tire from aircraft and began to disassemble it by removing inner wrench bolts which hold rim together. They had removed six of the bolts when inner tube exploded, shearing the two remaining bolts. Blast caused injury to both individuals. One mechanic was school trained and had changed aircraft tires on numerous occasions. *However, this time he did not consult the appropriate TM before changing the tire. TM specifically states that air will be let out of tire before removing bolts from rim.*

OTHER TYPE MISHAP

■ While participating in advance phase of helicopter rappelling training, individual fell 35-50 feet when double rope on which he was rappelling either broke or was cut. Initial information was that individual was wearing a kabar knife on his right hip which worked its way out of its sheath during his rappel. Knife severed both ropes, causing his fall. Investigation was made. Individual violated school SOP which states that *students were not to carry knives during rappelling or any other equipment on brake hand side of pistol belt.* □

"GOLDEN BROOM" AWARD



Congratulations to the 330th United States Army Security Agency Aviation Company (GUARDRAIL IIA) for winning the 86th U.S. Air Force Tactical Fighter Group "Golden Broom" award for the most outstanding foreign object damage (FOD) prevention program on Ramstein Air Base, Germany.

The 330th Aviation Company won the award in stiff competition with 13 U.S. Air Force units located on Ramstein Air Base. The unit scored 93 percent, topping the second place unit by nine percentage points.

The "Golden Broom" plaque was presented to Major James E. Kollar, commander, 330th Aviation Company, by Air Force Colonel Frank A. Podlesnik, Jr., Deputy Commander for Maintenance, 86th Tactical Fighter Group. Colonel Podlesnik expressed his congratulations to the 330th and added, in the spirit of competition, "that the Air Force units would be stepping up efforts to win back the award in the coming months."

DEPARTMENT OF THE ARMY
UNITED STATES ARMY
AGENCY FOR AVIATION SAFETY
FORT RUCKER, ALABAMA 36362

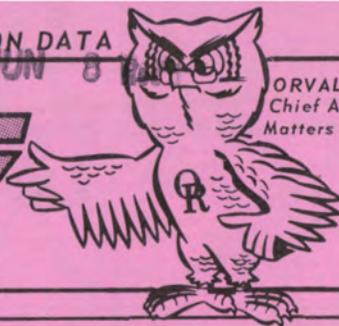
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A USAAAVS PUBLICATION

VOL. 4, NO. 32 ■ 2 JUNE 1976

mishaps for the period of 14-20 MAY 1976

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HEAT ILLNESS

It's that time of year again—time for trips to the beach, dips in the pool, fishing at the lake, and cool ones on the patio, while steaks, if you can afford them, broil to perfection over hot hickory coals. On the other side of the coin, it's time for paved flight lines to become enormous frying pans, cockpits to become saunas, hangars to become ovens, and PT fields communal sweatboxes; time for sunburn, heat exhaustion, heat cramps, and heat strokes unless good preventive medicine practices are followed at all levels of command. Heat injuries are considered totally preventable and, when they occur, are indicative of individual or supervisory negligence. To those of us involved in aviation safety, the role heat plays in causing fatigue and in the degradation of aircraft performance



becomes a matter of real concern. Judgment can be affected by stamina; powerplants begin to operate less efficiently. Together, they set the stage and the environment for an "accident happening."

From TB Med 175, dated 25 April 1969, and DA Circular 40-13, Prevention of Heat Injury, expires 31 May 1976.

PREVENTION OF HEAT INJURIES

■ Limit exposure to direct sunlight by early morning scheduling of outdoor activities, providing shaded work areas and ensuring that proper clothing is worn.

■ Make sure plenty of potable water is available for consumption (table 1).

■ Make sure troops consume extra salt, preferably with food at mealtime, though it can be added to drinking water or given as impregnated salt tablets. Follow recommendations of TB Med 175, Appendix B.

TABLE 1.—Water Requirements

Activity	Illustrative duties	Quarts per man per day for drinking purposes (a guide for planning only) WBGT or WD index*	
		Less than 80°	Greater than 80°
Light	Desk	6	10
Moderate	Route march	7	11
Heavy	Forced marches; stevedoring; entrenching; or route marches with heavy loads or in CBR protective clothing	9	13

*80° WBGT or WD index is approximately equivalent to a dry bulb temperature of 85° in a jungle or 105° in a desert environment.

Continued on page 2.

Continued from front page.

■ Acclimatize all personnel early in the season and all newly assigned troops from cool geographic areas throughout warm months (table 2).

TABLE 2.—Schedules of Work, If Necessary During Acclimatizing Period

	Moderate conditions WBGT or WD less than 80°; hours of work		Severe conditions, WBGT or WD greater than 80°; hours of work	
	Morning	Afternoon	Morning	Afternoon
1st day	1	1	1st day	1
2nd day	1½	1½	2nd day	1½
3rd day	2	2	3rd day	2
4th day	3	3	4th day	2½
5th day	Regular duty		5th day	3
			6th day	Regular duty

■ Maintain a high level of physical fitness in all personnel. The best candidate for heat injury is the desk jockey who works half the summer in an airconditioned headquarters before being told on 15 July that tomorrow is the day he does his first 25-mile march.

All heat injuries require medical attention. Heat stroke is a life or death medical emergency.

The Wet Bulb Globe Temperature Index is provided by your supporting medical activity. It is to be followed, not ignored, unless you are willing to risk your career on an unnecessary

fatality in your command due to preventable heat injuries.

A solution of 0.1 percent table salt in drinking water may be prepared by one of the following general methods:

■ Adding table salt directly to the drinking water (table 3).

TABLE 3

Table salt	Dissolved in diluting water
2 ten-grain salt tablets	1 quart canteen
4 ten-grain salt tablets	2 quart canteen
1 1/3 level mess kit spoons	5-gallon can
9 level mess kit spoons	Lyster bag
1 level canteen cup	250-gallon water trailer

■ Preparing a saturated salt solution (approximately 26 percent) and adding specific quantities of the saturated solution to the drinking water (table 4).

TABLE 4

Saturated salt solution*	Added to diluting water
1/2 canteen cap (1 qt size)	1 quart canteen
1/4 canteen cap (2 qt size)	2 quart canteen
1 mess kit spoon	Gallon
5 mess kit spoons	5-gallon can
2/3 canteen cup	Lyster bag
4 canteen cups	250-gallon water trailer

*To prepare a saturated salt solution, dissolve nine level mess kit spoons of table salt in 2/3 canteen cup of water.

PROBLEMS WITH COMPRESSED GASES

Recent incidents involving compressed gases have been reported by the Air Force. One incident involved a compressed gas cylinder, thought to contain nitrogen, that actually contained pure oxygen. The bottle was color coded as a nitrogen bottle, but had an oxygen valve installed. An adapter was used to connect the bottle to an air compressor. When the oxygen entered the oil-polluted environment, an explosion occurred. Further investigation revealed deficient cylinders base-wide.

Another incident involved the use of a walk-around oxygen bottle. A crewmember was using the bottle for supplemental oxygen in an aircraft cargo compartment above 10,000 feet. After a few breaths from the bottle, he lost consciousness. An emergency descent was made and the crewmember was taken to the hospital where he recovered. Investigation revealed that the walk-

around bottle contained 90-92 percent nitrogen. Several other bottles were tested and also contained nitrogen instead of oxygen.

All functional areas using, storing, or receiving compressed gases are conducting a one-time inspection of all compressed gas cylinders. The Air Force also listed the following measures to prevent recurrence:

■ Procurement officials must assure that compressed gases are obtained in strict compliance with the appropriate military standards and supply contracts.

■ Procurement officials must insure that the vendor has adequate quality procedures to assure compliance with these documents.

■ Users should be aware of the possibility of contamination and must insure that all cylinders are properly color-coded and marked, and that correct valves are installed (reference TM 55-1500-204-25/1, par. 3-375).

UTILITY/ATTACK BRANCH

MAJ William C. Childree, Chief ■ 558-4198

0 Accidents, 0 Fatalities, 0 Injuries, Estimated Costs: \$4,000

UH-1

2 Incidents ■ Pilot was flying at 200 feet above terrain when aircraft struck small wire stretched between two hills. Aircraft was performing unauthorized low-level flight. ■ During postflight inspection, flight crew found damage to main rotor blades.

1 Forced Landing ■ Compressor stall occurred on takeoff. Suspect engine erosion.

26 Precautionary Landings—following are selected briefs ■ Engine chip detector warning light came on. Engine oil system was flushed and refilled. Oil sample was submitted. Engine chip detector light illuminated on next flight and oil sample was found to be OK. Engine was flushed and refilled again and oil sample submitted IAW instructions from petroleum lab. Engine chip detector light came on again on next flight. This time, engine oil pump was removed due to internal failure. ■ Pilot terminated approach too high. Aircraft encountered rotorwash and started to fall through. IP and copilot pulled 58 pounds of torque to stop descent. ■ While performing before-instrument-takeoff checks, loud bangs were heard from engine compartment. Fuel control was changed and aircraft released for flight. ■ Egt increased during hover/taxi. HIT check plus 47 degrees; maintenance replaced hot air valve. ■ Pilot noticed binding in antitorque pedals and high frequency vibrations, followed by intermittent lockup, then binding in left pedal forward position. Maintenance inspection revealed tail rotor magnetic brake failure.

AH-1

1 Incident ■ XM200 rocket pod was lost during flight. Cause is being investigated.

4 Precautionary Landings ■ During takeoff prior to translational lift, SCAS hardover occurred in pitch and roll channels. Pilot disengaged SCAS system and aircraft was landed. Maintenance inspection revealed roll transducer failure. ■ Pilot was performing autorotational descent. At approximately 5 feet agl, IP initiated power recovery due to incorrect aircraft attitude. Transient overtorque of 55-58 psi occurred. ■ Pilot initiated climb for topping check and, upon pulling additional power, loud bang was heard from rear of aircraft, accompanied by yaw and decrease in rotor rpm. Power was reduced and landing made. Cause is under investigation. ■ On short final to landing area, transmission oil pressure light came on. Caused by failure of oil pressure switch. □

LOH/CARGO BRANCH

MAJ Robert P. Judson, Chief ■ 558-4202

1 Accident, 0 Fatalities, 0 Injuries, Estimated Costs: \$42,648

OH-6

1 Forced Landing ■ Engine quit during cruise flight. Cause unknown. Engine oil sample 4 days before revealed possible increase of iron content. Aircraft was restricted to day VFR flights. There were no indications of pending stoppage from HIT or other instruments. WELL DONE to CW2 Everett W. Stebbins, Vermont Army National Guard.

UNITED STATES ARMY AGENCY FOR AVIATION SAFETY ■ FORT RUCKER, ALABAMA 36362

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2 **Precautionary Landings** ■ Same aircraft had transmission oil pressure warning light illumination on two consecutive days. Caused by clogged filter. Filter replaced.

OH-58

1 **Accident** ■ Aircraft picked up to hover and commenced rearward flight. Main rotor blades struck main rotor of parked, tied down UH-1. Pilot chopped throttle and landed hard. Major structural damage to OH-58 transmission area and blade damage to UH-1.

3 **Incidents** ■ Ground personnel closed left rear door with seatbelt hanging outside. Pilot took off and seatbelt punctured side of aircraft. ■ During takeoff, main rotor blades struck wires strung between two trees. ■ During authorized NOE flight, main rotor blade struck 2-inch oak tree.

4 **Precautionary Landings** ■ Hydraulic pressure lights of two aircraft came on due to malfunction of switch. ■ Aircraft landed to avoid unforecast thunderstorms with heavy rain and lightning. *Good show!* ■ Excessive TOT resulted from malfunction of bleed air assembly.

CH-47

1 **Incident** ■ Aircraft was at hover in pickup zone when loose straw haul bag was blown into aft rotor system, causing damage to aft red blade. Blade was replaced because of FOD.

2 **Precautionary Landings** ■ Flight engineer saw hydraulic fluid leak in forward transmission area. Just before aircraft was landed, No. 1 hydraulic flight boost warning light illuminated. Caused by cracked line between pressure regulator and No. 1 SAS filter. ■ No. 1 engine chip detector light came on. Caused by internal bearing failure.

MESSAGES RECEIVED

- Technical Advisory Message DTG 121536Z May 76, subject: CH-47B/C Helicopter Rotor Blades. Message provides for new calendar inspection criteria for blade spar corrosion.
- Maintenance Advisory Message DTG 182000Z May 76 on CH-47 rotor head lifting device. Message restricts the rotor head from being removed from the aircraft with blades attached.

THOUGHT FOR THE WEEK

Blind faith in weather forecasts is almost as bad as having no faith at all.

FIXED WING BRANCH

MAJ William G. Daly, Jr., Chief ■ 558.3901

1 Accident, 0 Fatalities, 0 Injuries, Estimated Costs: \$25,107

OV-1

1 **Accident** ■ (D series) Pilot heard grinding noise in nose gear area after touchdown. Pilot lifted nose gear off runway until speed decreased and nose gear settled to runway. Aircraft ran off right side of runway and came to rest. Caused by failure of nose gear drag brace attachment point on nose gear (P/N 25771-67). WELL DONE to 1LT Hatfield for handling an emergency with minimum damage.

2 **Precautionary Landings** ■ (D series) No. 1 engine fuel pressure warning light came on. Caused by failure of No. 1 engine fuel control. ■ (D series) During upper airwork, power-on landing configuration stalls at 9,500 feet, No. 2 engine had compressor stalls when power lever was advanced. Caused by improper pilot procedure. Torque was at 5 pounds. When pilot jammed power levers forward to recover from stall, fuel control overloaded engine.

MAKE AVIATION SAFETY THE SPIRIT OF '76

U-8

1 Incident ■ (F series) No. 2 engine left inboard cowling separated on takeoff rotation. Pilot was not aware cowling had separated until completion of mission. Suspect improper preflight failed to insure cowling was secured.

2 Precautionary Landings ■ (D series) Left engine was shut down and feathered during training flight and would not come out of feather. Aircraft was landed without incident. Aircraft is not equipped with accumulators to bring propellers out of feather. ■ (D series) During takeoff, landing gear failed to retract completely, then would not extend electrically. Gear was manually lowered and aircraft landed. Caused by internal failure of landing gear box assembly.

U-10

2 Forced Landings ■ Flight of two aircraft was flying at 8,500 feet when engine of one aircraft started running rough and quit. Pilot made forced landing to open field. Second aircraft was circling at 7,000 feet, establishing radio contact with downed aircraft, when its engine quit. Landing was made to same field where first aircraft landed. Cause is under investigation.

U-21

3 Precautionary Landings ■ (A series) No. 1 engine secondary flight idle light came on. Propeller rpm decreased and torque increased. Engine was secured. Caused by failure of electrical switch (NSN 3930-00-789-6121). ■ (F series) On landing rollout at approximately 60 knots, nose gear vibration developed and increased to severe as aircraft slowed. Aircraft was shut down and nose gear inspected. Caused by failure of nose gear shimmy damper assembly. ■ (H series) Approximately 2 hours into mission, pilot noticed fuel seeping from left nacelle fuel cover. Caused by clogged check valve (NSN 2915-00-992-4577). Valve was removed, cleaned, and reinstalled.

U-21

Human Factor Mishap ■ Approximately 1 hour into flight, while at slow cruise, 9,500 feet msl, technical operator vomited. Aircraft was making large orbit which consisted of shallow turns. TO was sitting in side-facing seat at station 223.77. Shortly after vomiting, TO became listless and crew noted he was extremely pale. Aircraft was landed at home station and TO was taken to flight surgeon. TO's condition was diagnosed as motion sickness. □

MAINTENANCE MISHAPS

MSG B. R. Bailey ■ 558-3901

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

UH-1

1 Precautionary Landing ■ Pilot detected excessive stiffness in tail rotor pedals during approach to helipad and diverted to airfield. Running landing was made. Maintenance inspection revealed loose tail rotor retaining nut. Caused by improper torque on tail rotor retaining nut.

AH-1

1 Precautionary Landing ■ Transmission hot light came on and pilot noticed oil temperature gauge at 110°. Postflight inspection revealed transmission oil line quick disconnect at engine firewall was improperly installed.

CH-54

1 Precautionary Landing ■ Second-stage hydraulic pressure fluctuated during flight. Loose pressure line on second-stage hydraulic pump caused loss of fluid. Line was not properly torqued.

OH-58

1 **Precautionary Landing** ■ Pilot noticed excessive forward pull of cyclic during hover. Magnetic brake assembly was submerged in water. Maintenance neglected to drain water from lower compartment after washing aircraft. □

AVIATION-RELATED GROUND MISHAPS/ACCIDENTS

William P. Christian ■ 558-4202

1 Accident, 3 Mishaps, 0 Fatalities, 2 Injuries, Estimated Costs: \$5,498

CH-47

■ **Aircraft Ground Accident**—Mechanic was helping to wash CH-47 engine. While engine was being motored, main rotor blade struck mechanic in the back, causing him to lose his balance and fall to concrete ramp. Mechanic channalized his attention on the engine being cleaned and did not notice rotor blade as it turned during motoring of engine. Action taken was to develop an SOP specifically for the washing of engines. It will outline the duties of the participants and will require all individuals to be on interphone communication during the procedure. One individual will be available to act as ground guide. *Any ideas?*

OH-58

■ **Aircraft tug** operated by mechanic backed into parked OH-58 inside maintenance hangar. Tug was being backed up to connect with aircraft tow bar when tug accelerator jammed in open position and brakes failed to prevent tug from hitting aircraft. Tug accelerator and brakes were repaired and closer supervision on maintenance of ground support equipment has been established. *The horse is gone—now lock the barn door!*

AH-1

■ **Mechanic** was preparing AH-1G for ground movement inside maintenance hangar. He was jacking aircraft's ground handling wheels to their extended position when one wheel slipped off its mount and flew into air, striking him in the forehead. He sustained a bruise to the forehead. All maintenance personnel were briefed on this potentially dangerous hazard.

UH-1

■ **UH-1** was being moved with tug. Driver dismounted to remove tow bar from aircraft. While loading tow bar on tug with the help of two other individuals, tow bar hit tug's gear shift and caused tug to back up into aircraft. Tug's motor was left running. All personnel were counseled on procedures for towing aircraft and the dangers of leaving a running vehicle unattended.

AIRCRAFT PARTS EVALUATION

Reference USAAVSCOM Supply Letter 23-76, dated 30 April 1976, subject: **Automatic and Directed Returns: Components or Parts Suspected of Contributing to Army Aircraft Accidents, Incidents, Forced Landings, and Precautionary Landings**

"1. Reference. AR 95-5

"2. This supply letter rescinds AVSCOM Supply Letter 24-75, 6 May 1975.

"3. In accordance with paragraph 10-5c, AR 95-5 as changed, components or parts suspected of contributing to an aircraft accident, incident, forced or precautionary landing will be evaluated by the Corpus Christi Army Depot (CCAD) except for the following systems which will be evaluated by the activities assigned below:

"a. CH-54A and CH-54B components and/or parts for the airframe will be evaluated by Sikorsky Division, United Aircraft Corporation.

"b. T73-P-1 and T73-P-700 engines or parts thereof will be evaluated by Pratt and Whitney Division, United Aircraft Corporation.

"c. Auxiliary power units (APU) Models T62-T2A, T62-T-2A1, T62-T-16A1, and T62-T-16A2 will be evaluated by the Naval Air Rework Facility at Cherry Point, NC."



STACOM 4 ■ 2 JUNE 1976

DEPUTY FOR STANDARDIZATION, USAAVNC, FT. RUCKER, AL 36362
COL CLEMENT A. WYLLIE ■ 558-2603/3514

POSITION REPORTS

This section features some of the gleanings from Flight Standardization field evaluations, assistance visits, and questions asked by phone and letter.

QUESTION: I understand the Army has established a procedure for inadvertent flight into IMC. Could you tell us where this can be found and what we are expected to do?

ANSWER: The procedures to which you refer are contained in paragraph 1-7, FM 1-1, dated 1 October 1975. It should be noted, however, that these methods are designed only to provide initial terrain clearance and to separate formation aircraft. A system for the safe recovery of aircraft encountering IMC will still have to be established locally in coordination with your ATC people.

OBSERVATION: During recent evaluation visits some aviation units were found to be using outdated Flight Training Guides. Furthermore, there seemed to be some uncertainty as to where current FTG's could be obtained.

COMMENT: The following is a list of the most recent versions of the Flight Training Guides published by USAAVNC:

- AH-1G—June 1975
- AJ-1Q—AH-1G, June 1975 with Annex "A"
- UH-1—January 1975 revised May 1975
- Terrain Flight, Phase I and II (NOE and Tactics) May 1975
- OH-58—May 1975
- CH-47—March 1975
- CH-54—November 1975
- U-21—May 1975
- U-8—August 1974
- OV-1—November 1972
- T-42—September 1975

These guides may be ordered from the Catalogue of Instructional Material, dated January 1976, published by the Extension Training Management Division, Ft. Rucker, Alabama. If no catalogue is available at your installation write directly to: Extension Training Management Division, USAAVNC, ATTN: ATZQ-T-E, Fort Rucker, AL 36362.

OBSERVATION: It has recently been observed that some units are not performing a daily inspection of the AH-1G tail rotor sprocket, chain, and speed rig barrels.

POSITION: THIS IS A CRITICAL INSPECTION ITEM: The requirement is specified by item 11.7, TM 55-1520-221-PMD.

QUESTION: In STACOM 3 you stated that a Medical Clearance for Flying (DA Form 4186) will be present in the IFRF for the aviator to be considered medically qualified. What about those of us who receive our medical support from flight surgeons of another service? They only furnish us with medical clearance forms specified by that service.

ANSWER: Good point. Our original statement was taken verbatim from paragraph 10-26k, AR 40-501. So

to get an answer, we went to the folks who wrote that paragraph—the Office of the Surgeon General. Their position is that a flight clearance form appropriate to the service which provides your medical support is a completely acceptable substitute for the DA Form 4186. Just be sure it's current and a copy is in your Flight Records Folder.

ARMY AVIATION ANNUAL WRITTEN EXAMINATION

As everyone probably knows by now, the test period for this year's annual writ will be 1 July to 30 September 1976. The Study Guides and reference material have been printed and should presently be available in your area. As a matter of interest, this year's exam continues a shift in emphasis from IFR to the tactical area. New subjects covered are night flying (TC 1-28), terrain flying (FM 1-1), tactical aviation employment (FM 90-1), and tactical instrument flight (FM 1-5). Most of the required reference material has been extracted and placed in two reference data booklets. Other reference material required, but not included, are AR's 95-1, 95-5, 95-63, and FM 21-26. This year's exam is going to prove a bit dicey if you take it "cold," so get your study material from the local stan board or other people responsible for administering the writ just as soon as possible. □



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AGENCY FOR AVIATION SAFETY
FORT RUCKER, ALABAMA 36362

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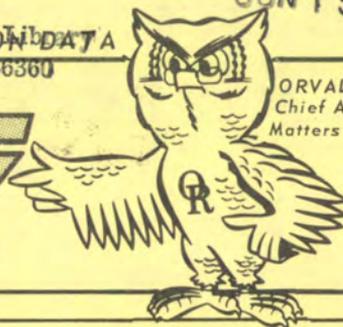
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FLIGHTFAX/14-20 MAY 1976

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US Army Aviation Prevention DATA
ARMY AIRCRAFT MISHAP PREVENTION DATA
Fort Rucker, Alabama 36360ORVAL RIGHT
Chief Advisor on
Matters of Aviation

FLIGHT FAX



A USAAVS PUBLICATION

VOL. 4, NO. 33 ■ 9 JUNE 1976

mishaps for the period of 21-27 MAY 1976

Safety - Of - Flight Messages

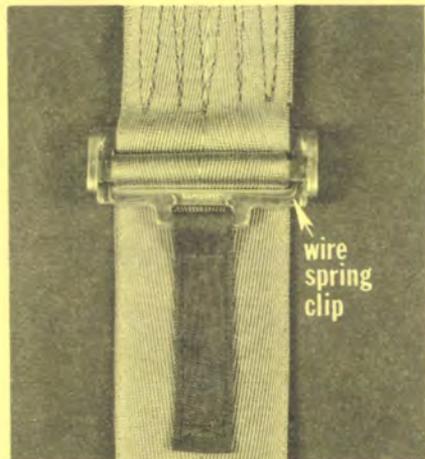
- 262050Z May 76, subject: Safety-of-Flight Message One-Time Inspection of MS27576 Series Bolts in CH-54B Aircraft, TB 55-1520-217-20-10 (CH-54, 1976-2).

Summary: Reports have been received from the Air Force and from aircraft manufacturers that impedance bolts of the MS27576 series manufactured by Avibank Mfg. Inc. may be improperly heat treated. Bolt failure has occurred in Air Force aircraft, assemblies, and subassemblies. The purpose of the TB is to inspect for and remove suspect bolts from service. **Contact:** Mr. Dale Pitt, AVSCOM, AUTOVON 698-2326, commercial 314-268-2326.

- 262045Z May 76, subject: Safety-of-Flight Message One-Time Inspection of MS27576 Series Bolts in CH-47A, B, C Aircraft, TB 55-1500-210-20-31 (CH-47, 1976-8).

Summary: Reports have been received from the U.S. Air Force and from aircraft manufacturers that impedance bolts of the MS27576 series manufactured by Avibank Mfg. Inc. may be improperly heat treated. Bolt failure has occurred in Air Force aircraft, assemblies and subassemblies. The purpose of the TB is to inspect for and remove suspect bolts from service. **Contact:** Mr. Mike Hoffman, AVSCOM, AUTOVON 698-2326, commercial 314-268-2326.

Seatbelt "Goof"



USAAVS has received a Maintenance Advisory Message (211730Z May 76) about CH-47 and UH-1 passenger seatbelts, NSN 1680-00-447-9504. These seatbelts are supplied under contract DAAJ01-75-C-1138 and made by Kings Point Manufacturing Company. The webbing retarders (wire spring clips) are missing from the webbing adjustment hardware found on the two halves of the seatbelt. Without the webbing retarders, the seatbelts slip out of adjustment and become loose. USAAVS accident/injury experience data prove conclusively that a loose belt may increase the severity of injury. Recent seatbelt shipments could be from more than the cited contract; therefore, all seatbelts with the above NSN should be inspected. The webbing retarder, NSN 1680-00-853-5464, must be requisitioned from Kelly Air Force Base (FBZ), San Antonio, Texas 78241. The cost is 14¢ each (two per belt) and should be attached in accordance with TM 55-1500-204-25/1, Chapter 3, Section IV. USAAVS has also learned that the webbing retarders are missing on some pilot/copilot seatbelts. All belts should be checked before flight.

AVIATION ACCIDENT PREVENTION COURSE

The next AAPC for officers, warrant officers, and DA civilians (class 7T), will be 23 Aug-3 Sep 1976. The FY 77 schedule will be published in a future issue of FLIGHTFAX. Questions concerning the 2-week course should be directed to Commander, U.S. Army Agency for Aviation Safety, ATTN: IGAR-PO, Fort Rucker, AL 36362 (AUTOVON 558-4510/3493).

UTILITY/ATTACK BRANCH

MAJ William C. Childree, Chief ■ 558-4198

0 Accidents, 0 Fatalities, 0 Injuries, Estimated Costs: \$212,110

UH-1

5 Incidents ■ Six to eight loud bangs were heard from engine area. Collective was reduced and N2 decreased with throttle. Flight was continued for approximately 3 minutes until suitable landing area could be reached. Maintenance inspection revealed compressor blade erosion and damage to both 42° and 90° gearboxes.

■ During night approach to lighted LZ in mountainous terrain, crew encountered haze which obscured surrounding hilltops. To avoid imminent contact with hilltop, crew overtorqued aircraft. Resultant damage required power train replacement. ■ Both main rotor blades were found damaged on postflight inspection. Aircraft had been performing authorized, supervised NOE flight. ■ Engine failed during runup. Tail rotor blade was damaged by flying debris from internal disintegration of engine. Suspect failure of power turbine section. ■ Aircraft was on night flight at 1,800 feet agl and 90 knots. Bird struck left chin bubble in front of KY 28 mount.

1 Forced Landing ■ Aircraft was hovering to complete test flight hover checks when compressor stalls were noticed, followed by complete loss of power. Suspect retainer nut on lower half of particle separator was ingested into engine intake.

15 Precautionary Landings—following are selected briefs ■ Egt and engine oil temperature started to fluctuate erratically. Maintenance inspection revealed failure of deice valve cannon plug. ■ Pilot noticed high frequency vibration in antitorque pedals. Maintenance inspection revealed tail rotor blade retaining bolts were loose. ■ Battery overheated during hover/taxi. Caused by improperly adjusted voltage regulator. ■ Master caution and hydraulic pressure segment warning lights came on. No loss of hydraulic pressure occurred. Caused by electrical short between safety wire and cannon plug attached to hydraulic pressure switch. ■ Aircraft turned final and main rotor blade struck small tree. Maintenance inspection revealed no damage.

AH-1

6 Precautionary Landings ■ During flight at 10,000 feet msl, three loud bangs were heard from engine. Aircraft yawed to left and pilot reduced collective to full down position and decreased N2 with throttle. At 100 feet agl, throttle was increased to full open position and aircraft was landed. Maintenance inspection revealed variable inlet guide vane was out of adjustment. ■ Master caution and transmission oil bypass lights illuminated. Maintenance personnel troubleshot system with negative results. MOC was accomplished and aircraft released. ■ No. 1 hydraulic light came on. Yaw channel was disengaged and running landing was made. Caused by lateral servo assembly failure. ■ Master caution light came on. Master caution panel was replaced. Cause of failure not reported. ■ Tail rotor pedals were binding in flight. Maintenance replaced tail rotor pitch drive chain. ■ Transmission oil temperature gauge indicated 120° C. Caused by malfunction of gauge. □

LOH/CARGO BRANCH

MAJ Robert P. Judson, Chief ■ 558-4202

1 Accident, 0 Fatalities, 0 Injuries, Estimated Costs: \$25,648

OH-58

1 Accident ■ Damage to tail boom, fuselage, main rotor, and transmission deck. Cause under investigation.

3 Incidents ■ Aircraft was straight and level at 80 knots when pilot felt bump and landed at airfield. On postflight check, pilot discovered dent in tail rotor from bird strike. ■ Aircraft was on practice approach to confined area when main rotor blade struck tree. ■ Aircraft drifted to right during takeoff from confined area, and main rotor blades struck tree.

UNITED STATES ARMY AGENCY FOR AVIATION SAFETY ■ FORT RUCKER, ALABAMA 36362

Prepared from information compiled by the
Directorate for Aircraft Accident Analysis
and Investigation
Lieutenant Colonel Curtis M. Sanders, Director

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COMMERCIAL: 255-XXXX AUTOVON: 558-XXXX
Commander/Deputy Commander 3410/3819
For Assistance in Locating Proper Directorate 4479
Aircraft Accident Analysis and Investigation 3913/4202
Technical Research and Applications 6404/6410
Plans, Operations, and Education 4479/4812
Management Information System 5286/4200
Publications and Graphics Division 6385/3493
Medical Division 2091/4806
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1 Forced Landing ■ Pilot stated aircraft was at cruise flight with normal power setting and without warning, engine power went to flight idle. Torquemeter went to zero. Copilot entered autorotation and landed aircraft. During collective pull to cushion landing, torque exceeded 92 psi. Company and direct support maintenance inspected aircraft, but were unable to duplicate condition. All checks were found to be normal. Maintenance suspected tachometer generator could have failed momentarily, causing torque-meter to temporarily fail.

7 Precautionary Landings ■ Airspeed indicator became inoperative and aircraft was landed. Maintenance inspection revealed that cap on pitot pressure line (NSN 4730-00-690-4224) was broken off. ■ While aircraft was at hover, starter generator failed. Inspection revealed starter generator shaft had sheared. ■ Aircraft was in cruise flight when pilot saw N2 tachometer drop to zero. Caused by broken wire leading to N2 tachometer. ■ While cruising at high power setting, pilot heard low rpm audio and immediately reduced power. Check of aircraft instruments indicated normal operations. Power-on landing was made to stream-bed. Maintenance could not duplicate or find cause of malfunction. ■ Upon termination of approach, N2 rpm decayed to 98 percent. Maintenance personnel could not duplicate problem. ■ Aircraft was cruising at 1,500 feet when loud and continuous hissing sound was heard. TOT climbed slightly, but remained within normal operating range. Normal descent to landing was made. TOT climbed into caution range on short final and exceeded 749° for 4 seconds during landing. Inspection revealed upper bleed air fitting threads stripped out on scroll diffuser assembly. ■ Transmission chip detector caution light came on. Caused by mast bearing failure.

CH-47

2 Precautionary Landings ■ No. 2 engine chip detector light came on. Caused by internal failure of engine transmission. ■ No. 2 engine chip detector light illuminated during runup. Chips were found on engine transmission chip detector plug. Transmission was replaced.

MESSAGES RECEIVED

Communication Letter 113, dated 12 May 1976, received from CH-54 Project Manager's Office, AVSCOM, subject: CH-54B Helicopter: Main Rotor Shaft (P/N 6435-20536-101) Upper Thread Relief Groove. Letter provides for inspection and rework of main rotor shaft upper thread relief groove by direct support. □

FIXED WING BRANCH

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

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

OV-1

2 Precautionary Landings ■ (C series) Landing gear failed to retract after takeoff. Caused by tripped landing gear dump valve. (ARNG) ■ (D series) No. 2 engine surged, causing engine and prop to overspeed. Egt rose to 900° C. Pilot secured engine and landed. Caused by failure of third-stage compressor.

T-42

1 Precautionary Landing ■ Landing gear would not retract after takeoff. Landing gear handle was recycled and landing gear indicated down. Aircraft was flown by tower for visual check after gear was manually lowered. Landing was made without further incident. Cause of malfunction unknown. Condition could not be duplicated during ground test. Aircraft returned to service.

U-8

2 Precautionary Landings ■ (D series) Right engine started running rough. Caused by internal failure of left magneto on No. 2 engine. (ARNG) ■ (G series) During climb, No. 2 engine began losing power and missing severely. Chip detector light illuminated and engine continued to lose power. Right engine was secured. Aircraft was landed without further incident. Caused by internal failure of engine.

U-21

3 Precautionary Landings ■ (A series) Boost pump lights came on, followed immediately by crossfeed light. Pilot elected to land at alternate airfield approximately 5 minutes from destination. Both engines quit during landing rollout. Aircraft had flown 4+05 hours, plus a 15-minute passenger stop without shutting down engines. Caused by fuel exhaustion. ■ (A series) At 3+10 hours into cross country flight, left fuel pressure started fluctuating. With crossfeed in auto position, left boost pump was turned off and pressure stabilized. Left boost pump was turned back on and crossfeed was reset. Approximately 5

minutes later all fuel pressure was lost. Left boost pump was turned off and landing was made without further incident. Caused by failure of boost pump. ■ (G series) Battery fault light came on during practice instrument approach. Battery switch was recycled and light went out. After missed approach and at flight level, 2,000 feet, battery light came on again. Battery switch was recycled and light stayed on. Battery was then turned off. During landing phase, battery was turned on, as prescribed by Beech, before lowering landing gear and flaps, then turned off again. After landing, battery was smoking heavily. It was removed from aircraft by airfield crash rescue personnel. Caused by battery thermal runaway.

U-21

2 Human Factor Mishaps ■ Two separate incidents related to the same symptoms. Both involved technical observers flying in side-facing position at station 223.77. Technical observers vomited and could not perform normal crew duties. Missions were aborted and TO's taken to flight surgeon. Their condition was diagnosed as motion sickness. □

AVIATION-RELATED GROUND MISHAPS

William P. Christian ■ 558-4202

3 Mishaps, 0 Fatalities, 1 Injury, Estimated Costs: \$84,588

OH-58

■ Mechanic performed unauthorized maintenance check of tail rotor hanger bearings while drive shaft was tuning. His finger caught between tail boom and drive shaft and was broken. Suggest maintenance personnel be instructed in hazards of improper maintenance checks, and in proper procedures of checking hanger bearings. ■ While hangar doors were open, gust of wind propelled tail rotor drive shaft stand across hangar floor into parked aircraft. Suggest that all stands on rollers be chocked or locked. (Stand was a work aid of local manufacture.)

CH-47

■ While attempting to remove the aft head from a CH-47C, the maintenance supervisor permitted use of a lifting device not equipped with quick-release pins. As the head was freed from the mast, absence of the quick-release pins permitted the fingers of the lifting device to turn enough to slip off the head, allowing the head with blades to fall back onto the aircraft. Inattention of this supervising NCO resulted in approximately \$84,000 damage to the aircraft and could have caused serious injury. *Reference is made to a Maintenance Advisory Message (CH-47, 1976-7) received subsequent to the above mishap. Message advises that rotor blades shall be removed prior to removing the rotor heads from CH-47 aircraft and reiterates instructions in the TM to ensure that all three fingers are engaged on the head and the quick-release pins are installed whenever installing the lifting device on the rotor head.* □

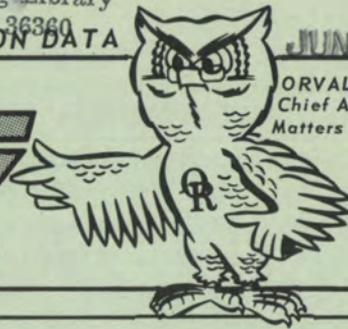
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DOD-314

FLIGHT FAX



A USAAVS PUBLICATION

VOL. 4, NO. 34 ■ 16 JUNE 1976

mishaps for the period of 28 MAY-3 JUNE 1976

WEATHER SUPPORT CHANGE

Pilot weather briefings should be improved by changes that will take place later this year in the CONUS base weather stations. A new weather communications system will replace the old teletype networks for delivery of weather reports and forecasts. Implementation of the new system, the CONUS Meteorological Data System (COMEDS), will begin in Texas in early July 1976. The entire system is scheduled to be complete by December 1976. It will operate at 1,200 words per minute and all network operations will be controlled by a

computer located at Carswell AFB.

Terminals in the weather station will consist of a page copy printer, a keyboard, and an electronic screen visual display. This new system will impact Flight Crew Weather Briefing and the amount of weather data displayed. As a result, far fewer files of "teletype sequences" will be posted in the weather station.

Chances are that the weather reports or forecasts required for specific routes will not be on file at the local weather station when you step into the weather station and request your briefing. In this event the forecaster/briefer will query the central data file in the Carswell computer by punching a few keys on the terminal of the new communications system and in a few seconds the information required for your flight will be flashed on an electronic screen similar to your TV picture screen. This "soft copy" not only will save time and resources in the weather station, but will also insure that you are getting the latest weather information in the system.

WELL DONE!

Company D, 34th Support Battalion, 6th Cavalry Brigade, Fort Hood, Texas, developed the following procedures to reduce aircrew fatigue during a recent around-the-clock training exercise. The CH-47 unit was performing night, instrument training, slingload, and day VFR operations. Their SOP established that:

■ Crews scheduled for night flight were given the morning before the night flight as nonduty time off. (Unit pilots all agreed that it was better to have the morning off before the night flight for crew rest rather than the morning after the night flight.)

■ Crews were not scheduled for flight the next morning after a night flight. Whether or not they had normal duty the next morning depended on what time of the night their flight ended.

■ Crewmembers who had all-night duty did not report back to the field site for approximately 10 hours following the night duty.

Maximum command emphasis was placed on these measures and they were strictly followed. The flight crews stated after the operation that this crew rest system worked and none felt they had experienced fatigue to the point of being unsafe. Well done!

UTILITY/ATTACK BRANCH

MAJ William C. Childree, Chief ■ 558-4198

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

UH-1

18 Precautionary Landings—following are selected briefs ■ Engine chip detector light came on. Maintenance inspection revealed excessive metal particles on plug. Engine was changed. ■ Egt gauge fluctuated from 400° C. to 200° C. continuously. After landing, egt returned to normal. Maintenance inspection revealed defective egt gauge. ■ Engine fuel pressure light illuminated on master caution panel. Postflight inspection revealed failure of pressure switch. ■ During practice pinnacle approach, crew smelled fuel fumes. IP took control of aircraft and landed. Maintenance inspection revealed fuel leaking from line between fuel filter and fuel control. ■ While in descending left turn to final, fire warning light came on. Postflight inspection revealed failure of fire detector cable assembly.

AH-1

2 Precautionary Landings ■ Transmission oil bypass light came on. Caused by failure of transmission oil bypass pressure switch. ■ Pilot was hovering to parking area when No. 2 hydraulic warning light came on. Maintenance inspection revealed overtorque of lock nut tube fitting, causing packing (preformed) to be crushed. □

LOH/CARGO BRANCH

MAJ Robert P. Judson, Chief ■ 558-4202

0 Accidents, 0 Fatalities, 0 Injuries, Estimated Costs: \$5,314

OH-58

1 Incident ■ Aircraft was landing to confined area. Crew chief told pilot that passenger to be picked up was on left side. Pilot turned aircraft to left and main rotor blade struck tree branch.

1 Forced Landing ■ During cruise flight, rotor rpm dropped to 320. Collective was reduced; rpm started to increase; collective was increased; rotor rpm dropped to 300; and N1 dropped to 70 percent. Cause not reported.

2 Precautionary Landings ■ Engine chip detector light came on. Fuzz was found on detector and oil was changed. After 15 minutes ground run, light came on again and oil and filter were changed. Light again illuminated after ground run, so engine was removed from aircraft. ■ Aircraft started to depart field location when pilot smelled fumes in cockpit. After landing, pilot did not smell any unusual odors. When pilot pulled in power for departure, he again smelled fumes and shut aircraft down. Maintenance check revealed oil spillage on transmission deck drained into heater duct and became warm, creating fumes in aircraft.

JOH-58

1 Precautionary Landing ■ Amperage climbed to 150 during cruise flight, and crew smelled smoke in cockpit. Maintenance inspection revealed one defective cell in battery.

CH-47

4 Precautionary Landings ■ During simulated low side beep failure, using emergency beep, N1 stabilized

UNITED STATES ARMY AGENCY FOR AVIATION SAFETY ■ FORT RUCKER, ALABAMA 36362

Prepared from information compiled by the
Directorate for Aircraft Accident Analysis
and Investigation
Lieutenant Colonel Curtis M. Sanders, Director

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at 60 percent momentarily, then dropped below 40 percent. No. 1 engine was secured. Caused by failure of fuel control unit and air bleed actuator. ■ Hydraulic leak was noted in flight, and complete loss of No. 2 flight boost system occurred before landing could be made. Caused by cracked hydraulic pressure line between No. 2 SAS filter and SAS solenoid valve. ■ Pilot entered autorotation at 1,000 feet agl and 100 knots with rotor speed at 240 rpm. Just before touchdown, aircraft shuddered violently and continued to shudder after touchdown. Tower told crew that No. 2 engine was on fire, and both engines were secured. Caused by internal failure of No. 2 engine. Teardown analysis of this T55-L11 ASA engine has been requested. ■ During cruise flight, pilots heard loud bang, felt vibrations, and saw No. 2 engine power decay. Suspect internal engine failure. Teardown analysis is being performed.

CH-54

1 Incident ■ Left front passenger door separated from pod during flight. Caused by failure of attaching mechanisms.

THOUGHT FOR THE WEEK

Out of all the CH-47 and CH-54 hours flown this fiscal year, there has been only one recorded accident involving these aircraft. Maybe there's something to be said—from a safety viewpoint—for flying only one model aircraft tour after tour! □

FIXED WING BRANCH

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

1 Accident, 3 Fatalities, 0 Injuries, Estimated Costs: \$102,974

T-42

1 Accident ■ While on night training flight in VFR conditions at dusk, aircraft flew into side of mountain at about 12,000 feet. There were no survivors. Postcrash fire partially destroyed aircraft. Investigation is underway.

2 Precautionary Landings ■ At cruise flight, No. 2 engine developed vibration. Power was reduced and aircraft returned for landing. Counterweight on propeller failed. ■ No. 1 propeller would not unfeather after practice engine shutdown. Caused by failure of propeller governor.

U-3

1 Incident ■ During touch-and-go landing practice, evasive action upon rotation did not prevent aircraft from striking numerous birds. Postlanding inspection revealed incident damage to left wing fillet cowling and nose gear strut cover. □

AVIATION-RELATED GROUND MISHAPS

William P. Christian ■ 558-4202

3 Mishaps, 0 Fatalities, 1 Injury, Estimated Costs: \$6,217

UH-1

■ After ground handling UH-1H to parking pad, ground handling crew began to disconnect tow bar from aircraft towing rings. After being disconnected, tow bar was raised to move it out of the way. Simultaneously, ground handling wheels were lowered and aircraft rocked forward to normal skids level position, causing tow bar to penetrate lower left chin bubble. This accident was discussed in detail, and proper ground handling procedures were presented in a ground maintenance safety class. *Lock the barn door?* ■ A ¾-ton vehicle was being operated in close proximity to a parked UH-1H without use of ground guide. Vehicle backed into right side of aircraft, damaging right front pilot's door area. Weather was rainy and driver stated his rubber overshoe was wet and slipped off clutch while backing, causing vehicle to abruptly back into UH-1H. Driver was in violation of unit SOP which provides for ground guides while backing a military vehicle. Driver was instructed on importance of ground guide use and unit SOP provision for ground guides was brought to everyone's attention at a subsequent monthly safety meeting. *After the horse is gone?*

U-21

■ While washing U-21A on wash rack, one crewman turned and walked forward without looking. He struck trailing edge of right aileron, receiving a 1/2-inch cut between his eyebrows. First aid was administered and after experiencing severe headaches, dizziness, and sleepiness the next day he was placed in quarters for 24 hours. The second day the headaches got worse and the injury was diagnosed as a concussion. Crewman was advised of safety-conscious attitude necessary around aircraft. Warning streamers for U-21A and G ailerons are being fabricated for use when aircraft are on the ground.

MAINTENANCE THOUGHT FOR THE WEEK—Are your aircraft voltage regulators set IAW the applicable settings in the maintenance manuals? With the onset of higher summer temperatures it is once again necessary to check for proper settings.

MAINTENANCE ADVISORY MESSAGES

GENERAL

USAAVSCOM Maintenance Advisory Message on hydraulic fluid, dated 281300Z May 76. (Gen-76-17), advises that *cartons* marked as MIL-H-5606 have been found to be filled with *cans* marked as MIL-H-6083C hydraulic fluid. They request inspection of all *cartons* marked as follows: "Hydraulic Fluid, NSN 9150-00-223-4134, Contract DSA 600-73-C-1509, Royal Lubricants, Batch/Lot 53, DOP May 73, MIL-H-5606." Specific actions and reports are required.

U-21A

Message number U-21-76-2 for MWO 55-1510-209-30/15, Installation of Electrothermal Windshield. Sealers for this MWO kit have a suspected expired six-month shelf life. Reference AVSCOM message 271445Z May 1976.

U-8F

Message number U-8-76-1, Emergency Exit Placard. The following marking should be centered along the top of the existing emergency exit operating instruction placard:

CAUTION

DO NOT OPEN ESCAPE HATCH IN FLIGHT

Reference USAAVSCOM Message 261930Z May 1976 (spells out size and color for markings).

C-12A

INFORMATION MESSAGE—AVSCOM Message 191330Z May 1976, Modification of C-12A aircraft. Users are not authorized to have seatbelts and/or shoulder harnesses installed in the toilet compartment with the intent to use the toilet as an additional passenger seat. □

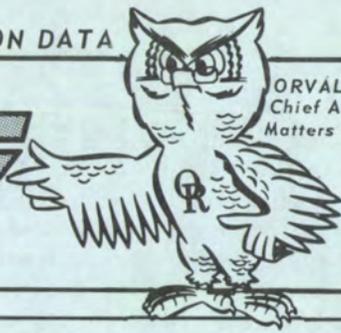
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AGENCY FOR AVIATION SAFETY
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FLIGHT FAX



ORVAL RIGHT
Chief Advisor on
Matters of Aviation

A USAAAVS PUBLICATION

VOL. 4, NO. 35 ■ 23 JUNE 1976

mishaps for the period of 4-10 JUNE 1976

JUL 23 1976



SEVERE WEATHER AVOIDANCE

From U.S. Naval Safety Center Weekly Summary

With the coming of the summer season, this might be a good time to brush up on what we all know about severe weather and how to avoid or minimize the results of an encounter. We all recognize the need for sound judgment when dealing with thunderstorms or when flying through areas for which severe weather (such as severe turbulence or hail) has been forecast. In order to increase this understanding, it would pay to better know the role ATC (air traffic control) plays in giving the pilot a helping hand.

Present ATC procedures provide for controllers to assist pilots in avoiding areas of known severe weather, particularly when operating on IFR flight plans. It must be realized, however, that at times there are limitations to an air traffic controller's capability for providing such assistance. There are several reasons for this. First, the controller's primary responsibility is the safe separation of aircraft. No additional services can be provided which will derogate the performance of this function. Secondly, limitations of ATC radar equipment, com-

munications congestion, and other air traffic may also reduce his capability to provide any additional services.

To a large degree, the help that is given by ATC will depend upon the weather information available to controllers and the requests made by pilots attempting to avoid severe weather areas. Due to the extremely transitory nature of thunderstorms, information available to controllers might be of only limited value unless frequently updated by pilots in direct communication with controllers. Specific information as to an affected area, altitudes, intensity, and nature of severe weather can be of considerable value. When received by controllers, these reports will be relayed to other aircraft as appropriate.

Should avoidance of a weather situation en route be desired, request a deviation from the route/altitude as far in advance as possible, including information as to the extent of deviation desired. An IFR clearance to circumnavigate severe weather can often be more readily obtained in the en route areas away

Continued on page 2

Continued from front page

from terminals because there is usually less congestion and, therefore, greater freedom for course deviation. In terminal areas the problem is more acute because of traffic density, ATC coordination requirements, complex departure and arrival routes, and adjacent airports. As a consequence, controllers are less likely to be able to accommodate all requests for weather detours in a terminal area or be in a position to volunteer such routes. Nevertheless, do not hesitate to advise controllers of any observed severe weather or ask to circumnavigate observed weather.

Those weather echoes observed on radar (airborne or ground) are a direct result of significant precipitation. All radar used for air traffic control purposes is not capable of equally displaying precipitation information. Under certain conditions in the past, the echoes received from precipitation have rendered ATC radar unusable. To avoid disruption to radar service, modifications designed to reduce precipitation clutter have been added to ATC radar systems. This feature, known as circular polarization, eliminates all but the heaviest areas of precipitation from the scope. Remember, all areas of precipitation will not appear on the controller's radar scope. Radar does not display turbulence. However, it is known that turbulence is generally associated with heavy areas of precipitation and controllers act accordingly.

Controllers will issue information about severe weather observed on radar when advisable and will, upon pilot request, provide vectors for avoidance whenever circumstances permit. However, for the above reasons, do not completely rely on air traffic controllers to provide this service at all times, particularly in terminal areas or in holding patterns. Also remember that the controller's data are often far from complete due to design of the radar and its location relative to the weather observed.

In addition to primary surveillance radar, all Air Route Traffic Control Centers and many terminal radar facilities are also equipped with secondary radar systems (beacons). These secondary systems receive only those signals emitted by airborne radar beacon transponders and do not display weather echoes. Since all aircraft operating in positive control areas are required to be equipped with operating radar beacon transponders, controllers handling such traffic normally use only the secondary radar system. This permits filtering out nonpertinent traffic operating below positive control areas. Although controllers using only secondary radar will not see any weather on their scopes, they will, if alerted, often turn on the normal radar to observe weather, provided this does not result in weather clutter making the scope unusable for traffic control.

Recommended Pilot Actions

■ All thunderstorms are potentially dangerous and should be avoided if possible or penetrated only when no other safe choice exists.

■ Forward reports to ATC of any severe weather encountered giving nature, location, route, altitude, and intensity.

■ Initiate requests to avoid severe weather activity as soon as possible, being specific concerning route and altitude desired.

■ Adjust speed as necessary to maintain adequate control of aircraft in turbulent air and advise ATC of action taken as soon as possible.

■ Do not rely completely on air traffic controllers to provide information or to initiate radar vectors to aircraft for avoidance of severe weather, particularly when arriving and departing terminals or in holding patterns.

■ Plan ahead to anticipate the need for avoiding areas of known severe weather. If necessary, delay takeoff or landing, as applicable.

MAKE AVIATION SAFETY THE SPIRIT OF '76

UNITED STATES ARMY AGENCY FOR AVIATION SAFETY ■ FORT RUCKER, ALABAMA 36362

Prepared from information compiled by the
Directorate for Aircraft Accident Analysis
and Investigation
Lieutenant Colonel Curtis M. Sanders, Director

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COMMERCIAL: 255-XXXX	AUTOVON: 558-XXXX
Commander/Deputy Commander	3410/3819
For Assistance in Locating Proper Directorate	4479
Aircraft Accident Analysis and Investigation	3913/4202
Technical Research and Applications	6404/6410
Plans, Operations, and Education	4479/4812
Management Information System	5286/4200
Publications and Graphics Division	6385/3493
Medical Division	2091/4806
After-duty tape recording of incoming calls to be returned the following day (hours: 1615 to 0730)	6510

4 Accidents, 0 Fatalities, 0 Injuries, Estimated Costs: \$150,197

UH-1

3 Accidents ■ Pilot went to field site to inspect and recover aircraft that had landed for suspected engine compressor stall. MOC was executed and pilot decided to fly aircraft to home station. During level flight at 1,000 feet msl, engine failed. Pilot autorotated to river bank and landed in 4 to 5 feet of water. Tail rotor struck water at low rpm as aircraft settled, causing 90° gearbox to fracture, and tail rotor struck tail rotor drive shaft on vertical pylon. Investigation is in progress. ■ Aircraft was being flown in support of local parachute club. While aircraft was in flight at 12,500 feet agl, oil cooler assembly failed internally. Turbine impeller and turbine housing assembly disintegrated with flying debris punching and ripping holes into tail boom, tail boom bulkhead, right forward firewall, access door, and one hydraulic line. Cut hydraulic line resulted in hydraulic failure, requiring running landing. Landing was made without further damage to aircraft. WELL DONE to 1LT Terry K. Balentine, USAAVNC, Fort Rucker, AL. ■ During autorotation to check rotor rpm, 90° gearbox separated from aircraft. Pilot continued autorotation to ground. Minor damage to main rotor mast. Investigation is in progress. WELL DONE to CW2 Robert W. Smith, 507th TC, Fort Campbell, KY.

1 Incident ■ Aircraft landed to ground guide and after touchdown, unsecured panel marker, located 10 meters from aircraft, blew up into main rotor blade.

22 Precautionary Landings—following are selected briefs ■ Transmission oil temperature rose to 150° in flight. Maintenance inspection revealed oil temperature transmitter failure. ■ Crew detected strong odor of electrical overheating. There were no warning lights nor abnormal instrument indications. Suspect fore and aft magnetic breaker failure. ■ After completing level-off check at 3,000 feet, series of loud bangs occurred and aircraft yawed violently to left. Collective pitch was decreased and aircraft stabilized, but power could not be increased. Suspect fuel control malfunction. ■ Loud bang was heard in cruise flight. Flight crew smelled acid fumes. Battery switch was immediately turned off. After landing, flight crew discovered that voltage regulator was set too high, causing battery to overheat and explode. ■ Fire detector light came on. System illuminated inadvertently when cowling door support arm contacted sensors.

AH-1

1 Accident ■ During standard autorotation, pilot pulled initial pitch at approximately 20 feet agl and continued to apply pitch. Aircraft landed hard, damaging crosstube and saddle mount.

2 Incidents ■ During performance of stuck right pedal maneuver, aircraft touched down tail low, damaging tail skid. ■ Turret weapons system was fired with 40mm grenade launcher. Turret system flexed straight down, causing 40mm rounds to explode beneath aircraft, inflicting numerous holes in skin of fuselage and rotor blades.

1 Forced Landing ■ On final approach to refueling point, fuel boost pump lights illuminated. Engine rpm decreased and power-on landing was completed to refueling point. Pilot attempted to increase engine rpm and engine failed. Caused by fuel starvation.

5 Precautionary Landings ■ Engine chip detector light came on. Suspect internal engine failure. ■ Main inverter failed. Inverter was improperly grounded. ■ Engine oil pressure fluctuated between 85 and 90 psi. Caused by faulty oil pressure transmitter. ■ Pilot heard knocking noise aft of cabin, coupled with vibrations felt through collective control. Rubber portion of crosstube support assembly on left front had deteriorated. ■ Loud bangs were heard from engine during rocket firing. Aircraft yawed 15°-25° and engine rpm decayed to 6000. Aircraft landed from an altitude of approximately 12 feet with no damage. Inspection revealed engine failure. Aircraft had three previous compressor stalls.

1 Ground Accident ■ Aircraft repairman inadvertently caught rotor blades with rotor tracking device.

MESSAGES RECEIVED

■ R091815Z Jun 76-UH-1-76-12-Supplemental Information for Installation of UH-1B/C/D/H/M Safety Glass Windshields.

- R022040Z Jun 76—Maintenance Advisory Messages AH-1 and UH-1 Aircraft Form Requirements for Main Rotor Blades, UH-1-76-11, AH-1-76-8.
- R022040Z Jun 76—Maintenance Advisory Message Concerning 300-Hour Special Inspection of AH-1G/Q/S Series Helicopter Main Rotor Hub Assemblies, AH-1-76-9.
- R101430Z Jun 76—GEN 76-18—Maintenance Advisory Message on Aviation Life Support Equipment: Requirement for Webbing Retarder Spring in Adjuster Assemblies on Seat Belts and Shoulder Harnesses.
- R101300Z Jun 76—GEN 76-19—Maintenance Advisory Message on Low Reflective Infrared Aircraft Paint, Color Variations.
- R071335Z Jun 76—AVSCOM message (Gen 76-16), 24-month test for AAU 32 altimeter, NSN 6610-00-134-5625, used on UH-1D/H, U-8D/F/G, U-21A/F/G, RU-21A/B/C/D/E/H, CH-47A/B/C, T-42, OV-1B/D/C.
- R071330Z Jun 76, AVSCOM message (OV-1-76-6) maintenance instructions for 28-volt d.c. solid state voltage regulator MS18071-1A, NSN 6110-00-598-2574, as used on OV-1 (Mohawk) aircraft. □

LOH/CARGO BRANCH

MAJ Robert P. Judson, Chief ■ 558-4202

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

OH-58

5 Precautionary Landings ■ Engine oil bypass light came on. Starter generator seal was leaking. ■ During cruise flight, pilot encountered shuffling motion in aircraft and loud whining noise from area of engine. Just before landing at field site, all instruments indicated normal. DS maintenance inspected engine and found metal-to-metal contact due to elongated compressor blades. ■ Hydraulic pressure light failed to go out during runup. No hydraulic pressure was lost. Aircraft was shut down. Inspection revealed hydraulic pressure sending unit, P/N 206-076-365-1, had failed. ■ Hydraulic pressure light came on, with feedback in controls. Emergency procedure clarified hydraulic problem. Postflight check revealed reservoir was full and there were no leaks. Maintenance inspection revealed internal failure of hydraulic pump. ■ Engine chip detector light illuminated. During approach for landing, transmission chip detector light came on. Excessive metal chips were found in engine. Fuzz was found on transmission chip detector plug.

OH-6

1 Precautionary Landing ■ Engine chip detector light illuminated. Metal chips were found on detector plug.

CH-47

1 Incident ■ Sling load contacted airframe during flight. Caused by improperly rigged load. (USAR)

4 Precautionary Landings ■ Transmission chip detector light came on. Inspection of forward chip detector and filter revealed many ferrous chips. Transmission failed internally. ■ No. 2 engine had static beep failure during flight. IP disabled normal engine trim and landed with emergency beep. Inspection revealed engine would beep up but would not beep down. Caused by maladjusted minimum beep resistor in No. 2 engine a.c. beep trim relay. ■ Flight engineer saw hydraulic fluid spraying from No. 1 flight boost valve. Caused by cracked fitting in No. 1 flight boost valve. ■ Transmission oil pressure caution light came on and combining transmission oil pressure dropped to zero. Caused by failure of pressure transducer.

CH-54

1 Precautionary Landing ■ Transmission oil pressure warning light came on. Main transmission failed internally.

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. □

FIXED WING BRANCH

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

0 Accidents, 0 Fatalities, 0 Injuries, Estimated Costs: \$7,000

OV-1

1 Incident ■ After normal touchdown, reverse thrust was selected. Propellers reversed unevenly, right prop reversing at a greater rate than left, causing aircraft to veer sharply to right. Takeoff power was applied to both engines and right turn was stopped. Aircraft was flown around the pattern and landed. Postflight

inspection revealed minor damage to right wing tip, aileron trailing edge, fuel drop tank outboard bottom fin, and bottom aft portion of flasher pod (LS-59) due to ground contact. Primary cause was listed as turbulence from rotor tip vortices of a CH-54 that had just landed and secondary factor was listed as uneven propeller reversal.

3 Precautionary Landings ■ No. 2 hydraulic pressure dropped to zero just before prelanding check. Gear handle was placed down and No. 1 pressure went to zero. Emergency gear procedures were followed and landing was uneventful. Caused by failure of O-ring in nose wheel actuator. ■ During cruise flight, both hydraulic indicators registered zero. Flight was continued to destination and emergency gear procedures were used. Packing around seal of right main linear actuating cylinder assembly failed. (ARNG) ■ During training flight demonstrating short field landing techniques, when power levers were placed in max reverse, No. 1 propeller reversed and No. 2 remained in full low pitch. Heavy braking was required to maintain aircraft control and right main tire blew. Wire to reverse microswitch was broken or cut by power levers when they were placed in reverse position.

U-8

2 Precautionary Landings ■ During training mission, No. 1 engine power was reduced to simulate single-engine landing. On base leg, No. 2 engine, operating at 3200 rpm/45" MP1, began running rough and backfiring. No. 1 was brought up to power and No. 2 was secured. Single-engine landing was successful. Right magneto had internal screws loose which interfered with and chafed distributor gear, causing loss of engine timing. ■ Passenger door came open during light turbulence. (ARNG)

U-21

1 Incident ■ (E series) During cruise, pilot saw upper right VHF antenna leave aircraft. After landing, lower left VHF antenna was found cracked around base. Normal wear and service life suspected as cause.

4 Precautionary Landings ■ (A series) Oil was seen coming from right engine nacelle. Caused by loose oil cap. ■ (A series) No. 1 engine fire detection light came on. Suspect moisture was cause. ■ (D series) Crew noticed fuel siphoning from right nacelle filler neck. Aircraft was returned and cap resecured. After second takeoff, similar incident occurred and training flight was terminated. Fuel cap was replaced. ■ (G series) No. 1 engine torque dropped from 1000 psi to 700 psi in 3 seconds. ITT dropped from 840° to 550° and fuel flow from 250 pph to 200 pph. All gauge indications began returning to normal and throttle was reduced to keep ITT below 700°. After landing, "HIT" check was performed and gauge indications fluctuated abnormally. Caused by materiel failure of main turbine fuel control unit. □

MAINTENANCE MISHAPS

MSG B. R. Bailey ■ 558-3901

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

OH-58

1 Forced Landing ■ During level flight, N2 fluctuated between 120 and 70 percent. Pilot entered autorotation and landed. Air line from fuel control to accumulator had come loose.

C-54

1 Precautionary Landing ■ Copilot saw smoke coming from around cowl flaps on No. 3 engine. No. 9 cylinder gland nut adapter for push rod housing was stripped.

O-2

1 Precautionary Landing ■ Landing gear failed to retract after takeoff. Nose gear squat switch had accumulated an excessive buildup of dirt, which would not allow switch to operate properly. □

AVIATION-RELATED GROUND MISHAPS

William P. Christian ■ 558-4202

11 Mishaps, 0 Fatalities, 9 Injuries, Estimated Costs: \$4,439

OTHER

■ While in the process of pouring approximately 20 gallons of defueled JP-4 into burn pit, explosion occurred and resulting fire caused first- and second-degree burns to left hand and right leg of fuel disposer. Corrective action: JP-4 will not be burned by that unit in the future. *Close the barn door?* ■ While participating in practical rappelling exercise, individual did not place his brake hand in proper position to

slow his descent and his belay man could not slow him sufficiently to prevent injury on ground impact. Corrective action: Personnel have been instructed on proper position of brake hand and proper actions to take as belay man when an individual's descent is too rapid.

UH-1

■ After having worked 14 hours during the day, aircraft mechanic was recalled at approximately 2000 hours to repair an aircraft for a flight the following day. He backed an aircraft tug, which he intended to use as a maintenance platform, into tail boom of UH-1. Corrective actions: Aircraft tug will not be used for maintenance platform. Individuals have been instructed to call the technician on alert duty for assistance on maintenance problems after unit training assemblies are over. When performing maintenance during times of minimum lighting, two individuals should be present. A complete list of flyable aircraft will be left before weekend training to allow latitude in scheduling. *Wonder if this unit even has a crew rest policy established for aviators?*

AH-1

■ MOC was being performed on AH-1 for work completed on M28A1 subsystem. As power was applied, turret slued violently to left, damaging both left and right fairings. Corrective action: Defective electrical control assembly has been work-ordered to support maintenance for repair. Electronic stops have also been relocated to prevent this type of mishap.

The following seven mishaps were all reported from one state's ARNG aviation units:

UNIDENTIFIED

■ Sheet metal mechanic fell off stool and bruised his rib. Supervisors reported they were unable to prevent accidents of this nature. *President Buchanan said he couldn't resolve the slavery problem. Mr. Lincoln said, "Elect me-I'll resolve it!"*

CH-47

■ While removing landing gear strut from CH-47 with one-half inch square drive breaker bar, breaker bar broke, striking and bruising mechanic's jaw. ■ While breaking torque on aft rotor head, fingers of mechanic's left hand were caught and bruised between sweeny wrench and breaker bar. ■ While jacking up CH-47, jack handle slipped, hitting mechanic's right hand, cutting and bruising his right ring finger. ■ During ground handling of UH-1, right ground handling wheel came off landing gear. Mechanic was whipped up and down, bruising and cutting his knee and shin. ■ While mechanic was working on CH-47, bucket of 23699 oil spilled down the front of his pants. A hot bath was taken but a rash developed after two days. ■ While mechanic was torquing down rotor head, a piece of foreign object got into his right eye. *If all these incidents involved the same mechanic, he must be among the walking wounded!* □

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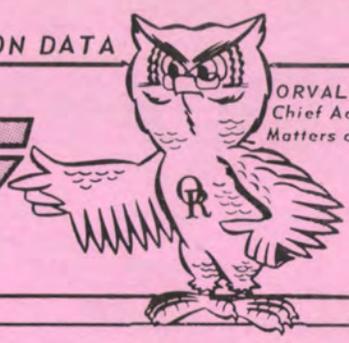
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ARMY AIRCRAFT MISHAP PREVENTION DATA

FLIGHT FAX



ORVAL RIGHT
Chief Advisor on
Matters of Aviation

A USAAVS PUBLICATION

VOL. 4, NO. 36 ■ 30 JUNE 1976

mishaps for the period of 11-17 JUNE 1976

US Army Aviation Training Library
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FUEL STRIKES AGAIN!



After replacing Dzus fastener on tail rotor drive shaft cover, sheet metal personnel left a rivet bucking bar on tail boom under drive shaft cover between No. 2 and No. 3 tail rotor hanger bearings. Two weeks later, aircraft was preflighted, maintenance operationally checked, and flown one hour on test flight. The following week, maintenance personnel, while washing aircraft, found bucking bar. The test flight brought the bucking bar into contact with the third section of the tail rotor drive shaft and V clamp. The bucking bar gouged the shaft and attaching clamp, requiring replacement of both. The habit of tool inventory could be the single most important element in eliminating FOD. Preflights are an essential part of the Army's maintenance inspection system.

TELEPHONE NOTICE REQUIRED

In accordance with DA message 072014Z May 76, DAIG-SD, immediate telephone notice is to be made to the commander of USAAVS in the event of a major accident or an accident involving test aircraft and misappropriated aircraft. Call AUTOVON 558-3410/3819, commercial (205) 255-3410/3819.



As a fuel sample was being taken from the forward fuel cell of an AH-1G, the sump drain valve stuck in the open position. The fire department was immediately notified, the battery was disconnected, and the aircraft was grounded. A POL truck was used for defueling.

Had the aircraft been moved with ground handling wheels and a tug, a skid could have dragged on the concrete, creating a spark and igniting the 262 gallons of JP4 pouring on the ramp. What caused all this? A small rock was found lodged in the spring mechanism of the push drain valve.

AVIATION LIFE SUPPORT EQUIPMENT VEST TYPE SURVIVAL KIT

Survival kit, vest type w/components, NSN 8465-00-177-4819, may be received less the lensatic compass, NSN 6605-00-151-5337, or the approved substitute compass, NSN 6605-00-515-5637, due to current nonavailability of the item(s).

Appropriate billing adjustment (currently \$18.76) will be made to credit the requisitions for shortage of the compass.

Follow-on information will be furnished through FLIGHTFAX and the next scheduled U.S. Army Support Activity "Supply Information Letter," advising when and how to obtain the compass when it becomes available for issue.

Contact points:

■ Commander, USAAVSCOM, ATTN: DARCOM-POLSE (Mr. A.B.C. Davis), P.O. Box 209, St. Louis, MO 63166, AUTOVON 698-3241/3291.

■ Commander, USAAVS, ATTN: IGAR-TA, Fort Rucker, AL 36362, AUTOVON 558-4806/2091.

UTILITY/ATTACK BRANCH

MAJ William C. Childree, Chief ■ 558-4198

0 Accidents, 0 Fatalities, 1 Injury, Estimated Costs: \$2,887

UH-1

1 Incident ■ Pilot applied too much depression on M-5 sight during boresight check and 40mm round exploded 100 feet in front of aircraft. Shrapnel from exploded round hit aircraft.

2 Forced Landings ■ While preparing for local instrument training flight and during preflight inspection, it was determined that an MOC was required to check a possible oil leak of the 90° gearbox. During the MOC, the 20-minute fuel warning light and master caution light illuminated, with the fuel gauge indicating 200 pounds. Since both the pilot and copilot had checked the fuel level, which appeared full during preflight, they queried maintenance personnel and were told that the aircraft had an inoperative fuel gauge and 20-minute warning system. However, the DA Form 2408-13 did not indicate these discrepancies. Aircraft departed and 35 minutes into flight at 3,000 feet, both fuel boost pump caution lights came on. Pilot began descent to open field and engine failed at 1,500 feet. Autorotation landing was complete. Approximately 2 quarts of fuel were in fuel tanks when fuel sumps were drained. Fuel gauge and 20-minute warning systems functioned properly after refueling aircraft. ■ While hovering for takeoff, compressor stall occurred and hovering autorotation was made. Aircraft had previously been used for door gunnery training in field site environment. Compressor assembly had excessive buildup of dirt and dust on compressor blades.

23 Precautionary Landings—following are selected briefs ■ Cruise flight was interrupted by severe vibrations as main rotor blade skin separated. Inspection revealed skin on upper portion of white main rotor blade separated. ■ Ten minutes after takeoff from field, engine oil temperature rose from 85° C. to 110° C. Pilot returned to field and landed. Stuck thermostat flow control caused partial bypass of oil cooler. ■ While climbing to 7,500 feet, loud bangs were heard and aircraft yawed. Aircraft was test flown and problem could not be duplicated. ■ Aircraft was at 10,000 feet for paradrop mission when compressor stall occurred. Aircraft descended to 9,500 feet to keep jumpers over DZ and three more compressor stalls occurred. Suspect FOD to first-stage compressor blades. ■ Master caution and hydraulic pressure lights came on and flight controls became stiff. Emergency procedures were accomplished without restoring hydraulic boost. Running landing was made at airfield. Caused by failure of hydraulic line tube assembly.

AH-1

1 Incident ■ Battery access door came loose and broke off in flight. Door struck both tail rotor blades. Cause of door separation not reported.

5 Precautionary Landings ■ Aircraft started dumping fuel overboard through dump valve while at hover. Pilot landed and shut aircraft down with no further incident. Maintenance was unable to duplicate problem through MOC and hover. ■ Hydraulic system No. 1 light illuminated and hydraulic pump made loud whining noise. Inspection revealed hydraulic pressure line to lockout valve came loose in flight, causing hydraulic system No. 1 caution light to illuminate. ■ During hover fire practice at 5-foot hover two muffled bangs were heard from engine. Aircraft was landed. Compressor stall inspection was performed and no evidence could be found that stall occurred. Maintenance concluded it was the bleed band popping. ■ No. 2 hydraulic and master caution lights came on. Dirty switch caused warning system malfunction. ■ Pilot noted N2 decay to 6000 and rise in egt to 560° C. Aircraft was landed with power on. Cause of N2 decay not reported. □

LOH/CARGO BRANCH

MAJ Robert P. Judson, Chief ■ 558-4202

4 Accidents, 0 Fatalities, 0 Injuries, Estimated Costs: \$72,095

OH-6

1 Accident ■ Main rotor blades flexed down and severed tail boom at touchdown during performance of low-level autorotation.

UNITED STATES ARMY AGENCY FOR AVIATION SAFETY ■ FORT RUCKER, ALABAMA 36362

Prepared from information compiled by the
Directorate for Aircraft Accident Analysis
and Investigation
Lieutenant Colonel Curtis M. Sanders, Director

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

1 **Precautionary Landing** ■ Transmission oil pressure light illuminated. Caused by defective oil pump.

OH-58

2 **Accidents** ■ Aircraft struck 3/8-inch cable while flying low level, yawed right, struck trees, and crashed. Investigation is underway. ■ While flying low level, aircraft struck two high-tension aluminum wires (unmarked) located in training area. Pilot landed in field. Weather was a suspected contributor. *Maybe we ought to start welding wirecutters on the bubbles of our helicopters!*

5 **Incidents** ■ Aircraft struck trees during contour flight and was landed without further incident. ■ Following refueling operation at civilian airfield, aircraft moved to right approximately 30 feet. Loud bang was heard and aircraft rolled to right, impacting right skid on ground. Aircraft stabilized, landed, and was shut down. Refuel grounding wire was still attached to right skid. *Gee! We didn't know that civilian refuelers used grounding techniques when fueling aircraft!* ■ Passenger departed aircraft leaving seatbelt hanging from right door. Pilot failed to secure belt before departure. ■ Maintenance supervisor discovered what appeared to be damage to fuselage caused by passenger seatbelt left hanging outside aircraft during previous flight. ■ Aircraft was returning from area recon when map in plastic cover was blown from observer's hands and out left passenger door, ripping left FM homing antenna from aircraft.

5 **Precautionary Landings** ■ Aircraft vibrated and rolled slightly left, and nose pitched down and yawed left. Pilot landed in field. No cause could be found. Aircraft was test flown and released for flight. ■ Hydraulic warning light came on and pilot stated he felt left lateral cyclic movement. Aircraft was checked and warning lights activated. Pressure switch was replaced. ■ Pilot heard buzzing sound and controls became stiff. Caused by hydraulic line "T" fitting nut vibrating loose. Nut was retorqued and hydraulic system serviced. ■ Turbine outlet temperature was in excess of 900° C. Elbow assembly separated from scroll assembly diffuser. ■ Transmission oil pressure light illuminated. Caused by failure of transmission oil pressure switch.

TH-55

1 **Accident** ■ SP lost directional control while hovering in approved rotary-wing training area. Aircraft turned to right 360° which caused pilot to suspect antitorque control failure. Collective pitch was reduced abruptly, resulting in hard landing.

1 **Precautionary Landing** ■ Engine oil pressure was too low at takeoff. Oil pressure sending unit was replaced.

CH-47

4 **Precautionary Landings** ■ Hydraulic leak in flight control closet occurred during flight. Caused by broken fitting in line between No. 1 SAS filter and transducer. (USAR) ■ While in cruise flight, crew noticed thrust control rod would not lower. This was followed by moderate high-frequency vibration in pedals. Thrust was lowered by both pilots pushing it down. There was also feedback in the cyclic during approach. Caused by failure of small double row of roller bearings below control handle in copilot's thrust control rod. ■ Pilot noticed high-frequency vibration in cockpit floor and antitorque pedals. This was accompanied by loud sounds similar to bleed band popping. Inspection revealed that nose vibration absorber was activated in an excessive bouncing mode at a certain vibration frequency. Caused by defective nose vibration absorber. ■ Aircraft was on approach to sling load area with a sling load consisting of salvaged 2½-ton truck. At 700 feet agl, IP turned hook release master switch on after assuring student's fingers were not on cyclic release button. Student started getting too close to button, and IP told him three times to get away from button. Student moved his hand away, but when he put it back, he hit the release. Load was dropped into wooded, swampy area. *In the old days, instructors would smack their students on the head with the fire extinguisher to get their attention!*

TO UNITS WITH ORGANIC OH-58As: Because of a recent failure trend, it is recommended that a one-time inspection of *elbow assembly*, NSN 4730-00-165-4904 (figure 56, item 9, page 147, TM 55-1520-228-20, Aug 75) for correct installation and worn threads be conducted in accordance with TM 55-1520-228-34 with change 9 dated 31 Oct 75, figure 5-1.1, page 5-4.1, and page 5-9. Reference may also be made to TM 55-2840-231-24 with change 7 dated Mar 75, figure 5-1, par. 5-4, page 5-2. □

FIXED WING BRANCH

CPT Donald P. Johnston, Chief ■ 558-3901

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

RU-21

2 **Precautionary Landings** ■ (D series) When flaps were lowered to approach position, aircraft began slow uncoordinated right turn and would not respond properly to corrective action. N1 on right engine was

zero. Power reduction had little effect on right turn tendency. Right engine was feathered and secured and aircraft response to left pedal pressure was much better. At this time pilot noticed left outboard flap was full up and inboard flap was down past approach. Both right wing flaps were down. Flaps would not respond to flap switch and single-engine landing was completed with split flap condition. Malfunction in worn gear caused flap condition. N₁ tach generator shaft sheared, causing zero N₁ reading. ■ (H series) Landing gear could not be retracted after manually lowering it on test flight. During return for landing, No. 1 engine fire warning light came on and engine was secured. Single-engine landing was successful. Landing gear circuit breaker had failed. No defects could be found in fire warning system.

OV-1

1 **Precautionary Landing** ■ No. 1 prop surged to 2000 rpm on takeoff. Throttle was reduced to 20 psi but prop rpm only dropped slightly. Pilot secured engine on downwind and single-engine landing was made. Caused by failure of prop governor. (ARNG)

U-8

1 **Precautionary Landing** ■ Gear handle light remained red after "gear up", indicating gear not fully retracted. Pilot returned gear handle "down," resulting in safe condition. Inspection revealed failure of landing gear throttle switch.

U-1

1 **Precautionary Landing** ■ Smoke entered cockpit from under instrument panel, followed by rough running engine with only partial power. No. 1 cylinder exhaust port had cracked at No. 3 air fin. □

MAINTENANCE MISHAPS

MSG B. R. Bailey ■ 558-3901

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

AH-1

1 **Precautionary Landing** ■ Pilot noticed transmission oil pressure caution light and falling transmission oil pressure on gauge. Suspect filter gasket mounting bolts may have been improperly torqued.

U-21

1 **Precautionary Landing** ■ During takeoff, instructor pilot noticed forward nacelle cowling on No. 1 engine had vibrated loose. Takeoff was then aborted. Pilot checked cowling during preflight and cowling appeared fastened. Maintenance had improperly fastened latching device, causing it to appear locked. Latching device vibrated during taxi and takeoff.

MESSAGES RECEIVED

■ 152015Z Jun 76, AVSCOM Technical Advisory Message, RU/OV-1C/D Aircraft, OV-1-76-7. Aircraft powered by T53-L-15/701/701A engines with TA-2V-1/2 fuel regulators, P/N 92700/98500, are to be inspected during overhaul/minor repair. Suspect regulators may have turbine fuel soluble packings.

■ 212030Z Jun 76, AVSCOM Maintenance Advisory Message, Solid State Replacement Voltage Regulators, UH-1B/C/D/H/M Aircraft (UH-1-76-13).

CORRECT FLAP OPERATION PROCEDURES

Raising flaps after touchdown to shorten ground roll is an incorrect technique. This procedure, in fact, may reduce drag and increase ground roll. This incorrect technique has been the initiating cause of accidents and should not be practiced. As stated in most fixed wing -10CLs, flaps should be raised only when clear of the runway. □

AVIATION-RELATED GROUND MISHAPS

William P. Christian ■ 558-4202

2 Mishaps, 0 Fatalities, 0 Injuries, Estimated Costs: \$4,266

UH-1

■ Pitch-change links were disconnected and main rotor blades were untied due to maintenance being performed on rotor system. Gust of wind through open hangar door caused rotor blades to rotate into adjacent aircraft. Maintenance supervisors should be instructed to insure that helicopter rotor blades are secured before hangar doors are opened.

CH-47

■ Flight engineer was talking with security guard while performing preventive maintenance on his aircraft. After completion of maintenance, flight engineer and security guard drank a coke. After they finished their

drink, security guard threw his empty coke bottle toward trash can and bottle hit main rotor blade, causing enough damage that blade had to be replaced. *Never will make the NBA with that much arc in your shot!*



STACOM 5 ■ 30 JUNE 1976

DEPUTY FOR STANDARDIZATION, USAAVNC, FT. RUCKER, AL 36362
COL CLEMENT A. WYLLIE ■ 558-2603/3514

COMMENT: The investigation of a recent touchdown autorotation accident revealed that the pilot had not performed a power-on approach to the airstrip prior to initiating the autorotation. This omission was cited as a contributing factor to the mishap. Now, there is no DA regulation that requires an aviator to do this; it's just good sound procedure. Shooting a power-on approach into the area first gives you a chance to evaluate the winds, runway conditions, density altitude effects, etc., before committing yourself to a landing without help from the engine. It gets mighty spooky to find out just before a power-off touchdown that the "reported" wind of five knots on the nose is really a gusty 15-knot crosswind. So let's check out those landing areas under power first and give ourselves a break. Touchdown autorotation training has always been on probation because of the mishap potential, and accidents like this one can only harden the resolve to prohibit it.

QUESTION: The Flight Training Guides we have are all published at Fort Rucker. Now this is fine if we were all flying at Rucker, but what says we have to use them in the field? Personally, I disagree with some of the procedures and maneuvers they contain and feel I know a better way of performing them. Just what prevents us from writing and using our own Flight Training Guides anyway?

ANSWER: The Flight Training Guides published by USAAVNC were designated interim DA flight standardization literature by DA Message 301446Z Jul 74. This message also specifies that these publications will be used by all units in their training of Army aviators. Individual aircraft training circulars, however, are presently being developed and, when published by DA, will replace the USAAVNC Flight Training Guides. Now about this "better way" business. The use of tested and proven procedures is essential to safe and efficient aircraft operation and, as such, comprise the core of the Army Aviation Standardization Program. Unfortunately, it has been the experience of aviation generally that use of the "better way" all too frequently leads to busted aircraft, bodies and missions—and invariably to busted checkrides. If you feel that your ideas would be an improvement over the current "gospel," let's here 'em. There is nothing in the FTG which cannot be changed, and if the "better way" proves to be just that, we'll certainly let the whole world know about it. Write: Commander, U.S. Army Aviation Center, ATTN: ATZQ-TD-CD-IT, Fort Rucker, Alabama 36362.

QUESTION: Would you publish a listing of the current aircraft operators manuals and the most recent change?

ANSWER: Be glad to as a one-time shot; but bear in mind that the dash 10s are under continuous revision so the information will shortly be outdated. The *only* way to stay current on these and other publications is to check the weekly AG Publications Center Bulletin. If you haven't seen this bulletin, talk to your AG people; there should be ample copies available. This dash 10 information is current as of 15 June 1976.

OH-6A, 18 Apr 74, C3
OH-58A, Sep 72, C13
UH-1B, Jan 69, C7
UH-1C/M, Nov 68, C10
UH-1D/H, 25 Aug 71, C14
AH-1G, 12 Dec 75, C1
AH-1Q, 31 Dec 75, C1
AH-1S, 1 May 76, N/C

CH-47A, 30 Mar 73, C16
CH-47B/C, Aug 73, C16
CH-54A, 29 Mar 74, C4
CH-54B, 27 Mar 74, C4
T-41B, 31 Oct 74, C1
T-42A, 19 Dec 75, N/C
U-8D/G & RU-8D, Feb 69, C8
U-8F, Feb 69, C10

R/U-21A/D, 1 Aug 72, C6
R/U-21B/C, 31 Oct 73, C4
U-21G/RU-21E, 1 Aug 72, C7
OV-1B, Feb 70, C9
OV-1C, Feb 70, C11
OV-1D, 28 Aug 75, C1
C-12A, 30 May 75, C2

US Army Aviation Training Library
Fort Rucker, Alabama 36360

QUESTION: Why does the procedure for emergency governor operation, as prescribed in the UH-1 Contact Instructor Pilot Course Flight Training Guide, contradict the procedures prescribed in paragraph 4-33 of TM 55-1520-210-10 and TM 55-1500-219-MTF? The Flight Training Guide requires moving the governor switch to EMER position after reducing the throttle manually to attain 6400 rpm. The Operators Manual prescribes retarding the throttle to flight idle and placing the governor switch in the emergency position.

ANSWER: The emergency governor operation, as outlined in the UH-1 Contact Instructor Pilot Course Flight Training Guide, is accomplished on the ground and is designed to be demonstrated and practiced during UH-1 transition. The intent is not to change the N2 governor malfunction procedures in Chapter 4 of TM 55-1520-210, but rather to teach the pilot the technique of manual throttle control. A note is contained in the Flight Training Guide after the analysis of the maneuver to alert students to the fact that this is not a replacement for the actual emergency procedure.

QUESTION: I have two questions concerning the AH-1G weapons system. First, where can we find out the dimensions of the boresighting target? Secondly, what maintenance, if any, is required for the bullet trap used with the M-134 machinegun.

ANSWER: That's easy. Get a copy of TM 9-1090-203-12, dated January 1976. Chapter 4 not only gives target dimensions but also explains the whole boresighting procedure in detail. Paragraph 3-77 of the same manual covers the cleaning, inspection, and repair requirements for both the flash suppressor and the bullet trap.

QUESTION: Does the maximum of six practice touchdown autorotations that can be performed in any 1-hour instructional period include hovering autorotations?

ANSWER: According to Department of the Army guidance on touchdown autorotations, practice hovering autorotations (aircraft in stationary hover) are excluded from the maximum of six during any 1-hour instructional period. The reference for this is HQDA Message, DTG 031310Z Jan 75, subject: Touchdown Autorotations, page 5, paragraph 2d. For you FORSCOM units, guidance can be found in FORSCOM Regulation 350-3, dated 10 September 1975, page 3-5, paragraph 3-5c(6).

QUESTION: TM 10-1101, dated 3 May 1972, leaves a lot to be desired so far as procedures for setting up a hot refueling point are concerned. Is this information contained in any other publication?

ANSWER: Unfortunately, you are using an outdated publication. TM 10-1101 has been superseded by FM 10-68 (Aircraft Refueling), dated December 1975. Chapter 7 of this manual describes in detail the use of the Light Weight Refueling System for Forward Areas (FARE) and tells you exactly how to set it up.

The Deputy for Standardization is anxious to hear from Army aviators worldwide and pledges to respond to flight standardization questions within 24 hours of receipt. Readers are encouraged to use the 24-hour flight standardization information center number (AUTOVON 558-3504, commercial (205) 255-3504) or to communicate by letter if more appropriate. Address your questions or requests for courtesy assistance visits to Deputy for Standardization, USAAVNC, Fort Rucker, AL 36362. □

DEPARTMENT OF THE ARMY
UNITED STATES ARMY
AGENCY FOR AVIATION SAFETY
FORT RUCKER, ALABAMA 36362

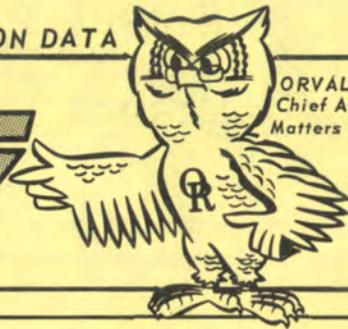
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FLIGHT FAX



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Chief Advisor on
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A USAAVS PUBLICATION

VOL. 4, NO. 37 ■ 7 JULY 1976

mishaps for the period of 18-24 JUNE 1976

US Army Aviation Training Library
Fort Rucker, Alabama 36360



DUST BOWL

Summertime is here and so are extremely dry and dusty conditions.

Recently, two CH-47s with identical sling loads were flown into an LZ. The lack of rain and the use of the LZ on previous days had churned it into a dust bowl. Further, despite warnings, no attempts were made by the supported unit to alleviate or correct the dusty conditions. As both aircraft flew into the LZ, the pilots immediately lost visual reference, and both crews dropped their loads from the same altitude (5-10 feet agl). No estimate of damage to the loads is available, but it is suspected they were destroyed.

Had appropriate countermeasures been taken by the supported unit, these mishaps would have been prevented. Likewise, had the crews considered the dust hazard in the LZ in their flight planning, an alternate procedure could have been used in their approach to prevent possible loss of the sling loads. See CH-47 briefs on page 3.

WHO, ME?

If we could predict the future in aviation safety, there is one statistic we could bank on. There will be at least one fuel exhaustion mishap in FY 77 (and maybe more)! How will they occur? Some aviator will make a quick and dirty check of the fuel cell, think it full, and then disregard the fuel gauge. Another aviator will forget to check the fuel level and will rely instead on inaccurate fuel gauges. A dual-rated aviator will scratch his head 2½ hours into a flight trying to remember if the 3½-hour range is on this type aircraft or on the type he flew last week. And another aviator will forget to make an in-flight consumption check on a flight over the mountains.

Ask yourself, "Could one of these aviators be me?"

PROCEDURE VIOLATIONS

Ground resonance was a suspected cause factor in a recent CH-47 mishap. After completing a running landing and while still in a two-wheel taxi mode of operation, the CH-47 vibrated severely. It was immediately placed on all four landing gears which did nothing but intensify the problem. The aircraft was then shut down, a direct violation of paragraph 4-83, page 4-11, TM 55-1520-227-10.

The severe vibrations encountered had caused damage to two aft droop stops, causing them not to seat properly. The crew realized that blade/fuselage contact would occur and took immediate action to raise the thrust lever to full up position. This procedure, however, almost guarantees that blade/fuselage contact *will* occur, and is in direct violation of paragraph 3-109(c), pages 3-25 and 3-26, TM 55-1520-227-10.

The dash 10s are written and published for guidance of all aviators to prevent mistakes which could cause extensive aircraft damage and loss of lives. Follow by-the-book procedures.

UNITED STATES ARMY AGENCY FOR AVIATION SAFETY, FORT RUCKER, ALABAMA 36362

Prepared from information compiled by the Directorate for Aircraft Accident Analysis and Investigation
LTC Curtis M. Sanders, Director

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UTILITY/ATTACK BRANCH

MAJ William C. Childree, Chief ■ 558-4198

1 Accident, 0 Fatalities, 0 Injuries, Estimated Costs: \$68,000

UH-1

1 Accident ■ Tail rotor struck ground during "quick stop." One tail rotor blade separated and tail rotor drive components had sudden stoppage damage. Aircraft was performing authorized and supervised NOE flight.

1 Incident ■ On final approach during simulated left pedal setting, pilot did not align aircraft for landing and aircraft struck ground in tail-low attitude, causing damage to tail rotor.

34 Precautionary Landings—following are selected briefs ■ Right boost pump light illuminated on landing. Maintenance replaced right boost pump. ■ Tail rotor chip detector light came on. Maintenance replaced 90° gearbox. ■ Egt fluctuated between 180° and 420°. Maintenance inspection revealed faulty egt gauge. ■ Pilot and copilot airspeed indicator failed on takeoff. Pitot tube was blocked by insects. *What happened to preventive maintenance, or did this blockage happen overnight?* ■ Fire light illuminated before takeoff from hover. Frayed wire shorted system.

AH-1

4 Precautionary Landings ■ During hover fire, master caution light and No. 2 hydraulic light came on. Maintenance inspection revealed air lock in hydraulic line. Suspect this occurred when turret was installed a few days earlier. ■ Muffled bang was heard from engine area during hover and slight right yaw was experienced. All compressor blades were eroded beyond limits. *Looks like another maintenance problem!* ■ No. 2 hydraulic light came on during hover. Caused by failure of servo cylinder assembly. ■ Upon reaching 80 knots IAS, pilot had difficulty moving cyclic fore and aft. Caused by check valve failure. □

THOUGHT FOR THE WEEK

A commercial comes on TV about 2200 hours each night and a secular voice asks, "Do you know where your children are and what they are doing?" Commanders, we ask you: Where are your flight crews and what are they doing? Do you really know? Are *your* air disciplinary standards instilled in each of your aviators? Will they do the right thing out of your sight as when they are tucked in on your left wing? Were they really in an *authorized, supervised* NOE mode when they hit that tree with their rotor blades? Did they write up that last hard landing or are they hoping the next crew pulls a sloppy preflight and ends up being charged with the damage? Did you have CW2 Doakes take a proficiency orientation ride after his 15-day leave before you assigned him as PIC in Chalk 3 on a night troop insertion into an unlighted LZ? Happy Bicentennial, Commander—if you can say "yes" to these questions!

LOH/CARGO BRANCH

MAJ Robert P. Judson, Chief ■ 558-4202

1 Accident, 2 Fatalities, 0 Injuries, Estimated Costs: \$167,020

OH-58

1 Accident ■ Aircraft playing aggressor role collided with tank gun tube. Two fatalities. Under investigation.

1 Incident ■ Upon completion of flight, postflight inspection revealed that fiberglass fairing on rear of fuselage was damaged. Inspection for hard landing was accomplished, and skids and cross tube were found damaged. Suspect hard landing.

3 Forced Landings ■ During power recovery on test flight, N2 rpm increased to 103 percent, then started decreasing. Engine-out audio came on, and engine N2 dropped to zero. Successful autorotation landing was completed to runway. ■ During flight, rpm bled off to 97 percent and rpm light and audio warning activated. Pilot got no response from beep and initiated autorotation, terminating in open field. ■ During

final approach at 50 feet agl, aircraft began to yaw left and right. Aircraft then yawed hard left, and torque and TOT started to increase. Two loud bangs came from engine area. At altitude of 15 feet, control became difficult and throttle was reduced to flight idle. Successful landing was completed. Suspect internal engine failure.

6 Precautionary Landings ■ Test pilot lowered collective and rolled throttle to flight idle, and rotor stabilized at 360. Pilot looked down to check trim, and rotor rpm went to 420. Main rotor overspeed inspection was performed and aircraft released for flight. ■ Aircraft was parked with engine running. Both occupants smelled smoke and aircraft became engulfed with bluish-white smoke. Copilot exited with fire extinguisher. Pilot exited after emergency engine shutdown. Heavy smoke was pouring from both engine exhaust stacks, but no external flames. Fire extinguisher was not used, and smoke subsided shortly after shutdown. ■ Engine chip detector light had flickered during previous flight. Chip detector plug was removed, cleaned, and reinstalled. During this flight, it came on and stayed on. Suspect internal engine failure. ■ Transmission chip detector light came on during landing. ■ Amp gauge indicated slow but steady rise. Aircraft landed, and battery, circuit breakers, and vents were checked. Voltage regulator and battery were changed. ■ Transmission chip detector light illuminated on takeoff.

TH-55

1 Forced Landing ■ Engine rpm reduced and could not be regained. Pilot initiated autorotative landing to open area. Inspection revealed short in starter circuit, shorting out right magneto.

2 Precautionary Landings ■ Engine oil pressure dropped below lower limit. Caused by failure of oil pressure sending unit. ■ IP heard noise from area of main transmission. Caused by failure of main transmission oil pump.

CH-47

1 Incident ■ Rescue hatch lower door ripped away from mounting forward braces, causing damage to fuselage skin aft of rescue hatch. Cause undetermined. Investigation in progress.

5 Precautionary Landings ■ No. 1 engine torquemeter fluctuated, then failed. Rotor rpm increased to 260. No. 1 engine N1 increased to 98.5. Pilot was unable to control No. 1 engine with normal or emergency trim. Caused by failure of No. 1 engine fuel control N2 governor. (ARNG) ■ Crew detected high frequency vibration during flight. Source of vibration was No. 2 engine transmission assembly. ■ Crew engineer noticed oil leak in combining transmission area during flight. Inspection revealed loose fitting on oil cooler to forward transmission located under combining transmission. ■ During climbout, pilot experienced loss of beep trim; altitude indication; RMI; left aft auxiliary, left forward, and right forward fuel pumps; and malfunctioning SAS. Electrical cannon plug on a.c. feeder control box was corroded on inside, causing electrical short. ■ Engine failed during practice autorotation. PTIT exceeded 1,200° C. and fire came out of tail cone. Engine was T55-L11 ASA. Cause unknown. Teardown analysis was requested.

2 Cargo and Personnel Handling Equipment Mishaps ■ Two aircraft with identical sling loads (LVT pontoon bridge) were flown into LZ. Extremely dusty conditions were encountered and all visual reference was lost. Both aircraft dropped their loads from approximately 5-10 feet. OHR was submitted on LZ, as even the grassy areas contained a prohibitive amount of dust. □

FIXED WING BRANCH

CPT Donald P. Johnston, Chief ■ 558-3901

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

U-8

1 Precautionary Landing ■ Pilot noticed fuel trailing from left engine nacelle. Engine was secured and single-engine landing was completed. Fuel tank outlet line had deteriorated. *Preventive maintenance again!*

U-21

3 Precautionary Landings ■ (D series) Pilot detected odor during takeoff roll and aborted. After clearing runway all electrical power was secured. During taxi, battery was momentarily turned on and no power was available. Caused by battery failure. ■ (H series) Right fuel transfer light activated. Pilot elected to abort mission and returned for landing. Caused by failure of No. 2 fuel transfer pump. ■ (H series) Fuel was seen siphoning from right outboard fuel cap. Pilot returned for landing, resecured cap, and continued mission.

1 Human Factor Mishap ■ Mission was aborted after 20 minutes when copilot complained he could not continue due to abdominal cramps. He had experienced mild diarrhea before departure.

C-7

1 Precautionary Landing ■ Outboard main gear door did not close after gear retraction. Ten-minute flight was continued to airport and left main gear failed to extend for landing. Pilot aborted approach and followed emergency gear procedures with negative results. Decision was made to land with main gear up. When flaps were lowered, flight attendant reported gear door had been released and was swinging free. Pilot again lowered gear and received safe indication. Landing was made. Lever assembly failed, causing main gear door to be out of position which, in turn, restricted travel of main gear. □

MAINTENANCE MISHAPS

MSG B. R. Bailey ■ 558-3913

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

CH-47

1 Precautionary Landing ■ No. 1 flight boost pressure dropped to 2600 psi, then climbed to 3300 and stabilized at 3200 psi. Postflight inspection revealed absence of reservoir seal at filler cap, causing air in system and intermittent pump cavitation.

U-21

1 Precautionary Landing ■ During after-takeoff check, copilot saw fuel siphoning from right wing tank fuel cap. Aircraft was landed and cap resecured. Pilot again initiated takeoff and copilot reported fuel was siphoning from same fuel cap. Aircraft was landed again for maintenance inspection. Maintenance found adjustment nut on filler cap inadequately tightened to maintain proper seal. Adjustment was made and aircraft released for flight. *USAAAVS will surface this filler cap discrepancy problem with AVSCOM again. Some change is necessary.*

MAINTENANCE THOUGHT FOR THE WEEK. Six cases of battery overheating were reported during this period. Summer is once again with us. *Are your aircraft batteries being serviced IAW the applicable TM and are your voltage regulators set properly?* □

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FORT RUCKER, ALABAMA 36362

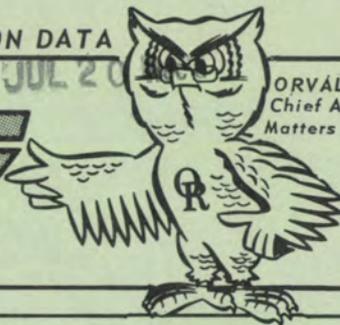
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Chief Advisor on
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FLIGHT FAX

A USAAAVS PUBLICATION

VOL. 4, NO. 38 ■ 14 JULY 1976

mishaps for the period of 25 JUN-1 JUL 1976

US Army Aviation Training Library
Fort Rucker, Alabama 36360

T53 ENGINES— PROBLEMS AND SOLUTIONS

Mishap reports indicate that T53-powered helicopters are having hot weather compressor stall problems. We all know that helicopter performance decreases as summer temperatures and density altitudes increase. The gas turbine engine also suffers a loss of performance if the engine gas path is not conditioned for peak performance. Compressor stalls (surge) or excessive exhaust gas temperatures are sure to result. Generally, the conditions that induce compressor stalls during hot weather are minor adjustments, small air leaks, and dirt.

With the assistance of AVCO Lycoming, AVSCOM, and Corpus Christi Army Depot, USAAAVS has grouped these problems into three broad categories: those associated with the variable inlet guide vanes, the compressor bleed assembly, and compressor erosion. Intensive maintenance action in these critical areas cannot eliminate all causes of compressor stalls, but such initiative can insure peak performance of those engines that are otherwise healthy. Conscientious application of the Health Indication Test (HIT) for turbine engines will indicate if an engine is healthy or not. (For more information concerning HIT, see FLIGHT-

FAX, Vol. 4, No. 8, 26 Nov 75.) The HIT techniques presented should not be applied to engines that check more than 20° (plus or minus) from base line exhaust gas temperatures (egt) until corrective maintenance has been performed. Further, the procedures recommended are to be used in conjunction with and not as a substitute for the procedures found in TM 55-2840-229-24, dated 23 April 1971, with 11 changes. If your T53-

Continued on page 2.

SAFETY-OF-FLIGHT MESSAGE

■ 012025Z Jul 76, subject: Safety-of-Flight Message No. UH-1-76-14 and AH-1-76-10 (One-Time Inspection) for Oil Cooler Installation of the UH-1B/C/D/H/M, TH-1G, and AH-1G/Q Series Aircraft, TB 55-1500-206-20-25. *Summary:* During the past 3 weeks, two in-flight failures of oil cooler turbine fan assemblies occurred. In one instance, the fan assembly disintegrated and in the other all impeller blades were broken through but had not separated from the assembly. Investigation revealed that in each case an incorrect tube reducer was installed in the bleed air line, permitting higher than design airflow to the turbine and causing higher rotational speeds which could result in failure due to overspeed. This inspection will identify and remove from service tube reducers which do not conform to system specifications. *Contact:* AVSCOM, ATTN: DRSAV-FEU, AUTOVON 698-5066, commercial 314-268-5066.

WELL DONE
TO ALL
CH-47 UNITS
FOR A
ZERO ACCIDENT
RATE IN
FY 76

Continued from front page.

powered helicopters are not presently established in a HIT program, procedures beginning with page 5-32, par. 5-73 of this TM, should be followed.

1. Variable Inlet Guide Vane (VIGV) Rigging (page 5-90, par. 5-155). Improper VIGV rigging has proven to be a factor in most T53-L-13 series compressor stalls. However, the prevailing cure for compressor stall in most units is to change the fuel control. The reason this is so successful is that the new fuel control installation requires re-rigging the VIGVs. Page 12-11, par. 12-38, spells out the inspection steps required after a suspected compressor stall.

VIGV rigging can change through normal wear, particularly if the aircraft is continuously operated in a dusty nap-of-the-earth (NOE) environment. Since the exterior of the engine is not protected from sand and dust, the rapid continuous power changes required during NOE flight cause accelerated wear of all exposed linkages. As a preventive measure, we recommend that all aircraft operated in the NOE environment be given a VIGV rigging check after any maintenance action that could affect VIGV rigging and/or at every 100 hours of flight. Page 5-90, par. 5-155b, explains the VIGV function and one method of rigging. However, this method is not precise enough for aircraft flying the NOE environment during hot weather. Use of the switch and coupling kit (LTC 13726) as described in par. 5-155f is the preferred method. To order switch coupling kits, P/N LTC 13726, NSN 4920-00-078-2410, refer to TM 55-2840-229-34P, dated July 1974, page 278.

Paragraph 5-155b states, "Should the inlet guide vanes reach the full open position at too low N_1 speed, any rapid N_1 speed changes could induce surge." Therefore, it is recommended that the variable inlet guide vane rigging on NOE aircraft be checked, using the switch coupling assembly, and the VIGV full open position be moved to the upper end of the allowable operating range. This method will provide a safety margin during the rapid power changes required by NOE flight.

The variable inlet guide vane rigging chart called out as figure 1-22, page 1-26, par. 1-78, is now located on page 5-94 (change 11) as figure 5-69.

2. Improper Compressor Bleed Assembly Operation. This assembly consists of the interstage bleed actuator assembly, bleed band, and attach-

ing parts. Page 5-81 (change 10), par. 5-149, specifies when and how the closure check is to be accomplished. The bleed band closure range charts (figures 5-60 and 5-61) are located on page 5-82. Here again, for best engine performance, it is recommended that the bleed band be adjusted to the upper end of the allowable operating range.

Most of the bleed system related stalls have been caused by sticking or sluggish action of the bleed band actuator piston. The bleed band actuator is positioned by compressor bleed air and operates in close conjunction with the variable inlet guide vanes. Therefore, sticking, slow, or out-of-phase operation during power changes will result in high egt, compressor stalls, and loss of power. Figure 5-59, page 5-80, depicts the bleed band actuator as it is installed on the engine. Note that the piston (item 14) extends out of the actuator housing in a vertical position (also see figure 6-35, page 6-47). The area around the piston shaft allows water, dirt, and cleaning fluids to enter the actuator housing if it is not properly protected during cleaning. Par. 7-15, page 7-3 (change 10), calls out cleaning instructions for the inlet area, inlet guide vanes, and compressor rotor blades. Each of these actions must be accomplished in the order stipulated if the aircraft is to be safe for flight after engine cleaning. When heated, the water soluble cleaner (B&B 3100), item 98A, table 2-2, becomes a very strong irritant. If the fumes are inhaled or allowed to contact the eyes in flight, the pilot could become incapacitated. Consequently, care must be exercised to insure that B&B 3100 does not enter the cabin heat system when the engine is cleaned.

Par. 7-15A(7) lists instructions for closing the bleed band with a metered air source (not to exceed 60 psi) during cleaning. Closing the bleed band will prevent cleaning solvent from blowing out the bleed ports and entering the bleed band actuator around the piston shaft. If the outside of the engine is to be cleaned, it is recommended the entire bleed band actuator be enclosed with some type of waterproof material. The bleed band actuator is a dry assembly requiring no lubrication. Any substance that is allowed to collect in the actuator housing will cause improper operation of the bleed band (see FLIGHTFAX, Vol. 3, No. 40, 30 Jul 75).

The caution note in par. 7-15d must be observed. It states that cleaning solution or water

must *not* be sprayed into the engine inlet while the engine is running. A stream of liquid directed against the compressor blades at operating rpm can cause blades to oscillate at a high frequency. This can result in fatigue damage to the blades and contribute to subsequent blade failure.

3. **Compressor Erosion.** USAAAVS has published the following articles on compressor erosion: FLIGHTFAX, Vol. 2, No. 50, 25 Sep 74, Erosion of T53 Series Gas Turbine Engines; MAINTENANCE FAX, Vol. 3, No. 6, 30 Apr 75, T53 Compressor Stall; and AVIATION DIGEST, July 1975, T53 Compressor Stall. These articles also call out the erosion limits for the axial compressor blades, the stator vanes, and the centrifugal impeller.

The particle separator on the T53 engines is approximately 70 percent efficient. This means that with the particle separator in its best possible condition, 30 percent of the sand and dust that enters the inlet cowling will pass through the engine. The self-purging particle separator is only as good as the person caring for it. USA-AAVS continually receives reports from the field of precautionary landings, forced landings, and

accidents in which the lower half of the particle separator was completely filled with sand and dust. Air coming out of the purge line when the engine is running is not an indication that the particle separator is working. Engine compressor bleed air is directed to a venturi effect ejector mounted at the bottom of the lower half of the separator. If the port to the ejector becomes plugged, the separator will not purge and will allow all sand and dust ingested to enter the engine. USAAAVS has several mishap reports on file in which an inoperative self-purging particle separator was a factor. In two of the mishaps, the lower half of the separator was completely full of compacted dust. Only the purge tube had been cleaned.

As density altitude and temperature increase, the capability and performance of both the helicopter and its gas turbine engine decrease. Therefore, if the same mission is to be accomplished in the summer as in the winter, every ounce of available power must be delivered to the rotor system. This degree of perfection cannot be achieved unless thorough preventive maintenance and safety standards are the rule.

OH-58 SEATBELTS

In 1973, the check for passenger seatbelts was included in the dash 10 for OH-58As. This addition produced a 67-percent reduction in seatbelt incidents. It appeared that maybe we had finally eliminated one of the most senseless causes of OH-58 incidents. But they did not stop, and lately, the problem is worsening.

This problem can be easily eliminated. All you have to do is use the checklist, and use it every time. It is surely much easier to turn your head to look when you discharge passengers than it is to hang your head in shame when the commander asks, "How'd it happen?"

Open your operator's and crewmember's checklist to page N8 and you will note that item 8 states, "PASSENGER SEATBELTS-INSIDE AIRCRAFT AND FASTENED."

<p>U.S. ARMY AGENCY FOR AVIATION SAFETY FORT RUCKER, ALABAMA 36362 Prepared from information compiled by the Directorate for Aircraft Accident Analysis and 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 is authorized by AR 10-29.</p>	<table style="width: 100%; border: none;"> <tr> <td style="width: 50%;">COMMERCIAL: 255-XXXX</td> <td style="width: 50%;">AUTOVON: 558-XXXX</td> </tr> <tr> <td>Questions Concerning Aviation Portions of ARs 95-5, 385-40, and 385-10</td> <td style="text-align: right;">4479/4812</td> </tr> <tr> <td>For Assistance in Locating Proper Directorate Aircraft Accident Analysis and Investigation</td> <td style="text-align: right;">4479 3913/4202</td> </tr> <tr> <td>Technical Research and Applications</td> <td style="text-align: right;">6404/6410</td> </tr> <tr> <td>Plans, Operations, and Education</td> <td style="text-align: right;">4479/4812</td> </tr> <tr> <td>Management Information System</td> <td style="text-align: right;">5286/4200</td> </tr> <tr> <td>Publications and Graphics Division</td> <td style="text-align: right;">6385/3493</td> </tr> <tr> <td>Medical Division</td> <td style="text-align: right;">6788</td> </tr> <tr> <td>After-duty tape recording of incoming calls to be returned the following day (hours: 1615 to 0730)</td> <td style="text-align: right;">6510</td> </tr> </table>	COMMERCIAL: 255-XXXX	AUTOVON: 558-XXXX	Questions Concerning Aviation Portions of ARs 95-5, 385-40, and 385-10	4479/4812	For Assistance in Locating Proper Directorate Aircraft Accident Analysis and Investigation	4479 3913/4202	Technical Research and Applications	6404/6410	Plans, Operations, and Education	4479/4812	Management Information System	5286/4200	Publications and Graphics Division	6385/3493	Medical Division	6788	After-duty tape recording of incoming calls to be returned the following day (hours: 1615 to 0730)	6510
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FY 76 ACCIDENT BRIEF

Synopses of four of the 94 FY 76 accidents are included in this issue. These sanitized accident briefs are carried for use by ASOs throughout the world as material for safety presentations during the coming year. There is no intent to criticize any unit, commander, or major command. These synopses will explain the extent to which USAAVS goes to develop appropriate corrective action to prevent recurrence of similar accidents. We're including these synopses in FLIGHTFAX in response to a number of requests for such information from ASOs throughout the world.

SYNOPSIS 1-76

Type Aircraft: OH-58
 Time: 1015 Classification: Major
 Fatalities/Injuries: None
 Estimated Materiel Damage Cost: \$17,655
 Mission: Training-Practice touchdown autorotations

Grade/Age/Experience:

	Grade	Age	RWHrs	FWHrs	Tot Flt Hrs
IP	W2	28	1910	1431	3341
P	W2	28	2787	-	2787

Description of Accident: Pilot under instruction initiated a low-level autorotation. Pilot let rotor rpm decay below 225 rpm and aircraft landed with forward airspeed of approximately 8 knots. Spike knock and pylon whirl occurred, damaging tail boom.

Causes of Accident

Initial: IP-Failed to adequately monitor pilot's maneuver. Pilot-Performed procedure outside operational limits of aircraft.

Contributing: Supervision-IP did not follow SOP-inadequate briefing. Design-Limited flapping angle of M/R head (8½°) induces spike knock and pylon whirl with minimal control input at critical phase of flight.

Errors: Pilot let rpm fall below safe operating level. IP failed to take timely corrective action.

Remarks: Noncontributing factor: Low rpm MWO was not installed. Although not a contributing factor in this accident, noninstallation must be noted as a maintenance factor. AVSCOM had advised all commands of the requirements for MWO installation.



SYNOPSIS 2-76

Type Aircraft: AH-1G
 Time: 2350 Classification: Major (Total)
 Fatalities/Injuries: No Fatalities, 2 Injuries
 Estimated Materiel Damage Cost: \$509,883
 Mission: Training-night weapon firing

Grade/Age/Experience:

	Grade	Age	RW Hrs	FW Hrs	Tot Flt Hrs
P	CW2	35	1298	-	1298
CP	CW2	22	814	-	814

Description of Accident: Aircraft had refueled and rearmed and proceeded to a holding area. Upon receiving clearance to proceed downrange, aircraft moved toward start fire line and came to a high hover approximately 100'-200' agl. Aircraft was told by Range Control to descend to normal hover. Aircraft began to fire rockets and descend. It continued descent.

rearward and gradually left until it impacted the ground. Tail boom separated from aircraft and aircraft rolled over and came to rest on its left side.

Causes of Accident

Initial: Flight crew-pilot became disoriented and struck ground moving backwards during night hover firing.

Contributing: Unit commander-Pilot not appropriately qualified as IP or for gunnery. Inadequate crew rest. Inadequate illumination not IAW TC 17-17. Local command-Range utilized by different units of varying proficiency and operating procedures without adequate control. Design-Canopy glare hampered outside vision. Weather-Darkness/haze and smoke obscured horizon. Aircraft out of aft CG (suspect).

FY 76 ACCIDENT BRIEF

FY 76 ACCIDENT BRIEF

FY 76 ACCIDENT BRIEF

FY 76 ACCIDENT BRIEF

Errors: Crew failed to attain proper firing position and allowed aircraft to descend and drift rearward into ground. Unit commander failed to insure proper crew qualification, range illumination, crew rest, and crash rescue. Local commander failed to insure adequate range control. Canopy design resulted in excessive glare and contributed to crew disorientation.

Remarks: Pilot performing IP duties was not

qualified as IP. Pilot was performing duties as a gunnery IP without evidence of having completed qualification as a gunnery instructor and without having been appointed on orders by an appropriate authority. Crew selection and training conditions evoke serious doubt that gunnery training for this particular crew could have been productive and contributed to unit mission readiness. Crash rescue equipment and personnel were not present on range.



SYNOPSIS 3-76

Type Aircraft: AH-1G

Time: 2350 **Classification:** Major

Fatalities/Injuries: No Fatalities, 1 Injury

Estimated Materiel Damage Cost: \$123,253

Mission: Training—night weapon firing

Grade/Age/Experience:

	Grade	Age	RW Hrs	FW Hrs	Tot Flt Hrs
P	CW2	26	1889	-	1889
CP	CW2	23	670	-	670

Description of Accident: Observing another aircraft crash nearby, the crew flew to render

assistance. The pilot landed the aircraft and the gunner exited immediately and ran toward the crash. The pilot exited shortly thereafter. Collective pitch control creep occurred, causing the aircraft to roll over.

Causes of Accident

Initial: Flight crew—Crew exited aircraft and failed to secure controls.

Errors: Crew failed to secure controls. Supervisor failed to provide adequate crash rescue personnel/equipment on range.

Remarks: Noncontributing factor—Aircraft was found to be out of aft CG limits.



SYNOPSIS 4-76

Type Aircraft: AH-1G

Time: 1143 **Classification:** Major

Fatalities/Injuries: None

Estimated Materiel Damage Cost: \$173,951

Mission: Training—NOE in authorized area

Grade/Age/Experience:

	Grade	Age	RW Hrs	FW Hrs	Tot Flt Hrs
P	W2	28	1182	-	1182
CP	W1	22	325	-	325

Description of Accident: Pilot was authorized NOE along tree line in approved training area when main rotor struck tree and aircraft crashed.

Causes of Accident

Initial: Crew—Pilot misjudged clearance be-

tween main rotor and tree.

Contributing: Training—Requirements for concealment during NOE flight generate a high exposure rate for blade strikes. Supervisor did not provide a proper operational procedure for NOE training as outlined in FM 1-1 (formerly TC 1-15).

Error: Pilot allowed his attention to be focused in front of aircraft as he moved forward and permitted aircraft to drift left into tree.

Remarks: No command or control aircraft was provided IAW existing directives. Crew recovery was delayed for approximately 2 hours because of lack of communication with unit operations.

FY 76 ACCIDENT BRIEF

UTILITY/ATTACK BRANCH

MAJ William C. Childree, Chief ■ 558-4198

2 Accidents, 0 Fatalities, 4 Injuries, Estimated Costs: \$76,550

UH-1

2 Accidents ■ During normal autorotation, N2 and rotor tach split and rotor maintained in high green. Loud bang was heard by crew. There were no unusual attitudes, with normal initial pitch and normal touchdown. Crew felt vibration. Postflight inspection revealed ½ to ¾ inches missing from each tail rotor blade. Accident is under investigation. ■ During approach, stuck right antitorque pedal caused loss of directional control and aircraft crashed. Accident is under investigation.

2 Incidents ■ Aircraft was on mission to check troop training at several field locations. Pilot attempted to land using an unqualified ground guide. Aiming post punctured belly of aircraft on touchdown. ■ Rocket shrapnel from second aircraft in flight struck lead aircraft during break from target. Fragments struck tail boom and main rotor blades.

32 Precautionary Landings—following are selected briefs ■ Engine chip detector light came on. Engine was replaced. ■ Hydraulic caution light illuminated. Caused by hydraulic pressure switch failure. ■ Aircraft was being hovered to refueling pad when master caution and left fuel boost pump segment lights illuminated. Maintenance inspection revealed failure of left fuel boost pump. ■ Cyclic moved hard to right rear in cruise flight. Hydraulic pressure stabilized and cyclic was centered. Cause under investigation. ■ During NOE flight at 5-foot hover, two bangs were heard from engine area. Maintenance replaced engine because of excessive erosion of compressor blades.

AH-1

3 Precautionary Landings ■ In pullout from low-level gunrun, crew heard loud bang from engine area and aircraft yawed to left. Suspect compressor stall. ■ Master caution and engine oil pressure segment lights came on. Maintenance replaced engine oil pressure switch. ■ Transmission oil bypass light came on and oil temperature increased. Caused by failure of transmission oil line. □

LOH/CARGO BRANCH

MAJ Robert P. Judson, Chief ■ 558-4202

1 Accident, 0 Fatalities, 3 Injuries, Estimated Costs: \$161,411

OH-6

1 Precautionary Landing ■ Transmission oil pressure light came on. Caused by broken wire between sending unit and gauge.

OH-58

1 Accident ■ While performing river reconnaissance, aircraft struck two 1/8-inch steel telephone cables approximately 110 feet above river. Investigation is underway.

2 Incidents ■ Failure to secure left rear passenger seatbelt caused damage to aircraft structure during med-evac mission. ■ Web gear and gas mask entered rotor arc and damaged one blade. Observer decided to empty his hands to secure seatbelt before leaving aircraft by throwing his gear toward front of aircraft. *At least he was complying with the checklist. Reference seatbelt article on page 3.*

2 Forced Landings ■ Engine chip detector light came on three times before engine failure. Chip detector plug was cleaned of fuzz and reinstalled. ASOAP produced no unusual findings during this period. ■ Turbine outlet temperature rapidly increased and autorotation was made to grass field. Elbow assembly, NSN 4730-00-165-4904, came out of scroll. *Check USAAVS' article in FLIGHTFAX, Vol. 4, No. 36, dated 30 June 1976, which recommends a one-time inspection be made of elbow assemblies in accordance with TM 55-1520-228-34 and TM 55-2840-231-24.*

3 Precautionary Landings ■ Transmission oil pressure light came on during autorotation. Pressure switch was replaced. ■ Ceiling and visibility had dropped to 450 feet and 1 mile. Crew elected to land in paved area near highway. They then waited for the weather to clear before continuing the mission. WELL DONE to the crew. ■ Smoke was seen coming from rear of aircraft. Suspect defective diffuser orifice.

TH-55

1 Incident ■ Tail rotor blades struck runway during straight-in autorotation touchdown.

3 Precautionary Landings ■ SP was hovering aircraft in preparation for slope landing when engine started running rough and would not produce enough power to hover. Maintenance inspection revealed failure of left magneto. ■ Cyclic pitch control was binding during lateral control input to both right and left directions. Cause of binding was not reported. ■ Auxiliary fuel pump assembly failed during flight.

CH-47

3 Precautionary Landings ■ Flight engineer noticed that No. 2 boost accumulator indicator read "0" pressure during ramp check. Caused by failure of preformed packing on check valve of accumulator. ■ During flight with external load, IP smelled smoke and flight engineer reported smoke and sparks around aft transmission AGB area. After mayday call, IP turned off generators and battery to make precautionary landing. While attempting to manually release load, flight engineer broke "D" ring. Three pulls were required to release the load. Smoke was caused by failure of bearing in No. 2 generator. ■ IP felt pitch control input in cyclic during flight. Caused by electromechanical linear actuator malfunction.

MESSAGES RECEIVED

■ 292020Z Jun 76—Maintenance Advisory Message for AH-1G/Q, TH-1G/UH-1C/M Helicopters and Boot Assembly, P/N 540-011-427-1, AH-1-76-11 and UH-1-76-15.

■ Maintenance Advisory Message 232000Z Jun 76, subject: CH-47 Rotor Head Lifting Devices (CH-47, 1976-9). USAAVS' Cargo Division has been advised by AVSCOM that all lifting devices which do not meet the criteria established in the maintenance advisory indicated above should be tagged as unserviceable, turned in and a new lifting device requisitioned. Immediately upon receiving a new lifting device, it should be checked against the criteria prescribed in above referenced message before it is used to remove a rotor head. Employment of this device can be critical. If instructions and procedures are not followed, serious injury to personnel and damage to material can occur.

■ DA Message 010043Z Jul 76, subject: Camouflage Painting. This message involves the use of green-tinted camouflage paints which are fading excessively and the cancellation of all outstanding requisitions for camouflage paint pending detailed instructions for overpainting. □

FIXED WING BRANCH

CPT Donald P. Johnston, Chief ■ 558-3901

0 Accidents, 0 Fatalities, 0 Injuries, Estimated Costs: \$7,000

OV-1

1 Incident ■ Aircraft was in low-level cruise flight when it struck a saguaro cactus, damaging SLAR antenna and attaching points. Aircraft was landed without further damage. *Low-level tactics should not be used as an excuse to risk lives and equipment unnecessarily. In this case the difference between an incident and an accident was probably only a matter of inches.*

1 Precautionary Landing ■ Fuel pressure on No. 2 engine dropped to zero and engine quit. Single-engine landing was made without incident. Caused by internal failure of fuel control.

MAKE AVIATION SAFETY THE SPIRIT OF '76

T-42

1 **Precautionary Landing** ■ During climb, pilot noticed No. 2 engine fuel pressure fluctuating between 7 and 12 psi. No. 2 engine rpm started to decrease from 100 to 200 below No. 1. Pilot canceled flight and returned to home base. Maintenance replaced ejector pump.

U-3

1 **Precautionary Landing** ■ Left landing gear light did not illuminate when gear was extended. Gear was recycled three times before green light came on. Down limit switch terminal broke on wire E450-53, resulting in intermittent power to green light. (ARNG)

U-8

1 **Precautionary Landing** ■ When power was reduced for descent, No. 1 engine backfired and began running rough. As power was further reduced, engine failed. Engine was secured and single-engine landing was made. No. 1 cylinder exhaust valve failed.

U-21

1 **Incident** ■ (E series) After night tactical training mission, postflight inspection crew discovered upper left VHF antenna missing. Suspect previous unseen damage due to normal wear and service life of antenna.

5 **Precautionary Landings** ■ (A series) At cruise flight, copilot noticed fuel siphoning from No. 2 nacelle. Landing was made, filler cap was resecured, and flight continued. ■ During climb, copilot noticed heavy fuel siphoning from right wing fuel cap. Caused by deteriorated preformed packing, NSN 5330-00-251-9371. ■ (E series) During after-takeoff check, crew saw fuel siphoning from around left wing tank. Filler cap was replaced. *This is the sixth loose cap reported within the past month. Either our preflights are sloppy or we need more EIRs submitted for faulty caps.* ■ (H series) At 1.7 hours into mission, right fuel transfer light activated. Mission was aborted and pilot returned to home base. Caused by failure of fuel pump, NSN 2915-00-156-9962. ■ Pilot had unsafe landing gear indication and recycled with same results. Landing gear circuit breaker was pulled and manual gear extension system was engaged. Two strokes confirmed gear would not extend any farther. Ground personnel stated gear appeared normally extended. Two touch-and-go landings were made. On both attempts left main gear collapsed and aircraft had to be lifted off runway. Pilot was advised by unit ASO to hold in local area until alternate solutions could be checked. Unit SIP suggested another touch-and-go landing with brake pressure applied on this attempt. Pilot touched down at 100 KIAS with light brake pressure. Pilot completed landing with only the brakes overheating. Caused by internal failure of left main gear actuator assembly. *WELL DONE to CW2 Dan L. Sullivan, 156th USASA Avn. Co., Ft. Bliss, TX. This is an outstanding example of teamwork.* □

MAINTENANCE MISHAPS

MSG B. R. Bailey ■ 558-3913

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

OV-1

1 **Precautionary Landing** ■ After landing gear was extended, right main gear indicated unsafe. Gear was recycled five times with the same indication. Gear was lowered using emergency gear extension system and landing was made without further incident. Electrical wire to right main landing gear down lock switch was broken in splice approximately 7 inches from switch. □

A WELL DONE was given to a pilot in FLIGHTFAX, Vol. 4, No. 35, 23 June 1976, for his successful handling of an oil cooler failure and subsequent hydraulic failure. USAAAVS did not mean to imply by this WELL DONE that the possible violation of AR 95-1, par. 3-30, in climbing to an altitude of 12,500 feet without supplemental oxygen is condoned. The pilot's reaction to an emergency was considered fitting of recognition. We hope this will clear up any confusion in this area.

4 Mishaps, 0 Fatalities, 1 Injury, Estimated Costs: \$1,450

UH-1

■ Mechanic was towing UH-1H. During turn, tail rotor of aircraft being towed struck parked UH-1H, damaging upper aft right cabin area and stabilizer bar. Ground guide was being used. Supervisory error was a definite factor. Instruction and counseling on the procedures and inherent safety hazards involved in ground handling operations have been reemphasized. ■ Rip and scratch were found on underside of UH-1 during maintenance inspection. Interviews and investigations did not reveal any evidence of when or how damage occurred. All unit personnel were briefed by the ASO about this mishap, and the seriousness of covering up any information that would determine the cause of the mishap.

OH-58

■ NCOIC of maintenance was performing PMD inspection on OH-58 and was standing on right front cross tube wiping down top of aircraft when his foot slipped off cross tube. As he started to fall, he grabbed the OAT gauge probe which broke loose from windshield, leaving 5-inch square hole. Work order was submitted to fabricate six wooden stands to be used when wiping top of aircraft.

AH-1

■ While boarding AH-1G, individual slipped off boarding step and landed on his right ankle, spraining it. Step was painted with nonskid paint, but individual's boots were wet from walking across grass to aircraft. All personnel should be cautioned of the danger of wet soles on metal surfaces.

CORRECTION (CH-47)

References:

- a. CH-47 aviation-related ground mishap reported in FLIGHTFAX, Vol. 4, No. 33, dated 9 June 1976.
- b. Maintenance Advisory Message (232000Z June 76) (CH-47, 1976-9) from USAAVSCOM, subject: CH-47 Rotor Head Lifting Device.

The report of the mishap that was published (reference a) alleged the cause to be "inattention of the supervising NCO." Maintenance Advisory Message (reference b) establishes that the lifting device being used (P/N 114E5899-19) exceeded safe between-finger measurement (must not exceed 15.25 inches) for rotor head removal with blades *removed*. Therefore, the out-of-tolerance lifting device being used (measured 15.75 inches between fingers) is considered the cause of the mishap regardless of the irregular procedures employed by the crew; i.e., not removing rotor blades and not inserting the three quick-release pins before removing the rotor head.

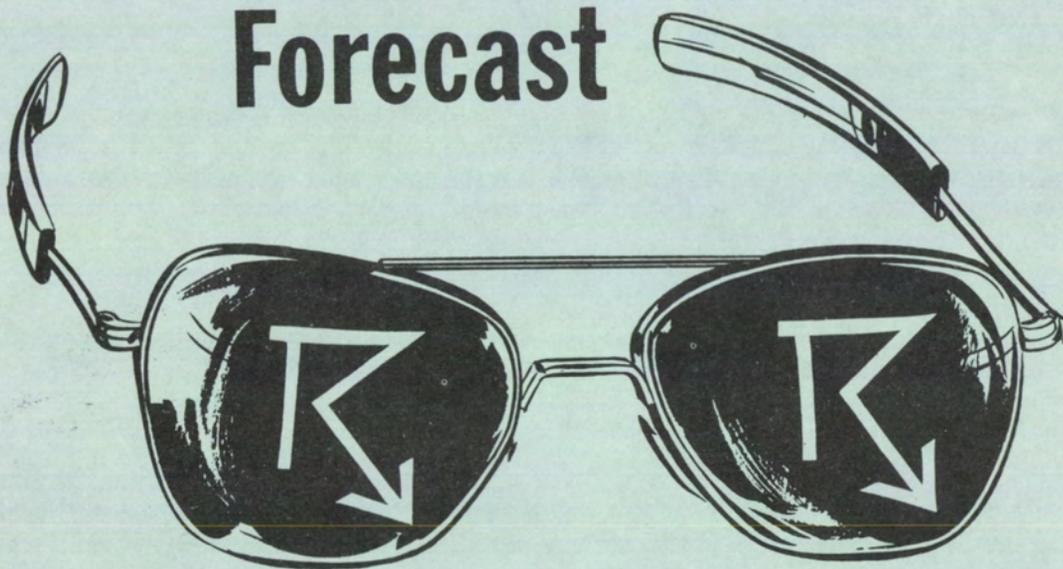
SUBMITTAL OF EQUIPMENT IMPROVEMENT RECOMMENDATIONS

Effective immediately, all EIRs (DA Form 2407) related to Army aviation equipment will be forwarded to Commander, AVSCOM, St. Louis, Missouri, ATTN: DRSAV-FEM.

CORRECTION

Reference STACOM copy in FLIGHTFAX, Vol. 4, No. 36, dated 30 June 1976, page 6. Answer concerning TM 10-1101 should have read: TM 10-1101 has been supplemented (not superseded) by FM 10-68 (Aircraft Refueling), dated December 1975. □

Summer Forecast



DEPARTMENT OF THE ARMY
UNITED STATES ARMY
AGENCY FOR AVIATION SAFETY
FORT RUCKER, ALABAMA 36362

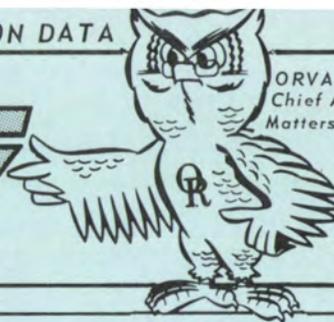
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DOD-314



FLIGHT FAX



ORVAL RIGHT
Chief Advisor on
Matters of Aviation

A USAAAVS PUBLICATION

VOL. 4, NO. 39 ■ 21 JULY 1976

JUL 28 Rec'd

mishaps for the period of 2-8 JULY 1976

Schedule Of USAAAVS Educational Courses

US Army Aviation Training Library
Fort Rucker, Alabama 36360

AVIATION SAFETY OFFICER COURSE (ASOC)

Class	Report	Start	Close
77-1	1 Oct 1976	5 Oct 1976	17 Dec 1976
77-2	5 Jan 1977	10 Jan 1977	18 Mar 1977
77-3	23 Mar 1977	28 Mar 1977	3 Jun 1977
77-4	8 Jun 1977	13 Jun 1977	19 Aug 1977
77-5	24 Aug 1977	29 Aug 1977	4 Nov 1977

Eligibility Requirements: Personnel selected to attend the ASO Course should meet the following criteria:

- A rated Army aviator assigned or to be assigned the duties of an Army Aviation Safety Officer, MOS 7423, or warrant officer Flight Safety Technician, Additional Skill Identifier (ASI), Suffix "B"; currently serving in an aviation assignment.

- A civil service Army flight instructor; or
- A contract civilian Army flight instructor; or
- A safety director, or assistant, of a major command or an installation having assigned Army aircraft.

Prerequisites:

- High school level mathematics and physics or equivalent prior to attendance at the ASO Course is required. A review of these subjects just prior to attendance would be wise.

- Maintenance and/or instructor pilot background is desirable but not mandatory.

Service Obligation and Utilization Tours: An obligated tour of 1 year active duty service for officers and warrant officers computed from the date of course completion or termination of attendance for academic reasons, whichever is earlier. Civil service personnel should agree to a minimum of 2 years in a utilization assignment in the GS 1815/1825 job series involving Army

Continued on page 2.

ATTENTION ASOs! EIRs REQUIRED

Many of the PRAMs we receive do not show that EIRs are being submitted in accordance with TM 38-750, par. 3-16c. This information is needed to initiate early and effective corrective action.

An emergency or urgent EIR is required on any condition involving safety of flight or hazard to personnel.

Routine EIRs are required in those cases where a flight abort results from a materiel failure or malfunction even though an emergency EIR is not warranted (except as outlined in TM 38-750, par. 3-16, C(7)&(8)).

The routine EIR must reference the PRAM and identify the cause of the flight abort. Make sure you enter the EIR control number as item 14 of the PRAM.

SAFETY-OF-FLIGHT MESSAGE

061830Z Jul 76, subject: Safety-of-Flight Message: One-Time Inspection of Centrifugal Droop Stop Installation on all CH-47A, B, C Aircraft, TB 55-1500-210-20-32 (CH-47, 1976-10). *Summary:* Reports have been received wherein centrifugal droop stops failed to engage during shutdown and almost caused blade-fuselage strikes. The stops did not engage because of binding between the balance arm and the aft rotor head. The purpose of this TB is to inspect for and eliminate binding in the centrifugal droop stop assembly. *Contact:* Mr. Walter Kane, AVSCOM, AUTOVON 698-6042, commercial 314-268-6042.

Continued from front page.

aviation safety after course completion.

Quota Allocation: An Army quota allocation of 30 students per class will be maintained by the Deputy for Professional Development (MILPER-CEN). Course quotas will be suballocated to appropriate career branches and Aviation Warrant Officer Branch based on worldwide aviation safety officer requirements.

After being officially selected for attendance, students should phone AUTOVON 558-4510/3493, commercial 205-255-4510/3493, for a student information packet.

**AVIATION ACCIDENT PREVENTION
MANAGEMENT COURSE (AAPMC)**

Class	Start	Close
7T-1	5 Jul 1976	16 Jul 1976
7T-2	2 Aug 1976	13 Aug 1976
7T-3	30 Aug 1976	10 Sep 1976
77-1	11 Oct 1976	22 Oct 1976
77-2	25 Oct 1976	5 Nov 1976
77-3	10 Jan 1977	21 Jan 1977
77-4	21 Feb 1977	4 Mar 1977
77-5	28 Mar 1977	8 Apr 1977
77-6	11 Apr 1977	22 Apr 1977
77-7	9 May 1977	20 May 1977
77-8	11 Jul 1977	22 Jul 1977
77-9	8 Aug 1977	19 Aug 1977
77-10	22 Aug 1977	2 Sep 1977

**AVIATION ACCIDENT PREVENTION COURSE
(AAPC)**

Class	Start	Close
7T	23 Aug 1976	3 Sep 1976
77-1	8 Nov 1976	19 Nov 1976
77-2	7 Feb 1977	18 Feb 1977
77-3	25 Apr 1977	6 May 1977
77-4	20 Jun 1977	1 Jul 1977
77-5	25 Jul 1977	5 Aug 1977

GROUND SAFETY COURSES

**FUNDAMENTALS OF ARMY ACCIDENT
PREVENTION (FAAP)**

Class	Start	Close
77-1	24 Jan 1977	4 Feb 1977
77-2	6 Jun 1977	17 Jun 1977

**ARMY SAFETY PROGRAM MANAGEMENT
(ASPM)**

Class	Start	Close
76-4	13 Sep 1976	1 Oct 1976
77-1	29 Nov 1976	17 Dec 1976
77-2	7 Mar 1977	25 Mar 1977
77-3	12 Sep 1977	30 Sep 1977

**OCCUPATIONAL SAFETY & HEALTH
ADMINISTRATION (OSHA)**

To be developed and announced.

MAKE AVIATION SAFETY THE SPIRIT OF '76

**U.S. ARMY AGENCY FOR AVIATION SAFETY
FORT RUCKER, ALABAMA 36362**

Prepared from information compiled by the
Directorate for Aircraft Accident Analysis
and Investigation

Lieutenant Colonel Curtis M. Sanders, Director
Distribution to Army commands for accident prevention
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COMMERCIAL: 255-XXXX AUTOVON: 558-XXXX
Questions Concerning Aviation Portions of
ARs 95-5, 385-40, and 385-10 4479/4812
For Assistance in Locating Proper Directorate 4479
Aircraft Accident Analysis and Investigation 3913/4202
Technical Research and Applications 6404/6410
Plans, Operations, and Education 4479/4812
Management Information System 5286/4200
Publications and Graphics Division 6385/3493
Medical Division 6788
After-duty tape recording of incoming calls to be returned
the following day (hours: 1615 to 0730) 6510

0 Accidents, 0 Fatalities, 0 Injuries, Estimated Costs: \$18,302

UH-1

3 Incidents ■ Engine was started with engine inlet cover installed. Maintenance inspection revealed damage to engine inlet screens, firewall, short shaft, and particle separator. ■ Two incidents with main rotor blade strikes occurred during takeoff from confined areas.

1 Forced Landing ■ Aircraft was hovering on taxiway when three compressor stalls occurred. Pilot made hovering autorotation. Cause of failure is undetermined. *A team of engine experts are currently visiting field units and CCAD. Indications are that some specific maintenance deficiencies may have been discovered which could be causing the increasing number of compressor stalls. Will keep you advised!*

23 Precautionary Landings—following are selected briefs ■ Hydraulic caution light came on during landing. Caused by hydraulic pressure switch failure. ■ Master caution, 20-minute fuel segment, and right fuel boost segment lights came on. Aircraft was landed, refueled with 146 gallons, MOC'd, and released for flight. ■ Battery overheated in cruise flight. Suspect voltage regulator was set incorrectly. ■ Right cargo door vibrated open. Aircraft was landed, door secured, and flight resumed. ■ Master caution light illuminated, indicating tail rotor chip detector. Caused by short in tail rotor chip detector wire.

1 Human Factor Mishap ■ Pilot and IP had been at 10,000 feet msl in VMC for 1.3 hours for instrument renewal exam. During instrument approach, pilot had difficulty responding to radio calls. Identification of intersections was slow and pilot was slow to identify approach course. After turning localizer and identifying that he had passed through approach course, pilot laughed, with no attempt to make any corrections toward approach course. ATC advised pilot of the situation and corrections were made. IP took controls at 100 feet agl and told pilot to take the hood off. By this time, the effects of the hypoxia subsided and pilot made good emergency panel ASR approach.

1 Cargo and Personnel Handling Equipment Mishap ■ Aircraft had just departed PZ with sling load when load dropped on climbout. Cargo hook operation was normal during preflight and pretakeoff checks. After landing, cargo hook was found to be malfunctioning both mechanically and electrically. Hook would not fully lock when closed. It needed cleaning and lubricating.

AH-1

4 Precautionary Landings ■ Transmission bypass oil light came on and transmission oil pressure dropped to 22 psi. Inspection revealed cracked elbow fitting at oil cooler. ■ Hydraulic warning light illuminated. Caused by hydraulic pressure switch failure. ■ At 2,000 feet msl, cyclic control became extremely stiff and began motoring left and right. Suspect internal failure of lateral servo cylinder assembly. ■ Engine oil pressure gauge fluctuated 40 psi in flight. Caused by engine oil pressure gauge failure.

MESSAGES RECEIVED

- R061345Z Jul 76—Technical Advisory Message, Change to TM 55-1520-210-10 Operator's Manual, Army Model UH-1D/H Helicopter, dated 25 Aug 71, Change 13 (UH-1-76-4).
- R091907Z Jul 76—Change 1 to TB 55-1500-260-20-25, One-Time Inspection for Oil Cooler Installation of the UH-1B/C/D/H/M, TH-1G, and AH-1G/Q Series Aircraft. Reference Safety-of-Flight Message, UH-1-76-14 and AH-1-76-10, same subject, dated 012025Z Jul 76. □

HELPFUL HINTS OF THE WEEK

The DA Form 759 has twelve blocks in Section IV to record the hours flown by month during the fiscal year. The FY 76 close-out 759's must also include the hours flown in FY 7T, July through September 76. So that we are all consistent and so that the USAAAVS coding clerks and key punch operators can zip

through 15,000 Form 759's with the least difficulty, request all units extend the July, August, and September blocks on the 759 down into the "Remarks" block, like this:

FY 76	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN
FY 77	JUL	AUG	SEP									

We know that the "Remarks" section of the 1968 version of the form is much smaller than the 1974 version, but that can't be helped. One more item, operations officers—please enter the aviator's date of birth somewhere in the "Remarks" section. Our human factors analysts really need this information!

LOH/CARGO BRANCH

MAJ Robert P. Judson, Chief ■ 558-4202

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

OH-58

1 Incident ■ Main rotor blades struck yucca bush during authorized/supervised NOE flight.

1 **Forced Landing** ■ As aircraft turned on final approach, N2 tachometer dropped to 75% and audio warning came on. Emergency autorotation landing was made. Double check valve failed.

6 **Precautionary Landings** ■ During engine start, fire guard saw smoke coming from engine area. Pilot then aborted start. Suspect failure of No. 5 bearing pack. ■ During flight, heading and wind placed aircraft north of camp instead of south. When area was identified, aviator landed for lack of fuel. Aircraft was refueled and proceeded to destination. ■ Fuel gauge dropped rapidly. At 100 pounds, landing was made. Twenty-minute fuel light did not come on. Caused by loose connection to fuel gauge cannon plug. ■ Engine chip detector light came on during hover for takeoff. Large piece of metal and several smaller chips were found on plug. ■ DC amps rose to 50 amps and smoke was seen emitting from battery vents. Inspection revealed internal failure of two or more cells. ■ Engine power bled off from 103% to 98% on three separate occasions. Each time it bled off it lasted approximately 30 seconds. Aircraft was flown back to base and maintenance inspection was performed. Suspect faulty fuel control. *How about a dirty or sticking double check valve?*

CH-47

3 **Precautionary Landings** ■ During sling load operations pilot was unable to control rotor rpm with normal or emergency engine trim. As aircraft moved away from load, rotor rpm increased to 260. Pilot made hovering autorotation. Both N2 actuators were stuck in full open position. ■ Crew chief noticed excessive oil leak in vicinity of aft pylon. Oil cooler was replaced. ■ No. 2 engine was disabled in normal trim and No. 2 emergency was decreased all the way. No. 2 engine continued to decelerate below 30% N1 and PTIT rose to 1,000° before condition lever could be moved to stop. Engine failure procedures were completed and running landing was made. Cause unknown.

DID YOU KNOW?

The CH-54B Crane has a voice recorder that is capable of recording voice inputs from the cockpit. We recommend that before the first flight of the day, the date and time be placed on the tape. Units may also devise other ways to fully use this tape capability. □

FIXED WING BRANCH

CPT Donald P. Johnston, Chief ■ 558-3901

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

U-8

3 **Precautionary Landings** ■ Crewmember noticed fire in rear of aircraft. Pilot secured inverters, mission equipment, and all unnecessary radios. Fire stopped without using an extinguisher. Postflight inspection

revealed inverter filter had burned due to electrical overload and circuit breaker did not pop. ■ During prelanding check, right main gear indicated unsafe. Emergency extension procedures were followed and tower confirmed gear down. Wire to gear light was loose. (USAR) ■ Series of shudders, engine roughness, and slight vibration occurred during cruise flight. Small reduction of airspeed was the only instrument indication of a problem. Oil began to seep from No. 1 engine cowling after about 10 minutes. Landing was completed and vibration became severe during taxi. Inspection revealed metal fragments in No. 2 cylinder. Suspect blown piston. (USAR)

RU-21

1 Precautionary Landing ■ (H model) No. 1 engine torque pressure and rpm fluctuated. Cause undetermined.

U-3

1 Precautionary Landing ■ Pilot noticed oil flowing from vicinity of oil filler cap access door and immediate landing was requested. No. 1 engine was secured about 5 miles from touchdown and single-engine landing was successful. Oil cap was not properly secured. □

MAINTENANCE BRIEFS

MSG B. R. Bailey ■ 558-3901

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

UH-1

1 Precautionary Landing ■ Engine oil pressure fluctuated. Postflight inspection revealed loose engine oil return line to engine oil cooler. □

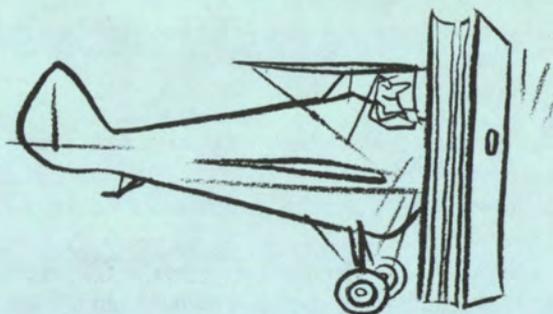
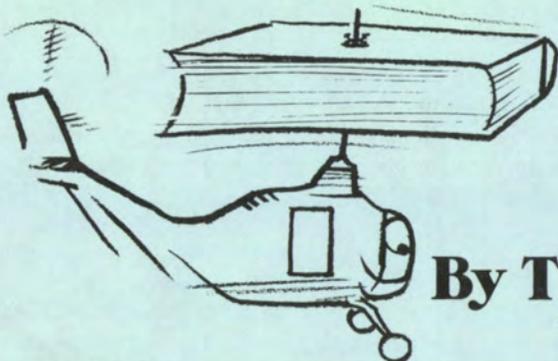
AVIATION-RELATED GROUND MISHAPS

William P. Christian ■ 558-4202

2 Mishaps, 0 Fatalities, 0 Injuries, Estimated Costs: \$1,156

OH-58

■ Crew chief was unloading equipment from his aircraft after arriving at field training site. Four OH-58 pilot compartment doors were offloaded and laid on the ground near tail boom. Two UH-1s arrived at LZ and rotorwash caused one of the OH-58 compartment doors to be blown against OH-58, damaging door and tail boom. Unit SOP will reflect that aircraft will not be unloaded in an active LZ unless equipment is immediately secured. ■ While backing an M49A2C fuel truck between two parked aircraft, truck driver misjudged clearance and backed into stabilizer assembly. Unit SOP will be changed to read that a ground guide will be required at all times when vehicles are moving in close proximity to aircraft. *It seems that we've had the same type incident with the same results and the same recommendation reported six weeks in a row. Is anybody out there reading these excerpts?* □



**By The Book Procedures-
THE ONLY WAY**

SYNOPSIS 5-76

Type Aircraft: UH-1H
 Time: 1005 Classification: Major (Total)
 Fatalities/Injuries: No Fatalities, 3 Injuries
 Estimated Materiel Damage Cost: \$293,070
 Mission: Training-instrument checkride
 Grade/Age/Experience:

	Grade	Age	RW Hrs	FW Hrs	Tot Flt Hrs
P	CW2	26	1546	-	1546
CP	MAJ	37 (FRG)			2850
IP	CW3	37	3254	897	4141

Description of Accident: During a missed approach at AHP on a normal climbing right turn at 1,100' msl, a loud noise was heard and engine and rotor momentarily decreased. Low side governor failure was suspected. Autoro-

tation was entered, throttle retarded to flight idle, and governor placed in emergency position. When throttle was increased the engine oversped. Throttle was decreased to shutoff and engine flamed out. Airspeed was zeroed just above trees and pitch pulled as aircraft entered trees and crashed.

Causes of Accident

Initial: Materiel failure (short shaft).
Contributing: Inadequate lubrication of short shaft. Lack of a suitable forced landing area from failure altitude resulted in increased damage.

Remarks: Instructor pilot (IFE) was in jump seat and did not have access to controls. New design short shaft which does not require lubrication presently undergoing evaluation.



SYNOPSIS 6-76

Type Aircraft: UH-1H
 Time: 2245 Classification: Major (Total)
 Fatalities/Injuries: No Fatalities, 1 Injury
 Estimated Materiel Damage Cost: \$293,070
 Mission: Service-passenger haul coupled with night training
 Grade/Age/Experience:

	Grade	Age	RW Hrs	FW Hrs	Tot Flt Hrs
IP	MAJ	38	865	2866	3731
P	2LT	26	218	2782	3000

Description of Accident: Aircraft was flying downwind. As IP started right turn to base, right skid struck ground, followed by left skid. After skidding 85'4", it again became airborne. While airborne, both rotor blades cut through tail boom. Helicopter then landed on

right skid, causing right skid to separate. Aircraft continued to roll right and both rotor blades struck the ground, causing transmission to separate from aircraft. Aircraft came to rest on right side.

Causes of Accident

Initial: IP failed to maintain sufficient altitude in traffic pattern at night and flew aircraft into ground.

Contributing: Airfield was inadequately lighted for night visual approach. Supervision-lack of published traffic pattern procedures.

Errors: IP failed to maintain altitude in 300' traffic pattern and attempted to make visual approach without visual references. Supervisory error in not providing adequate lighting and procedures.

FY 76 ACCIDENT BRIEF

FY 76 ACCIDENT BRIEF

FY 76 ACCIDENT BRIEF

FY 76 ACCIDENT BRIEF

FY 76 ACCIDENT BRIEF

SYNOPSIS 7-76

Type Aircraft: **UH-1H**
 Time: 0945 Classification: Major (Total)
 Fatalities/Injuries: 3 Fatalities, 1 Injury
 Estimated Materiel Damage Cost: \$293,070
 Mission: Training-visual recon
 Grade/Age/Experience:

	Grade	Age	RW Hrs	FW Hrs	Tot Flt Hrs
P	1LT	25	467	-	467
CP	None on board				

Description of Accident: Aircraft was operating at high hover over lake while guiding 2½-ton truck. Aircraft began clockwise rotation and pilot was unable to recover. Aircraft struck the water approximately 125' from shore. All six persons escaped from the aircraft. Three drowned while attempting to swim to shore.

Causes of Accident

Initial: Crew error-pilot attempted to operate

aircraft outside design envelope (over performance gross weight).

Contributing: Supervisory-Unit commander failed to monitor training and proficiency of pilot in that he allowed pilot to fly 25 hours over a period of three months without successfully completing required annual standardization ride. Pilot-Not experienced in operation of a UH-1 at or near maximum gross weight. Weather-High density altitude and gusty winds.

Errors: Pilot attempted to operate aircraft outside performance envelope, i.e., above performance gross weight.

Remarks: Aircraft was equipped with non-crashworthy 300-gallon internal auxiliary fuel tanks that were full for a local area, short duration flight (1,950 pounds of fuel carried as unnecessary weight). Pilot was not current in aircraft. He was 60 days over standardization ride.



SYNOPSIS 8-76

Type Aircraft: **UH-1H**
 Time: 0015 Classification: Major (Total)
 Fatalities/Injuries: No Fatalities, 1 Injury
 Estimated Materiel Damage Cost: \$293,070
 Mission: Unauthorized flight attempted by enlisted crew chief

Description of Accident: Crew chief (CQ) attempted to fly aircraft. Aircraft struck ground approximately 400 feet from takeoff point. POL specialist was passenger in copilot's seat. POL specialist was not injured.

Causes of Accident

Initial: Crew chief attempted unauthorized flight.

Contributing: Crew chief was under influence of alcohol.

Errors: Crew chief attempted flight under influence of alcohol. No unit directives existed restricting use of alcohol while on duty.

Remarks: Unit security locking devices were installed. Keys were under control of CQ. As a result of this mishap, a change to par. 4-4D(5), AR 385-40, regarding accountability for accidents was recommended and approved. As a result, this type accident will be included in the command's aircraft accident mishap experience, but will no longer be included in the aircraft accident rate of the command.

FY 76 ACCIDENT BRIEF

SAFETY PIN HAZARD

A Navy AH-1J was being used in a recent static display. Sometime during the display, the safety pin was removed and the canopy jettison handle was turned left approximately 90°, arming the canopy removal system. Had the canopy jettison handle been pulled, the removal system would have been activated. The unit involved recommended that both safety pins on the canopy removal system be shear wired before the start of static display programs and that pilots be thoroughly briefed on the potential safety hazard existing should safety pins be removed, handles turned, and system armed.

SUMMER NICAD BATTERY PROBLEMS

Nicad batteries have been a major concern to all aviators in the past. Hot summer months are still causing nicad battery problems in terms of fires, explosions, corrosion, and thermal runaway conditions. These conditions cause many needless mishaps. Last week we received seven battery-caused mishap reports; so far this summer we have been receiving an average of five to seven battery problems weekly.

Someday all aircraft now equipped with nickle cadmium batteries will hopefully have a different type battery or a battery temperature monitoring device installed. Until then, we suggest that you comply faithfully with the maintenance instructions contained in TM 11-6140-203-15 series.

We also suggest that you keep USAAVSCOM informed by complying with instructions in TM 38-750, chapter 3, par. 3-16, and AR 95-5, part 3, chapter 13. Through this media, our testing and procurement programs may be speeded up.

DEPARTMENT OF THE ARMY
UNITED STATES ARMY
AGENCY FOR AVIATION SAFETY
FORT RUCKER, ALABAMA 36362

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VOL. 4, NO. 4 ■ 29 OCTOBER 1975

mishaps for the period of 10-16 OCTOBER 1975

US Army Aviation Training Library
Fort Rucker, Alabama 36360

EIR'S for Clothing and Textile Items

Deficiencies in quality and design of aircrewmens clothing and/or textile items should be reported in accordance with TM 38-750 to the U.S. Army Troop Support Command, ATTN: AMSTS-MAD, 4300 Goodfellow Boulevard, St. Louis, MO 63120 (TM 38-750, Appendix B, Section II designee as the National Maintenance Point for clothing and textile items). DA Forms 2407 and 2407-1 are the prescribed forms. Indicate in block 35 of DA Form 2407 all available data to include quantity of defective items, contract numbers, noted deficiencies, and any other information that would be of assistance to personnel evaluating the EIR.

Although not required by regulation, it is desired that copies of EIR's also be furnished to:

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

Commander
U.S. Army Aeromedical Research Labs
ATTN: SGRD-UAE-L
Ft. Rucker, AL 36362

Commander
U.S. Army Agency for Aviation Safety
ATTN: IGAR-TA
Ft. Rucker, AL 36362

Commander
U.S. Army Natick Development Center
ATTN: AMXMA-VCA
Natick, MA 01760

If it appears there are a lot of addressees, it is purely intentional. This provides the responsible "chain" with necessary information which will assure quick response and action to provide the user with the best possible aviation life support system equipment to support their mission.

For further information on EIR's pertaining to aviation life support equipment, read the article entitled "EIR-LSE" in the October issue of the U.S. ARMY AVIATION DIGEST.

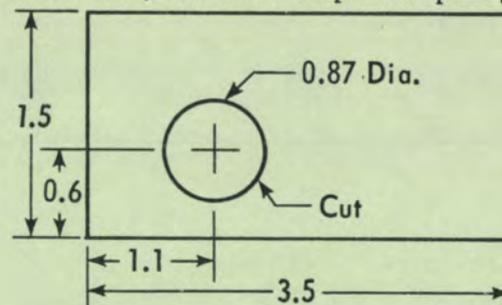
Should information be needed on aviation life support system equipment, contact the U.S. Army Systems Manager for Aviation Life Support Equipment, ATTN: AMSAV-WL, U.S. Army Aviation Systems Command, P.O. Box 209, St. Louis, MO 63166, or call AUTOVON 698-3241/3291.

KEEPING BIRDS OUT OF TAIL BOOMS

To keep birds from entering the OH-58A tail boom in the vicinity of the bellcrank assembly, NSN 1560-00-125-4271, and the connecting link, rigid, NSN 1615-00-131-6386, AVSCOM has provided a fix. This fix can be found in the August 1975 EIR and Maintenance Digest, TB 43-0001-2-4, pages 8 and 9. Data contained in this TB is quoted here for your information.

"To eliminate this problem, a fine mesh nylon screen (window screen) may be locally purchased (cost \$0.40 per square yard) to close up the sheet metal hole through which passes the tail rotor pitch connecting link. The following dimensions may be used (see figure below).

"Clean sheet metal area around hole. Bond screen to sheet metal with Pro-Seal, item 204, table 1-1 in TM 55-1520-228-20. To prevent fraying, Pro-Seal edge of hole. Total man-hours installation time, one hour. Inspect on preflight."



UTILITY/ATTACK

Fatalities: 0 ■ Accidents: 1
Injuries: 0 ■ Estimated Costs: \$73,400

BRANCH

■ CPT James M. Klina, Jr., Chief
SP6 Roland L. Allen, Jr.
558-4198

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

UH-1

1 **ACCIDENT** ■ While extracting troops from landing zone, aircraft struck wires and landed hard, damaging tail boom, tail rotor drive shaft, and crosstubes.

2 **INCIDENTS** ■ During cruise flight at 1,200 feet aircraft struck bird, breaking chin bubble on left side.
■ Right sliding cargo door separated from aircraft when passenger attempted to close it. Caused by worn door track.

1 **FORCED LANDING** ■ Hydraulics failed, accompanied by left cyclic hardover. Hydraulic switch was cycled, and pilot recovered from unusual attitude and landed.

32 **PRECAUTIONARY LANDINGS**—following are selected briefs ■ Tail rotor chip detector light came on. Metal chips were found on plug and special oil sample was submitted. ■ Pilot noticed smoke coming from battery vent. Battery was turned off and aircraft was landed. Battery was replaced. ■ Hydraulics failed in flight. Caused by failure of irreversible valve. ■ Right fuel boost pump caution light came on because of boost pump failure. ■ Fire warning light came on. Inspection revealed loose cannon plug. ■ Engine chip detector light came on. Small metal sliver found on plug; special oil sample was submitted. ■ After dropping sling load, pilot noticed power surges and loud reports from engine. Inspection revealed No. 2 bearing seal had failed, allowing oil to enter compressor section.

AH-1

1 **INCIDENT** ■ Departing confined area, pilot was blinded by sun and tail rotor struck tree, causing small dents in leading edge of both tail rotor blades.

9 **PRECAUTIONARY LANDINGS** ■ Two aircraft had transmission oil pressure loss. Both were caused by crack in elbow line at base of transmission oil sump. ■ Pilot felt lateral feedback in cyclic. Cause unknown. ■ Engine oil pressure warning light came on during takeoff. Caused by failure of engine oil pressure switch. ■ Hydraulic pressure light came on. Caused by tail rotor servo line chafing against control linkage. ■ Loud snapping noise was heard from engine. Suspect No. 3 and No. 4 engine bearing seizure. ■ Fore and aft mag brake would not release during takeoff. Cause not reported. ■ One tail rotor and one engine chip detector light came on. Both were caused by fuzz. □

LOSS OF RESOURCES FROM THIS WEEK'S MISHAPS

FATALITIES: 0
INJURIES: 2
AIRCRAFT LOSSES: 1
ESTIMATED COSTS: \$196,408

UNITED STATES ARMY AGENCY FOR AVIATION SAFETY
FORT RUCKER, ALABAMA 36362
Commander/Deputy Commander 558-3410/3819
For Assistance in Locating Proper Directorate 558-6510
Aircraft Accident Analysis and Investigation 558-3913/4202
Technical Research and Applications 558-6404/6410
Plans, Operations, and Education 558-4812/6510
Management Information System 558-4200/2920
Publications and 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.

LOH/CARGO

Fatalities: 0 ■ Accidents: 0
Injuries: 0 ■ Estimated Costs: \$268

BRANCH

■ MAJ Robert P. Judson, Chief
SFC D. T. Farrar/SFC R. G. Farris
558-4202

Two incidents and fifteen precautionary landings were reported.

OH-6

2 PRECAUTIONARY LANDINGS ■ Main transmission chip detector light came on. Cause not reported. ■ Excessive TOT was noted during flight. Instruments read 102% N₂, 91% N₁, 46 pounds torque, and 800° TOT. Reduction of power to 40 pounds brought TOT to 749°. Cause of excessive TOT is under investigation. (ARNG)

OH-58

2 INCIDENTS ■ Fuselage skin damage occurred from unsecured seat belt flapping against side of helicopter. ■ During authorized and supervised NOE flight, pilot was startled by explosion of artillery simulator 25 to 50 meters behind aircraft. Tail dipped down and aircraft struck stump with vertical stabilizer. Lower leading edge of stabilizer was damaged.

7 PRECAUTIONARY LANDINGS ■ Engine chip detector lights of two aircraft came on. Suspect one was caused by internal malfunction. EIR submitted. The other was caused by small sliver of metal on new engine. ■ Tail rotor chip detector light came on. Plug was cleaned, EIR submitted, and aircraft released. ■ N₂ governor would not compensate for increase or decrease of collective. Caused by malfunction of governor, P/N 2524438-1. ■ N₂ dropped to 88% when collective was applied for takeoff. Governor assembly, P/N 687425-5 is being replaced. ■ Hydraulic warning light came on. Caused by malfunction of switch. EIR submitted. ■ Low rpm warning light and audio came on. Caused by malfunction of low rpm warning system. EIR submitted.

TH-55

1 PRECAUTIONARY LANDING ■ Smoke and fumes entered cockpit during flight. Caused by faulty gasket which allowed magneto oil to be thrown on exhaust stack.

CH-47

5 PRECAUTIONARY LANDINGS ■ Transmission hot light came on. Caused by electrical short in cannon plug at station 482. ■ Aft transmission chip detector light illuminated. Caused by metal fuzz on plug. ■ No. 2 engine N₁ light came on. Caused by loose electrical connection at engine condition control. ■ Two engine chip detector light illuminations were reported. One was caused from normal fuzz and one from broken detector electrical wire at engine transmission.

THOUGHT FOR THE WEEK

ETERNITY MAY BE
JUST A GLIMPSE AWAY
IF YOU DISREGARD THAT RED X
AND FLY ANYWAY

FIXED WING

Fatalities: 0 ■ Accidents: 1
Injuries: 2 ■ Estimated Costs: \$122,740

BRANCH

■ MAJ William G. Daly, Jr., Chief
SFC John M. Terrell
558-3901

One accident and seven precautionary landings were reported.

U-1

1 ACCIDENT ■ During deteriorated weather conditions at night, aircraft struck mountain ridge line while on VFR cross-country flight. Aircraft was destroyed and the two crewmembers sustained serious injuries. Cause has not been determined but it is suspected this is another case of trying to maintain VFR in IMC.

OV-1

1 PRECAUTIONARY LANDING ■ While executing missed approach at night, pilot noticed No. 1 fire warning light. IP noted red glow from engine cowl, secured engine, and discharged both fire bottles. Aircraft remained in traffic and landed immediately. Damage and cause are unknown at this time.

U-21

2 PRECAUTIONARY LANDINGS ■ Partial flaps were lowered during approach. On short final pilot attempted to use full flaps with no response. Landing was completed and attempt to raise flaps after landing failed. Flap circuit breaker popped and smoke flowed into cockpit. Proper emergency procedures were followed and crew shut down on ramp. Caused by internal failure of flap drive motor assembly. ■ Fuel was seen siphoning from left nacelle cap during climbout. Aircraft returned, cap was reseated, and flight continued. *A positive effort must be made during preflight to properly secure fuel caps!*

U-8

3 PRECAUTIONARY LANDINGS ■ No. 2 engine chip detector light illuminated after takeoff. Small metal particle was found on magnetic plug. Oil sample was taken and aircraft released. ■ Oil temperature climbed to 113°. Cylinder head temperature and oil pressure were normal, but aircraft returned for landing. Cause of high temperature is unknown at this time. ■ During cruise No. 2 engine developed continuous 100-200 rpm fluctuation. Power was reduced and landing was made. Carburetor altitude compensator malfunctioned. (ARNG)

C-54

1 PRECAUTIONARY LANDING ■ No. 2 engine began running rough. Engine was secured and landing was uneventful. "P" lead on right magneto was malfunctioning. □

MAINTENANCE MISHAPS

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

Two precautionary landings were reported.

T-41

1 PRECAUTIONARY LANDING ■ Aircraft was 50 minutes into cross-country flight when engine began running rough. Pilot landed without incident. Before this flight, crew chief noted broken primer line and plugged it off, knowing it wasn't needed for flight. This primer line turned out to be No. 5 fuel injector line. *This mishap could have been prevented had the aircraft been placed in a "red X" condition and a TM been used. Remember, fuel is a potential fire threat and should be treated as such.*

U-21

1 PRECAUTIONARY LANDING ■ Transit light remained on after lowering gear for landing with no light on right main. After several recycling attempts and a tower flyby with negative results, gear was lowered manually and landing was successful. Down-lock landing gear limit switch was out of adjustment. □

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UNITED STATES ARMY
AGENCY FOR AVIATION SAFETY
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DOD-314



ORVAL RIGHT
Chief Advisor on
Matters of Aviation

FLIGHT FAX

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VOL. 4, NO. 40 ■ 28 July 1976
US Army Aviation Training Library
Fort Rucker, Alabama 36360

mishaps for the period of 9-15 JULY 1976

No More Nomex?

USAAAVS reviewed two suggestion evaluations (DA Form 2440) from the field recently concerning the Nomex uniform. Each suggested that no more Nomex be purchased when the present supply runs out. This would amount to "X" number of dollars saved by purchasing another uniform less expensive than Nomex. The basis for these suggestions is the outstanding performance of the crashworthy fuel system (CWFS) installed in Army aircraft. The system's performance to date has exceeded initial expectations.

From 1 July 1972 through 31 May 1976, there were 31 in-flight fires, 59 postcrash fires, and 21 "other" fires. Thirty of the postcrash fires were in aircraft equipped with the CWFS. Some of the reasons for postcrash fires in aircraft equipped with CWFS are (a) lack of a rollover fuel vent valve (UH-1) which prevents leakage in the present venting system, (b) lack of breakaway valves on some aircraft which would shut off the flow in the fuel and oil lines in the engine compartment, and (c) impact forces beyond the design limits of the system. Postcrash fires in survivable accidents (UH-1) have resulted in five thermal injuries. (Another individual survived the impact forces in a nonsurvivable accident but died of thermal injuries.) Not all of the rotary wing fleet are equipped with the CWFS; none of the fixed wing fleet are so equipped.

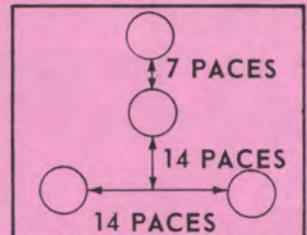
The CWFS has done a remarkable job of reducing postcrash fires, but fuel is not the only source of fire. Electrical systems, hydraulic fluid, lubricating oils, oxygen, and certain types of cargo have contributed to or are potential causes of in-flight and postcrash fires. Based on these reasons, USAAAVS does not recommend the deletion of the Nomex uniform from the supply system. Nomex is a lot like health insurance. It isn't worth much until you need it—then it's worth more than twice the price.



TACTICAL LIGHTING

Since TC 1-28, Rotary Wing Night Flight, was released to the field, several inquiries have been made concerning the spacing between lights for the inverted "Y" used in night operations. The spacing is not depicted on the drawing on page 5-9. The recommended lateral separation between the two front lights is 14 paces. The linear separation between the front two lights and the first light forming the stem is 14 paces. The distance between the two lights of the stem is seven paces.

The inverted "Y" was developed by a study group conducting research on night flying techniques at the U.S. Army Aviation Center. The aviators conducting the test found the inverted "Y" to be an improvement over the standard "T." Although both lighting configurations were presented in TC 1-28, the inverted "Y" will become the standard tactical lighting configuration. Each of the services has adopted the inverted "Y" and it is anticipated that NATO will accept it as the international standard tactical light system. For more information contact Deputy for Training Developments, USAAVNC, Ft. Rucker, AL 36362.



3 Accidents, 0 Fatalities, 17 Injuries, Estimated Costs: \$398,270

UH-1

2 Accidents ■ During climb immediately after takeoff, engine was reported to have lost power and aircraft crashed into trees. Accident is under investigation with USAAAVS participation. ■ While in cruise flight, pilot initiated precautionary landing due to unusual vibrations. Pilot added power to land in clear area and aircraft started spinning. Pilot went into full autorotation and landed in trees. Accident is under investigation.

1 Incident ■ IP was demonstrating NOE flight. Pilot stated that he thought main rotor blades clipped tree branch. Aircraft was landed and inspected. Both main rotor blades were found damaged.

3 Forced Landings ■ Severe vertical and lateral vibrations occurred during climb, aircraft yawed left, and nose pitched up. Pilot lowered collective and vibrations subsided. Power-on landing was made. Maintenance replaced engine. ■ On instrument takeoff, loud popping noise was heard and engine failed. Suspect internal engine failure. ■ Fuel odor was detected on final approach and engine failed. Caused by cracked fuel manifold.

18 Precautionary Landings—following are selected briefs ■ Pilot rolled throttle to flight idle position for shutdown. Loud noise was heard. Caused by failure of N2 tail rotor drive shaft hanger bearing. ■ On final approach, pilot felt fore and aft feedback in cyclic. Caused by failure of cyclic irreversible valve. ■ During cruise flight engine oil temperature went to 150°. Suspect failure of engine oil bypass valve. ■ Hydraulic pressure light came on. Caused by failure of hydraulic pressure switch. ■ Battery overheated on landing. Maintenance replaced battery and adjusted voltage regulator.

1 Cargo and Personnel Handling Equipment Mishap ■ During sling load operation, approximately 10 minutes into flight, sling load was dropped. Pilots stated that arm switch was “on” during the flight but they did not inadvertently jettison the load. Cargo hook was found to be operable. This unit has initiated a procedure to stamp all cargo hooks with a number so that a malfunction history record on each can be kept.

AH-1

1 Accident ■ While performing simulated antitorque failure, aircraft landed hard.

3 Precautionary Landings ■ Pilot noticed severe vibration in airframe and pedals. Caused by failure of tail rotor drive shaft hanger bearing assembly. ■ Transmission oil bypass light came on during hover for takeoff. Caused by failure of oil pressure switch. ■ Transmission oil bypass caution light came on after completion of standard autorotation. Caused by failure of oil pressure switch. □

MAKE AVIATION SAFETY THE SPIRIT OF '76

U.S. ARMY AGENCY FOR AVIATION SAFETY
FORT RUCKER, ALABAMA 36362

Prepared from information compiled by the
Directorate for Aircraft Accident Analysis
and Investigation

Lieutenant Colonel Curtis M. Sanders, Director
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COMMERCIAL: 255-XXXX	AUTOVON: 558-XXXX
Questions Concerning Aviation Portions of ARs 95-5, 385-10, and 385-10	4479/4812
For Assistance in Locating Proper Directorate	4479
Aircraft Accident Analysis and Investigation	3913/4202
Technical Research and Applications	6404/6410
Plans, Operations, and Education	4479/4812
Management Information System	5286/4200
Publications and Graphics Division	6385/3493
Medical Division	6788
After-duty tape recording of incoming calls to be returned the following day (hours: 1615 to 0730)	6510

LOH/CARGO BRANCH

MAJ Robert P. Judson, Chief ■ 558-4202

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

OH-58

5 Precautionary Landings ■ Hydraulic pressure warning light came on and pilot made running landing. Caused by failure of pressure switch, NSN 5930-00-007-766. ■ Transmission chip detector light came on. Caused by internal failure of transmission. ■ Engine surged past 108 percent N₂ when pilot assumed manual control and completed landing. Broken PR air line caused overspeed of power turbine. ■ At hover, smoke was seen coming from vicinity of left engine exhaust. Ground personnel signaled pilot to land and postflight inspection revealed broken safety at diffuser vent orifice. ■ Aircraft was in cruise flight when pilot felt slight yaw and noted N₁ fluctuation of approximately 1 percent. This fault had previously been written up on the 2408-13 awaiting the next scheduled PMP inspection for correction. Aircraft was landed and passengers discharged, with pilot electing to return to home base. In cruise flight, N₁ began to fluctuate 2 to 2.5 percent, with moderate yawing of aircraft. Pilot made precautionary landing. Power turbine governor assembly malfunctioned. *Maintenance, please give the aviator an even break. This aircraft should never have been released or accepted for flight.*

TH-55

1 Forced Landing ■ Engine ran rough and quit as aircraft was climbing on crosswind leg. Caused by cylinder failure and cracked crankcase.

CH-47

2 Precautionary Landings ■ While performing system check, transmission pressure in both right and left transmissions dropped below 20 psi. Caused by malfunctioning transmission pressure selector switch. ■ Rotor tachometer generator failed during approach.

THOUGHT FOR THE WEEK

A thorough knowledge of instrument operating ranges and a good crosscheck will enable aviators in many cases to detect a developing problem. However, once the problem is detected, the pilot must use good judgment by getting the aircraft on the ground before it becomes an emergency. The gauges and warning lights are trying to tell you something! □

FIXED WING BRANCH

CPT Donald P. Johnston, Chief ■ 558-3901

0 Accidents, 0 Fatalities, 0 Injuries, Estimated Costs: \$500

U-21

1 Incident ■ (G series) While IMC on service mission, battery exploded. Smoke and flames could be seen coming from battery compartment and cockpit began filling with smoke. Emergency descent was initiated in coordination with controller, and aircraft was vectored through IMC to emergency landing. Fire continued after shutdown until extinguished by crash crew. Entire battery area and wiring had incident damage. *Well done to CPT Steve Baily, USAARL, Fort Rucker, for handling an extremely dangerous situation in a highly professional manner.*

5 Precautionary Landings ■ (A series) Gear handle was moved to retract gear. Gear partially retracted and stopped as circuit breaker popped. Circuit was reset but popped again. After cooling period, breaker was reset and gear retracted. After extension for landing, tower confirmed gear appeared down. Maintenance found landing gear motor had malfunctioned and overheated. ■ Crew noticed fuel streaming from top inspection panel on right nacelle. Engine was secured and landing completed. Grit had caused check valve assembly to stick open, allowing fuel to vent overboard. ■ (D series) Crew detected odor and suspected battery trouble as gear was retracting. Loadmeter showed three-needle width deflection. After landing, battery was checked and found cool but was replaced. Situation could not be duplicated on test flight. ■ (G series) During obstacle clearance climb on training flight, left engine quit. SIP took controls

and landed. Primary high pressure fuel pump froze, causing drive shaft to shear. ■ (H series) On test flight after flaps were extended, crew detected burnt insulation odor and saw smoke in cockpit. All electrical power was secured, tower was contacted with survival radio, and aircraft returned for landing. Flap drive gearbox and drive shaft had failed, causing flap motor to overheat.

T-42

2 **Precautionary Landings** ■ Gear extended only half way and stopped, causing gear motor circuit breaker to pop. After allowing circuit to cool, breaker was reset and gear seemed to function normally. While returning for landing all components powered by main inverter worked intermittently. When flaps were lowered, strong electrical fumes were detected and circuit breaker popped. On final, alternator and battery switches were turned off and landing was normal. Braze rod assembly on right main gear was cracked and bent approximately 16 inches from bellcrank. Wiring for flap motor was cut, shorting out that system. ■ Crew noted excessive oil leak from No. 1 engine and returned for landing. Caused by failure of No. 3 piston.

U-8

1 **Precautionary Landing** ■ (F series) After engine shutdown on training flight, propeller would not come out of feather during restart. Single-engine landing was successful. Caused by propeller governor failure.

OV-1

1 **Precautionary Landing** ■ (D series) Windshield wiper motor failed. Set screw became loose, allowing external threaded ring to loosen. Hydraulic pressure blew O-ring. □

MAINTENANCE MISHAPS

MSG B. R. Bailey ■ 558-3913

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

UH-1

1 **Forced Landing** ■ Antitorque pedals locked on takeoff, causing aircraft to swing to right. Cause was determined to be tail rotor failure and emergency procedures were initiated. Cotter pin was left out of sprocket retainer nut.

CH-47

2 **Precautionary Landings** ■ Pilots heard unusual noise in forward rotor area. Aircraft was landed and shut down. Forward rotor blade tip cover had separated at leading edge. New tip cover was installed. Tip cover screws of other forward blades were found loose. ■ Aircraft was equipped with 600-gallon auxiliary tank. When transfer pump was turned on, crew noticed fuel level in main tanks continued to drop. IFR was cancelled and aircraft was landed. Caused by fuel quick disconnect fitting to main tanks from auxiliary tank not being fully seated. □

AVIATION-RELATED GROUND MISHAPS

William P. Christian ■ 558-4202

3 Mishaps, 0 Fatalities, 2 Injuries, Estimated Costs: \$7,924

UH-1

■ As KY-28 was being installed in aircraft, it was dropped through chin bubble, causing major damage. Haste was a major contributing factor as aircraft was needed for rush mission. ■ Mechanic was backing tractor tug to UH-1H to connect tow bar to tug. Another mechanic was holding up tow bar as tug approached. Driver of tug started to apply brakes, but stepped on gas pedal instead. Tug lurched backward, pinning mechanic holding tow bar between tug and aircraft. Tow bar jumped out of hitch on tug, striking tug driver in the back, causing him to be thrown forward and slamming his head into tug windshield. All tug drivers have been instructed to use hand throttle mounted on steering column. Meeting was held to standardize a safe method for hooking up aircraft for ground handling.

OTHER TYPE MISHAP

■ While repairing wooden cradle in maintenance shop for transporting helicopter by truck, maintenance man was nailing 2x4 brace when hammer glanced off nail, striking his left thumb and fracturing it.

FY 76 ACCIDENT BRIEF

SYNOPSIS 9-76

Type Aircraft: OH-6A

Time: 1427 Classification: Major

Fatalities/Injuries: No Fatalities, 3 Injuries

Estimated Materiel Damage Cost: \$50,997

Mission: Service-demonstration and orientation flight for local news media

Grade/Age/Experience:

Grade	Age	RW Hrs	FW Hrs	Tot Flt Hrs
P CPT	34	1280	38	1318

Description of Accident: Pilot attempted to make a low altitude, high-speed left turn in aircraft near max gross weight. Part way through the turn aircraft entered downwind condition, failed to gain sufficient altitude, and settled to the left. Main and tail rotor

blades and left skid struck the ground, followed by left side of fuselage. Aircraft slid to a stop on its left side.

Causes of Accident

Initial: Crew Error-Misjudged terrain clearance and exceeded aircraft operational capability.

Contributing: Unit command-Unit SOP did not provide guidance for conduct of orientation flights. Major command-Specific command relationships and guidance were not definitely established.

Corrective Action: The unit was provided recommended supervisory actions and management controls for inclusion in its SOP to preclude recurrence of this type mishap.



SYNOPSIS 10-76

Type Aircraft: UH-1H

Time: 1710 Classification: Major (Total)

Fatalities/Injuries: No Fatalities, 1 Injury

Estimated Materiel Damage Cost: \$293,070

Mission: Service-in support of field training exercise

Grade/Age/Experience

Grade	Age	RW Hrs	FW Hrs	Tot Flt Hrs
P CPT	28	1092	-	1092
CP CW2	29	2886	-	2886

Description of Accident: Engine failed over lake at 500' agl and 100 knots. Pilot performed proper overwater autorotation. Aircraft floated 10 to 15 seconds prior to rolling right

and sinking. One passenger exited aircraft before blades contacted water and received major injuries from blade strike.

Causes of Accident

Initial: Materiel failure of the fuel control (P-1 multiplier) resulted in complete power loss from engine.

Corrective Action: By separate correspondence with AVSCOM and AMC, the P-1 multiplier problem has been readdressed and a current program is in effect to install the new P-1 multiplier on all fuel controls returned to CCAD for repair or overhaul. To date approximately 25% of fleet have been modified.

FY 76 ACCIDENT BRIEF

SYNOPSIS 11-76

Type Aircraft: **UH-1B**
 Time: 1435 Classification: **Major**
 Fatalities/Injuries: **None**
 Estimated Materiel Damage Cost: **\$79,564**
 Mission: **Service-transport advance party to training site**
 Grade/Age/Experience:

	Grade	Age	RW Hrs	FW Hrs	Tot Flt Hrs
P	CW2	29	1390	380	1770
CP	1LT	34	1788	25	1813

Description of Accident: Engine failed over major city. On termination of forced landing, aircraft landed hard, causing major damage.
Causes of Accident

Initial: Materiel failure—engine failed because of deterioration of compressor liner.

Contributing: Inadequate supervision over unit maintenance and flight test procedures. Pilot allowed aircraft to touch down hard, resulting in collapse of landing gear.

Remarks: Improper surface preparation of the T-53-11 centrifugal compressor housing during overhaul resulted in corrosion between spray metal coating and housing with ultimate separation. Inadequate maintenance supervision at unit level failed to detect loss of engine efficiency and impending failure.

Corrective Action: USAAAVS pursued the compressor lining problem with AVSCOM recommending review of rebuild techniques. A subsequent assistance visit by this Agency to the unit identified several maintenance deficiencies and recommended necessary corrective action.



SYNOPSIS 12-76

Type Aircraft: **OH-58A**
 Time: 0830 Classification: **Minor**
 Fatalities/Injuries: **None**
 Estimated Materiel Damage Cost: **\$4,601**
 Mission: **Pilot training**
 Grade/Age/Experience:

	Grade	Age	RW Hrs	FW Hrs	Tot Flt Hrs
IP	CW2	25	2008	-	2008
SP	Cadet	20	10	-	10

Description of Accident: During practice autorotation student abruptly leveled aircraft and applied too much left pedal. Aircraft yawed left, touched down, and continued to turn left approximately 180°. IP could not correct yaw due to student having antitorque pedals

locked. Spike knock was encountered at touchdown, damaging engine mount, transmission mount, drive train assembly, and drag pin assembly. Aircraft came to rest after spinning 200° from original heading.

Causes of Accident

Initial: Crew Error—SP overcontrolled aircraft during practice autorotation.

Contributing: IP unable to regain aircraft control prior to touchdown.

Corrective Action: Unfortunately, this is another of those accidents in which the IP let the student get ahead of him to the point that the accident could not be prevented. Because of the circumstances of this mishap, no further action is contemplated by this Agency.



STACOM 6 ■ 28 JULY 1976

DEPUTY FOR STANDARDIZATION, USAAVNC, FT. RUCKER, AL 36362
COL CLEMENT A. WYLLIE ■ 558-2603/3514

QUESTIONNAIRES ON THE WAY

The Deputy for Standardization is now in the process of establishing and maintaining an IP/SIP information data bank. This data bank will be a part of the USAAVNC management information system, and a few of its uses are as follows:

- a. Identification of future IP training requirements.
- b. Determine areas and units where overages and shortages of IP/SIP exist.
- c. Assist MILPERCEN in making IP/SIP assignments.
- d. Assist in contingency planning.

The questionnaires which will form the initial data base have been completed and were mailed to the field on 2 July 1976 with all the necessary privacy statements. The cover sheet accompanying these questionnaires also explains the update procedures.

Now, we realize that if there is anything you don't need, it's another *!***! form to fill out. But if this system works as expected, it can't help but make the Standardization Program a good deal more efficient. To say nothing about getting some help for you people assigned to our less glamorous places. So be expecting these questionnaires and please get them back to us not later than 31 August 1976. And don't forget to keep them updated.

POSITION REPORTS, QUESTIONS & ANSWERS

■ I have two questions regarding the anticollision light requirements stated in AR 95-1. Paragraph 3-11 says this light will be turned on before starting engines and will be on when airborne unless the anticollision light system is inoperative; in which case, flight may be continued only to a point where repairs can be made. Paragraph 4-17, on the other hand, says flashing nav lights are O.K. as a substitute for the anticollision light. It seems to me that the two paragraphs conflict. Furthermore, if we must have an operable anticollision light and I have an aircraft with two lights, both of which light up, but only one of which rotates, is the aircraft grounded? Just what constitutes a failure of the anticollision light system?

Actually there is no conflict between paragraphs 3-11 and 4-17. What happened here is a pitfall that haunts regulation writers—ambiguity resulting from placing too much emphasis on the abnormal situation. Paragraph 3-11 (Airfield and Aircraft Lighting) ALSO states that the nav lights will be placed on flash if the anticollision light system is inoperative. Because paragraph 3-11 prescribed a conditional alternative to the anticollision light system, the alternative also appeared in the required equipment paragraph (4-17). It was not thought necessary or appropriate to repeat the conditions under which an aircraft may be flown with an inoperative anticollision light system. Unfortunately, it came out sounding like two people with differing viewpoints had each written a paragraph, but 3-11 is the one to go by. The word "system," as extracted from Webster, is defined as a group of devices for serving a common purpose. Therefore, if both your anticollision lights were designed to light up and rotate and one doesn't because a device is inoperative, then it follows that the system is inoperative. Sorry, but the aircraft is grounded until repairs or a replacement is made.

■ FORSCOM has recently published a message allowing aviators to complete instrument renewals in AH-1G and OH-58A aircraft. These aircraft are not weather qualified. Is there a change to AR 95-63 coming out in the future?

FORSCOM has retransmitted HQDA message 161920Z Oct 75 which provided for renewal of both expired and nonexpired instrument qualifications in these aircraft. The reason for this is entirely logical—it enables people who routinely fly these aircraft to retain instrument qualification without having to spend several hours each year gaining proficiency in a Huey solely to pass the checkride. The aircraft used for an instrument examination does not have to be IFR certified. AR 95-63 only requires that the aircraft be equipped with the instruments, communications, and nav gear required for instrument flight. Whether an ADF and transponder constitute adequate navigation equipment for IFR flight is debatable; but it is sufficient to perform an NDB approach and, of course, a GCA—besides it's all you'll have if you encounter inadvertent IMC in these aircraft. There is no change planned for AR 95-63; the whole regulation is being revised and should be published this fall.

■ Paragraph 2-21, AR 95-63, says an instrument flight examiner should explore the practicality of examining two aviators simultaneously. I think this is a good idea and would like to go a step further and require both of them to be hooded during the flight. Is there anything prohibiting this?

Yes, two things. Paragraph 2-22b, AR 95-63, and the normal human instinct for self preservation. You might have the fastest hands in town, but there is no way you can reach the aircraft controls in time to prevent an imminent midair—assuming *you* intend to perform lookout duty from the back seat or a jump seat. Don't depend on the intercom to alert the crew either, as even a scream can be blocked by outside radio chatter. Aside from this, remember you are only evaluating the copilot on how well he performs such duties as tuning the radio, navigating, communicating, etc; all of which he can do equally well (or poorly) with or without a hood. The only reason for putting the guy at the controls under the hood is to find how well he controls the aircraft without reference to the ground. So pass the hood, and control of the aircraft, back and forth if you wish, but be sure there is one pair of unobstructed eyeballs right up front.

■ I have heard that a report is no longer required when leaving the final approach fix inbound on an instrument approach. What's the reference on this?

The report is not required WHEN IN RADAR CONTACT. You must still report FAF inbound when *not* in radar contact or when instructed to do so by the controller. The reference for this is paragraph 5-22a(4), FLIP General Planning, dated 17 Jun 76, and Section III, P 511 and 512 IFR Supplement dated 15 Jul 76.

■ Numerous regulations, checklists, and publications use the terminology "position lights" and "nav lights" interchangeably. What is the correct terminology for the green, red, and white lights on a rotary or fixed wing aircraft?

That's a good question. We took a quick sampling of nine Operators Manuals and found that four use the term navigation lights, three call them position lights, while two use both terms. AR 95-1 also uses both terms. The FAR Part 91 and the Dictionary of United States Army Terms, AR 310-25, however, say position lights. So that is the correct terminology. The dash 10 writers were already aware of the problem and are gradually removing the term navigation lights from those publications. The term navigation light will still have to be used though in publications pertaining to those aircraft which have their light switches identified that way. Now to purify 95-1. Thanks a lot.

■ Does a National Guard aviator, qualified and current in a UH-1H, have to receive a standardization ride prior to flying as copilot in a UH-1H assigned to an active Army unit? This is during the 2-week summer training.

Not unless it's a local policy. There is no DA requirement for a copilot standardization ride other than that inferred in paragraph 1-12a(1), AR 95-63, which states that a pilot will take a standardization ride after reporting to a unit and prior to assuming duties as pilot in command. Furthermore, members of Reserve components are authorized to pilot Army aircraft IAW paragraph 1-12a(1), AR 95-1.

IP/SIP DESIGNATION

AR 310-10, dated 3 Nov 75, states that effective 1 Jul 76, orders will not be issued unless specifically authorized by this regulation. IP/SIP designation and certification orders are not among those authorized. Revised AR 95-63 will require only that IPs/SIPs be designated "in writing" by the command level at which the Standardization Board is established. The format used is not specified and may be either a DF or command letter, just as long as it's signed by or for the appropriate commander. The USAAVNC has opted for the DF format. If your AG goes along with it, feel free to use this as a model.

DISPOSITION FORM			
For use of this form, see AR 340-15; the proponent agency is The Adjutant General's Office.			
REFERENCE OR OFFICE SYMBOL	SUBJECT		
ATZQ-S-C	Instructor Pilot Appointment/Assignment		
TO	FROM	DATE	CMT 1
	Commander USAAVNC & Fort Rucker Fort Rucker, AL 36362		
<p>1. Effective _____ is designated as Instructor Pilot ()</p> <p>2. Authority:</p> <p>3. Period:</p> <p>4. Purpose:</p> <p>5. Special Instructions:</p> <p style="margin-top: 20px;">FOR THE COMMANDER:</p> <p style="margin-top: 40px;">DISTRIBUTION:</p>			

DA FORM 2496
1 FEB 62

REPLACES DD FORM 24, EXISTING SUPPLIES OF WHICH WILL BE ISSUED AND USED UNTIL 1 FEB 63 UNLESS SOONER EXHAUSTED.

GPO : 1968 O - 322-400

■ I have been told that pulling the cyclic trim circuit breaker on the OH-6 will cause the oil cooler bypass light to be disabled. Is this true?

You better believe it! On series 1 and 2 aircraft, this circuit breaker not only controls the light but the bypass valve as well. So, if you're flying around with it pulled and the oil cooler ruptures, your first indication of oil starvation is apt to be a squealing, grinding noise followed by complete silence from the engine room. The reference for this is paragraph 2-16c and figure 2-9, TM 55-1520-214-10.

■ I wonder if you could help settle an argument. The subject of aircraft turning performance and "g" loading came up at our last detachment standardization meeting. I had always believed that airspeed didn't have anything to do with the "g's" felt in a level turn, that angle of bank was the only thing that mattered. But I found that I was in the minority, and now I'm confused. Just what is the story?

You may have been in the minority, but you were right. Aircraft "g" loading in a steady, coordinated turn is a function of bank angle, nothing else. An aircraft in a 60° bank, for example, will pull two "g's" regardless of whether the airspeed is 80 or 800 knots. Incidentally, computing the "g" loading for any given angle of bank is a simple operation; merely divide 1.0 by the cosine of the desired angle and the result (reciprocal) will be the "g" force. Confusion about this may result from the fact that as airspeed is increased, bank angle must also be increased if a desired *rate* of turn is to be maintained—so up go the "g's." Hope this settles it for you.

By the way, one excellent source of answers to aviator level aerodynamics questions is "Fundamentals of Fixed and Rotary Wing Aerodynamics" published by USC. This manual is available and can be obtained by writing Commander, U.S. Army Agency for Aviation Safety, ATTN: IGAR-PG, Fort Rucker, AL 36362.

The Deputy for Standardization is anxious to hear from Army aviators worldwide and pledges to respond to flight standardization questions within 24 hours of receipt. Readers are encouraged to use the 24-hour flight standardization information center number (AUTOVON 558-3504, commercial (205) 255-3504) or to communicate by letter if more appropriate. Address your questions or requests for courtesy assistance visits to Deputy for Standardization, USAAVNC, Fort Rucker, AL 36362.

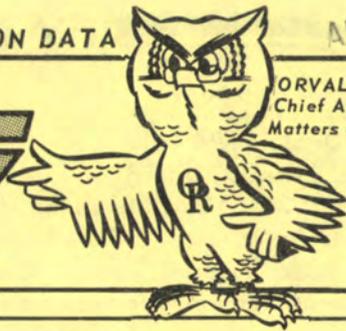
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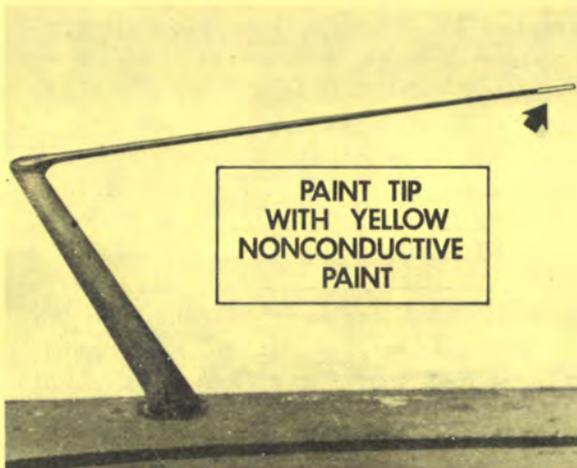
A USAAAVS PUBLICATION

VOL. 4, NO. 41 ■ 4 AUGUST 1976

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mishaps for the period of 16-22 JULY 1976

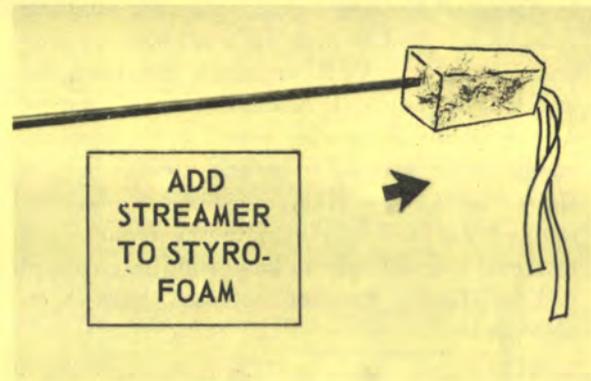
Huey Antenna Tip Protection



SECOND FM ANTENNA—The FM antenna on top has a way of getting under your skin—like when you back into it while you're working around the main rotor blade. That folded whip or inverted L antenna has a sharp end that'll get to you.

It's a good idea to paint the antenna yellow to attract attention to it. Paint only 3 inches of the tip. Use a nonconductive paint.

You might even stick a rubber ball or piece of styrofoam on the tip. If you do, be sure to attach a REMOVE BEFORE FLIGHT streamer to the safety item. —From PS MAGAZINE, Issue 278



RECAP OF AVSCOM MESSAGES

AVSCOM message 261704Z Jul 1976, subject: Safety-of-Flight and Worldwide Technical Messages. Following is a list of all AIG 8881 addressed messages transmitted by AVSCOM (DRSAV-F) from 1 January 76 to 30 June 76 for the AH-1.

AH-1-76-1 Use of Powerdyne Torque Application System on AH-1G/Q/R/S Series

AH-1-76-2 Use of Powerdyne Torque Application System on AH-1G/Q/R/S Series

AH-1-76-3 Guidance for Inspection and Replacement of Delaminated Engine Deck Panels, AH-1G/TH-1G, AH-1Q/S

AH-1-76-4 Daily Inspection of the Tail Rotor

Drive Shaft Hanger Assembly for AH-1/UH-1 Series

AH-1-76-5 Installation of Main Blade Bolt Recessed Washer, P/N 204-011-152-1, UH-1/AH-1S

AH-1-76-6 UH-1/AH-1 Aircraft

AH-1-76-7 AH-1 Improved Tail Rotor Modification Kit, NSN 1615-00-209-5430, MWO 55-1520-221-30/45

AH-1-76-8 AH-1/UH-1 Aircraft Form Requirements for M/R Blades

AH-1-76-9 300-Hour Special Inspection of AH-1G/Q/S Series Main Rotor Hub Assemblies

Other aircraft SOF and worldwide technical messages will be published in future issues of FLIGHTFAX.

FY 76 ACCIDENT BRIEF

SYNOPSIS 13-76

Type Aircraft: UH-1H
 Time: 2205 Classification: Major (Total)
 Fatalities/Injuries: 3 Fatalities, 0 Injuries
 Estimated Materiel Damage Cost: \$293,070
 Mission: Returning to base field from training mission because of deteriorating weather conditions.

Grade/Age/Experience

	Grade	Age	RW Hrs	FW Hrs	Tot Flt Hrs
IP	CW2	28	1595	-	1595
SP	WOC	19	170	76	246

Description of Accident: Aircraft was making special VFR approach, crashed, and burned 4 nautical miles northeast of airfield. Crash nonsurvivable.

Causes of Accident

Initial: Crew error—instructor pilot attempted to make visual approach to base field when weather conditions were less than required for an instrument approach.

Contributing: Supervisory instructions to return aircraft to base field. This is a weather-related accident in that IP attempted to conduct a special VFR approach into weather which was below IFR minimums. Twenty-minute delay in issuing recall while weather conditions continued to deteriorate.

Corrective Action: The command subsequently revised its SOP to eliminate the requirement to recall aircraft only to base field in cases of bad weather. Weather services have been upgraded.



SYNOPSIS 14-76

Type Aircraft: UH-1H
 Time: 1045 Classification: Major
 Fatalities/Injuries: None
 Estimated Materiel Damage Cost: \$12,662
 Mission: Pilot standardization checkride

Grade/Age/Experience

	Grade	Age	RW Hrs	FW Hrs	Tot Flt Hrs
P	CPT	30	800	-	800
IP	CW2	34	2334	50	2384

Description of Accident: During conduct of standard autorotation demonstration, aircraft

developed high rate of descent. Collective pitch application prior to ground contact was not sufficient to keep aircraft from landing hard. Tail rotor and gearbox separated on ground contact.

Causes of Accident

Initial: Crew error—IP failed to recognize potentially dangerous situation early enough to initiate power recovery.

Contributing: Based on 365F and current instructions in TM 55-1520-210-10 dated 25 Aug 71, with C-14, the aircraft was in an aft CG (caution) condition requiring termination of all approaches at a 5-foot hover. Supervisory error in scheduling aircraft not suited for mission.



SYNOPSIS 15-76

Type Aircraft: OH-6
 Time: 1735 Classification: Major (Total)
 Fatalities/Injuries: 0 Fatalities, 3 Injuries
 Estimated Materiel Damage Cost: \$125,821
 Mission: Service—passenger transport

Grade/Age/Experience

	Grade	Age	RW Hrs	FW Hrs	Tot Flt Hrs
P	CW3	55	728	2725	3453
CP	1LT	26	737	-	737

Description of Accident: Copilot initiated climbing right turn and aircraft began uncontrollable right spin at an estimated altitude of 50 feet agl. Aircraft touched down at approximately 50° left roll angle and pitched up.

Causes of Accident

Initial: Copilot—Attempted nonstandard take-off and low altitude, low airspeed, abrupt right turn at a high density altitude, and lost directional control. Pilot—Allowed copilot to attempt nonstandard maneuvers.

Contributing: Training—Inadequate on aircraft limitations.

Corrective Action: Equipment change proposal, number 2963-R3, has been approved for metal tail rotor blades designed to improve aircraft control. However, the best equipment in the world won't prevent accidents if aircraft operating limits are exceeded.

FY 76 ACCIDENT BRIEF

FY 76 ACCIDENT BRIEF

FY 76 ACCIDENT BRIEF

2 Accidents, 2 Fatalities, 1 Injury, Estimated Costs: \$165,070

UH-1

1 Accident ■ Flight of five UH-1s had completed three troop insertions and were returning to base field. Lead aircraft struck wires at approximately 175 feet agl and crashed. Small postcrash fire occurred in area underneath engine exhaust but went out during crew rescue. Two fatalities and one injury resulted.

1 Forced Landing ■ Aircraft was on approach at approximately 15 feet agl when engine rpm deteriorated to 5600. Other indications were 91 percent N1 and 30 psi torque. Caused by governor malfunction.

21 Precautionary Landings—following are selected briefs ■ (UH-1M) No. 1 hydraulic system caution light came on during cruise. Hydraulic line chafed on engine cowling. ■ Rotor tachometer indication dropped to zero. Rotor tachometer generator failed. ■ Crew saw liquid coming from battery vent and noted excessive indication on loadmeter. Battery was shut off and aircraft landed. Caused by internal failure of battery. ■ Crew landed because of high frequency vibrations. Maintenance replaced tail rotor servo and released aircraft for flight. ■ During approach for landing, crew heard loud squeal, followed by hydraulic pressure caution light. On short final, controls became stiff. Hydraulic pressure was lost when pressure line ruptured. ■ Aircraft was in trail position of formation. Approach was fast and steep. Crew used 54 psi torque to avoid hard landing. ■ Engine oil temperature and egt started to rise. Pilot reduced power to 20 psi torque and oil temperature and egt stabilized at 98° and 580° respectively. After landing, three HIT checks were performed with +25 to +65 readings. Engine was changed on site. Hot end inspection revealed first-stage gas producer rotor blades shifted. Cause of failure was improper clearance.

1 Human Factor Mishap ■ Copilot was incapacitated during flight because of illness.

AH-1

1 Accident ■ While landing with simulated antitorque failure, stuck right pedal, main rotor struck tail rotor drive shaft.

1 Incident ■ During 40mm hover fire, explosion occurred approximately 75 feet forward of aircraft. Shrapnel punctured gunner's left window.

3 Precautionary Landings ■ Crew saw engine oil pressure caution light and zero indication on pressure gauge, followed by engine oil bypass caution light. Caused by failure of oil cooler bypass fitting. ■ Crew heard loud noise from engine area during hover. Inspection revealed 2"x2" protective plate against inlet guide vanes. Plate is used to cover tachometer generator mount when generator is not installed. Suspect disrupted airflow caused compressor blade to fail. ■ During runup, transmission oil pressure fluctuated 5 psi. Oil filter gasket failed. □

THOUGHT FOR THE WEEK

Some down-to-earth philosophy from an old crop duster whose famous last words were: "From ashes to ashes and dust to dust, if the high wires don't get you then the barbed wire must."

U.S. ARMY AGENCY FOR AVIATION SAFETY
FORT RUCKER, ALABAMA 36362

Prepared from information compiled by the
Directorate for Aircraft Accident Analysis
and Investigation

Lieutenant Colonel Curtis M. Sanders, Director
Distribution to Army commands for accident prevention
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COMMERCIAL: 255-XXXX

AUTOVON: 558-XXXX

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LOH/CARGO BRANCH

MAJ Robert P. Judson, Chief ■ 558-4202

OH-6

3 Accidents, 0 Fatalities, 4 Injuries, Estimated Costs: \$207,565

1 Accident ■ During normal cruise with no indication of engine failure, engine-out warning light came on and aircraft yawed to left. Pilot entered autorotation which terminated in small clearing with slope of approximately 25° in hilly wooded area. After ground contact, main rotor severed tail boom.

OH-58

2 Accidents ■ During flight, apparent power loss occurred. Accident is under investigation. ■ Aircraft was circling to land at tactical field site, turning downwind at approximately 150 feet agl and 20 to 30 knots airspeed. Helicopter made complete turn and descended vertically, striking ground in level attitude. Three injuries were sustained.

3 Incidents ■ SP applied excessive collective pitch. IP was late with corrective action and hard landing and spike knock resulted. ■ Pilot was hovering aircraft in confined area. During turn to cross-slope position for landing, tail rotor struck small rock. ■ Aircraft was in NOE flight and pilot saw pine needles flying. Neither aviator heard any unusual noise nor felt any unusual vibrations. Mission continued 2 hours with no further incident. During postflight inspection, dents 2-3 inches long and 1-2 inches wide were found in bottom of both blades. *After known or suspected blade strike, one should land at a suitable site and visually inspect the rotor blades for damage.*

1 Forced Landing ■ During last cross-check, all instruments were normal. Engine quit and successful autorotation was made. Situation could not be duplicated.

5 Precautionary Landings ■ Pilot noted high-frequency vibration. Tail rotor cross head was worn excessively. ■ Master caution and engine oil bypass lights came on. Caused by cracked flange on metal line to No. 1 engine bearing. ■ Master caution and transmission chip detector lights illuminated. Maintenance inspection revealed excessive metal particles in transmission. ■ Total hydraulic failure occurred in cruise flight. Hydraulic line had ruptured, losing fluid. ■ Hydraulic loss occurred in flight. Caused by leaking cyclic servo.

TH-55

2 Precautionary Landings ■ Engine tachometer reduced to zero during takeoff. Inspection revealed internal failure of indicator, rotor and engine tachometer. ■ During hovering autorotation, IP was required to apply abnormal pressure to left pedal arm to override and correct improper pedal application by SP. Arm broke at base.

CH-47

2 Precautionary Landings ■ Aircraft had leveled off at 1,900 feet msl when severe bleed band popping on No. 1 engine occurred. Power reduction was made with no effect. Copilot then turned on anti-icing which stopped popping. Power was reduced using emergency beep. All bleed band popping stopped as power was reduced below 76.5 percent N1. Running landing was made. Caused by internal failure of No. 1 engine due to FOD. ■ While in level flight after refueling stop, rotor rpm indication dropped to zero. Pilot elected to return to refueling site for repairs. Rotor tachometer generator failed. □

FIXED WING BRANCH

CPT Donald P. Johnston, Chief ■ 558-3901

T-42

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

1 Incident ■ While landing with 70° 12- to 18-knot left crosswind, nose gear strut failed at scissors assembly. Both props struck runway and nose wheel doors were damaged.

U-21

1 Precautionary Landing ■ (H series) During test flight for flap system repair, crew detected unusual odor but no smoke. Pilot returned and landed with 17° flaps and circuit breaker pulled. Cause could not be determined.

U-8

2 Precautionary Landings ■ During practice single engine, pilot abruptly moved left prop lever forward, causing engine overspeed. ■ Right main gear indicated unsafe for landing. Tower confirmed gear appeared down. Wire on right main gear microswitch was broken.

OV-1

2 Precautionary Landings ■ Nose gear indicated in transit after gear was lowered for landing. Recycling had no effect. Gear was blown down and landing was uneventful. Sensitive switch assembly malfunctioned. (ARNG) ■ During landing rollout, No. 1 engine failed after engine was brought out of reverse. Cause has not been determined. □

MAINTENANCE BRIEFS

MSG B: R. Bailey ■ 558-3901

0 Accidents, 0 Fatalities, 0 Injuries, Estimated Costs: \$4,000

UH-1

1 Incident ■ Postflight inspection revealed damage to intermediate gearbox cover, small area of tail boom, tail rotor drive shaft, and couplings. Damage was caused by spool of safety wire that had been left in area of intermediate gearbox by crew chief following completion of No. 1 PMI. Other equipment found in the area was a pair of duckbill pliers and a pair of wire cutters. *What happened to the toolbox inventory?*

1 Forced Landing ■ When aircraft was picked up to hover it started a right turn that could not be stopped with left pedal. Cotter key for tail rotor crosshead bearing retaining nut was missing. Tail rotor retaining nut had backed off, allowing tail rotor drive shaft worm gear to become disengaged from drive quill. *Maintenance almost cost us this one! Where was the TI?*

1 Precautionary Landing ■ Improper installation of tail rotor servo hydraulic pressure return line caused it to chafe against hydraulic pump seal drain line. Failure of line caused complete loss of hydraulic pressure.

AH-1

1 Precautionary Landing ■ Crew noticed N2 and rotor rpm loss and increased egt for power demands over 35 psi torque. Bleed band actuator tube reducer fitting was stripped.

CH-47

1 Precautionary Landing ■ During maintenance test flight to check blade track, No. 2 engine dropped off line and stopped. Aircraft was returned to station and running landing was made. Suspect maintenance error. Engine failure was caused by fuel starvation. Quick disconnect for fuel line located in lower engine cowling was found to be loose. Investigation revealed that line had been disconnected and reinstalled on 12 July 76 by personnel in the engine shop while they were in the process of troubleshooting pitot problems. No technical inspector was called, and flight engineer failed to find the incorrect installation on PMD.

MESSAGES RECEIVED

■ AVSCOM 122050Z Jul 76, subject: Shortages of CH-47 Main Rotor Blades. This message discusses the current supply problems and outlines those steps required before a main rotor blade can be condemned at local level. Two installations experienced several blade damage incidents due to high wind conditions. These losses can only increase the problem. It is important that the unit safety, operations, and maintenance officers take an active interest in these problems.

■ AVSCOM 211315Z Jul 76, subject: Maintenance Advisory Message on Lubricating Oil General Purpose, VV-L-8004, Lot C-3101, Manufactured by Octagon Processing on Contracts DSA 600-76-C-1137 and DSA 600-76-C-1138 (Gen 76-21). Place any stocks of Lot C-3101 in hold status and report locations and quantities to Defense General Supply Center, ATTN: DGSC-OB2, Richmond, VA, with information copy to USAGMPA, ATTN: STSGP-FT, NCAD, New Cumberland, PA 17070 by 9 August 1976. □

AVIATION-RELATED GROUND MISHAPS

William P. Christian ■ 558-4202

2 Mishaps, 0 Fatalities, 1 Injury, Estimated Costs: \$242,418

OTHER TYPE

- Severe winds caused by close proximity of funnel cloud passed through portions of aircraft parking ramp with wind speeds calculated to be in the 90- to 115-mph range. Several aircraft mooring stakes were pulled loose and tiedown ropes were snapped. Nine OH-58 and one AH-1G aircraft were overturned. Eighteen other OH-58, AH-1G, and UH-1H aircraft had structure and/or mechanical component damage. Unit action taken to prevent recurrence was to streamline parked aircraft into prevailing wind. Work orders were submitted for installation of additional tiedown points on parking ramp and replacement of old tiedown points.
- Maintenance man was walking underneath racked set of aircraft main rotor blades, stored between two parked (hangared) aircraft. When he raised his head it struck the wing store of another aircraft. Individual received cuts above left eye and upper lip. Action taken was to relocate blade storage rack. □

759 ENTRIES FOR FY 7T

There has been some confusion about the DA Form 759 item on page 3 of the 21 July 1976 FLIGHTFAX. *Section IV* of the 1968 form is *Section II* of the 1974 form, which is the form most of you are now using. Adding the three months is just a one-time thing to take care of FY 7T. Sorry about the mixup.

DEPARTMENT OF THE ARMY
UNITED STATES ARMY
AGENCY FOR AVIATION SAFETY
FORT RUCKER, ALABAMA 36362

OFFICIAL BUSINESS



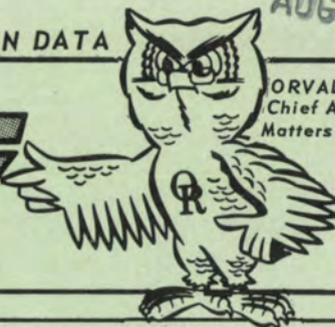
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ARMY AIRCRAFT MISHAP PREVENTION DATA



FLIGHT FAX



ORVAL RIGHT
Chief Advisor on
Matters of Aviation

A USAAAVS PUBLICATION

VOL. 4, NO. 42 ■ 11 AUGUST 1976

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mishaps for the period of 23-29 JULY 1976

OH-6A PREFLIGHT CHECK AND REFUELING PROCEDURES



PHOTO 1



PHOTO 2

Fuel exhaustion caused a recent OH-6A forced landing. The engine failed after 45 minutes of flight. The pilot had no prior warning because the fuel quantity gauge was not functioning properly and the low fuel warning light did not come on.

An individual unfamiliar with the OH-6 crashworthy fuel system was responsible for refueling the aircraft before its departure. While attempting the refueling operation the individual found the aircraft would not accept fuel and thought it was full. The 2408-13 indicated "tanks full, no fuel added."

The OH-6 crashworthy fuel system has an antispill flapper valve installed in the filler neck. If the proper refueling procedure is not followed, fuel can be trapped in the filler neck above the flapper valve. This can give a false indication that the tanks are full and this is probably what happened in this case.

The proper refueling procedure is:

■ Open the filler cap and lift it away from the aircraft (see photo 1). A chain assembly connects the cap and the flapper valve. The cap must be pulled out only far enough to open the valve to its maximum open position which is about 45 degrees.

■ When the valve is in full open position, hook the chain in the locking notch (photo 2).

■ Visually check the flapper valve for broken or bent parts.

■ Check fuel level.

■ Insert the fuel nozzle but avoid using excessive force which can cause damage to internal chain and arm assembly parts. The best rate of flow is 3 to 10 gpm. A low pressure refuel truck is preferred. When the tank appears full, slow down and wait for the bubbles to disappear. The actual refueling is slow. When it is necessary to use a high pressure fuel truck, operation will take more time due to the restrictions caused by the gravity fill flapper valve.

■ When the tanks are full, fuel level should be even with the gravity fill valve.

■ Remove fuel nozzle, check level, and replace filler cap.

Follow the first four steps of this procedure during preflight to avoid similar incidents.

U.S. ARMY AGENCY FOR AVIATION SAFETY
FORT RUCKER, ALABAMA 36362

Prepared from information compiled by the
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Lieutenant Colonel Curtis M. Sanders, Director
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Aircraft Accident Analysis and Investigation 3913/4202

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

FY 76 ACCIDENT BRIEF

SYNOPSIS 16.76

Type Aircraft: UH-1H
 Time: 1524 Classification: Major (Total)
 Fatalities/Injuries: 0 Fatalities, 1 Injury
 Estimated Materiel Damage Cost: \$293,070
 Mission: Service-ferry flight
 Grade/Age/Experience:

	Grade	Age	RW Hrs	FW Hrs	Tot Flt Hrs
P	CW2	23	653	-	653
CP	CPT	30	550	-	550

Description of Accident: During cruise flight, pilot heard loud grinding noise in engine/transmission area. He lowered pitch to initiate approach when noise stopped and aircraft yawed right. With no antitorque pedal response, pilot determined tail rotor failure and elected to turn around to make emergency landing at civilian airfield. As power was applied, aircraft yawed further right and pilot was unable to maintain heading and altitude.

Pilot autorotated from 100 feet and aircraft was destroyed in crash.

Causes of Accident

Initial: Materiel failure of No. 1 hanger bearing due to fretting and corrosion.

Contributing: Improper unit maintenance procedures and quality control in inspection of hanger bearing during removal and reinstallation 10 hours prior to flight and until failure (suspect). Crew, attempting to establish emergency procedures for loss of tail rotor thrust was unable to control aircraft to successful emergency landing.

Corrective Action: Appropriate maintenance manuals will be changed to clarify installation procedures and modify existing inspection criteria for tail rotor drive shaft hanger assemblies. (Reference Maintenance Advisory Messages AH-1-76-4 and UH-1-76-3.) New improved hanger bearing has been approved for introduction into the supply system as soon as procurement procedures will permit.



SYNOPSIS 17.76

Type Aircraft: UH-1H
 Time: 0435 Classification: Major (Total)
 Fatalities/Injuries: 3 Fatalities, 0 Injuries
 Estimated Materiel Damage Cost: \$293,070
 Mission: Service-predawn weather check
 Grade/Age/Experience:

	Grade	Age	RW Hrs	FW Hrs	Tot Flt Hrs
P	W2	26	709	-	709
CP	O3	28	403	-	403

Description of Accident: Pilot departed field site during hours of darkness and limited visibility for a weather check. Aircraft entered fog and crashed in wooded area. Crash was nonsurvivable.

Causes of Accident

Initial: Pilot knowingly flew into marginal weather during the hours of darkness to check weather conditions and flew into wooded area.

Contributing: Platoon leader (air mission

commander), who was an inexperienced low-time aviator, authorized and attempted flight under marginal weather conditions. Chain of command did not insure adequate written directives, i.e., weather check operations, and compliance with existing aviation SOPs. Weather was a factor because of overconfidence in abilities and lack of experience in avoiding IMC and disregard for weather observations.

Remarks: Flight did not contribute to unit's mission in that weather had been provided by an observer at the LZ. Pilot was pressured into going by his platoon leader. An experienced pilot had previously refused the mission due to existing weather conditions. Backup surface transportation had been planned in the event of adverse weather.

Corrective Action: Corrective action for this type mishap can only be taken by the commander to insure that SOPs are strictly enforced.

FY 76 ACCIDENT BRIEF

FY 76 ACCIDENT BRIEF

SYNOPSIS 18-76

Type Aircraft: UH-1B
 Time: 0850 Classification: Minor
 Fatalities/Injuries: None
 Estimated Materiel Damage Cost: \$87,955
 Mission: Service-reposition aircraft for training
 Grade/Age/Experience:

	Grade	Age	RW Hrs	FW Hrs	Tot Flt Hrs
P	W2	27	1763	-	1763

Description of Accident: Aircraft was number two in loose trail formation. Weather had been forecast as VFR; however, both pilots experienced low stratus in the mountains while

proceeding to field site. Aircraft encountered IMC, broke out, and almost instantaneously hit top of tree. Aircraft continued to field site where damage was found. Tail rotor, main rotor, and synchronized elevators were damaged.

Causes of Accident

Initial: Crew Error—Pilot attempted VFR in IMC.

Contributing: Low scud and reduced visibility on route of flight. Supervision in scheduling aircraft for questionable mission (suspected).

Remarks: Following tree strike and landing at field site where obvious damage was assessed, aircraft was flown 36 miles back over mountains to base airfield.



SYNOPSIS 19-76

Type Aircraft: UH-1H
 Time: 1135 Classification: Major (Total)
 Fatalities/Injuries: 5 Fatalities, 0 Injuries
 Estimated Materiel Damage Cost: \$293,070
 Mission: Service mission combined with instrument training
 Grade/Age/Experience:

	Grade	Age	RW Hrs	FW Hrs	Tot Flt Hrs
P	CW2	34	536	636	1172
CP	CW2	23	749	-	749

Description of Accident: Aircraft departed home station IFR at 1057 hours. At 1134 aircraft contacted radar control and reported severe turbulence at assigned altitude of 6,000' msl. Radio transmission broke off after the word turbulence and approximately 10 seconds later aircraft disappeared from the radar screen. Aircraft apparently entered into mast bumping as a result of turbulence which caused main rotor head and a section of the mast to separate from aircraft. Main rotor

came in contact with fuselage at least four different times. Aircraft struck the ground in an inverted position, collapsing main cabin area. Crash was nonsurvivable.

Causes of Accident

Initial: Weather—Encountered unforecast thunderstorms and severe turbulence.

Contributing: Flight crew—Disregarded regulations by clearing himself for IFR flight. Maintenance error is suspected as contributing in that collective binding was written up in the 2408-13 as a red diagonal instead of a red X. The collective could have aggravated the situation by inducing erratic movements in the rotor system, causing excessive flapping angles and pitch attitudes. Facilities—There was no AN/FPS-77 available which could provide adequate radar coverage. Materiel—Mast failed due to overstress.

Corrective Action: Procedures have been initiated recommending revision of existing regulations to prohibit UH-1 flight into lightning and moderate turbulence.

FY 76 ACCIDENT BRIEF

FY 76 ACCIDENT BRIEF

FY 76 ACCIDENT BRIEF

UTILITY/ATTACK BRANCH

MAJ William C. Childree, Chief ■ 558-4198

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

UH-1

1 **Forced Landing** ■ Engine failed in cruise flight. Maintenance inspection revealed seizure of fuel control drive.

20 **Precautionary Landings**—following are selected briefs ■ Engine fuel pump caution light and master caution came on at start of approach to airport. Inspection revealed failure of pressure switch. ■ Trim tab separated from main rotor blade during HIT check. Aircraft was shut down with no further damage. Maintenance inspection revealed bonding failure. ■ Pilot felt high frequency vibration in pedals, followed by similar vibrations in cyclic and collective. Caused by internal failure of tail rotor servo. ■ Engine oil pressure gauge fluctuated to 0 psi and returned to normal. Approximately 5 miles from airfield, oil pressure began decreasing at slow but steady rate. Oil temperature remained within normal limits but did increase to 85° C. Landing was made without incident. Oil pressure was 10 psi and temperature 85° C. Postflight inspection revealed empty oil reservoir and oil over entire engine area. Caused by failure of starter generator garlock seal. ■ Tail rotor chip detector light came on during hover. Inspection revealed metal particles on magnetic plug. Gearbox replaced.

AH-1

3 **Precautionary Landings** ■ On short final pilot heard humming noise in transmission area that got progressively louder. No. 1 hydraulic and master caution lights illuminated. Hydraulic pump began to surge intermittently, making antitorque control very difficult. Maintenance inspection revealed hydraulic hose assembly failure. ■ Generator failed during flight. Caused by failure of relay switch. ■ Transmission oil temperature fluctuated in flight. Cause not reported. □

ATTACK CREWS, TAKE NOTE!

Aggressive use of NOE tactics requires an increased awareness of the characteristics of the weapons and ordnance being employed to engage targets. USAAAVS has received a number of PRAMs involving damage to attack helicopters from their own shrapnel. Firing low and slow increases the danger of unexpected detonation of ordnance due to impact with trees. Hovering fire with the turret is especially hazardous, since it can place rounds under the aircraft (you might consider using the ground safety lever during NOE firing to help reduce this hazard).

The range and impact area also have their own special problems! Secondary explosions from previously fired ordnance in the impact area and suppressive fire from your wingman all present hazards which must be considered and managed by flight crews, armament personnel, and range officers.

LOH/CARGO BRANCH

MAJ Robert P. Judson, Chief ■ 558-4202

0 Accidents, 0 Fatalities, 0 Injuries, Estimated Costs: \$38,000

OH-6

1 **Forced Landing** ■ Engine failed after 45 minutes of flight. Records indicated fuel gauge was inaccurate and tanks full. Indications are POL and crewmembers were not familiar with new crashworthy fuel system. Suspect aircraft was not fully serviced before flight. (See front page.)

1 **Precautionary Landing** ■ Transmission chip detector light came on during hover.

OH-58

2 **Incidents** ■ On night VFR mission, visual contact with airport was lost and pilot continued descent. Tail of aircraft struck trees on hill east of airport. ■ While attempting to fasten seatbelt, passenger accidentally pulled collective. This caused aircraft to rise approximately 3 feet into the air. Collective was bottomed, causing aircraft to land hard.

3 **Forced Landings** ■ In cruise flight, N1 dropped from 95 percent to 70 percent, N2 from 102 percent to 95 percent, and engine-out audio came on. Pilot lowered collective and N1 and N2 returned to normal. Pitch was reapplied and N1 and N2 again deteriorated. Successful autorotation was completed. Fuel control and double check valve were replaced. ■ Engine surged and severe left yaw occurred. Pilot autorotated to ground, during which time N1 never exceeded 64 percent. Suspect fuel control and/or

double check valve failure. ■ Engine chip detector light came on. When pilot reached first clear area, engine failure and compressor stall occurred. Mast bumping and spike knock occurred on touchdown. Cause of failure was not reported.

5 Precautionary Landings ■ Main transmission chip detector lights of two aircraft came on. Metal chips were found in both transmissions, requiring them to be changed. ■ Master caution and hydraulic caution lights illuminated, with no corresponding loss of pressure. Caused by failure of switch, NSN 5930-00-007-7666. ■ Climbing on takeoff at approximately 60 feet, pilot heard popping sound. He lowered collective and popping stopped. Suspect compressor stall. ■ APU plug was cracked and grounded out against receptacle, causing plug to catch fire. Damage was limited to charred paint in vicinity of receptacle.

CH-47

1 Incident ■ Fireguard was in front of aircraft playing with rocks. IP saw rock leaving fireguard's hand and going into forward blades, and saw puff of dust when rock hit blade. Aircraft was shut down to check blades and one blade was found damaged.

1 Precautionary Landing ■ While in cruise flight, flight engineer detected hydraulic fluid on ramp area. Caused by broken O-ring in pressure side of flight boost pump. □

FIXED WING BRANCH

CPT Donald P. Johnston, Chief ■ 558-3901

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

U-8

4 Precautionary Landings ■ No. 2 engine was shut down during training flight. Aircraft was not equipped with accumulator and prop would not come out of feather. Single-engine landing was successful. ■ As power was reduced to 2600 rpm, No. 1 engine began to run rough. Rpm was increased again and ran smooth at 3000. Landing was completed without further incident. Broken wire was found on condenser with internal magreto damage. ■ Pilot could not control prop on No. 2 engine in cruise condition. Engine was secured to prevent overboost and single-engine landing was made. Problem could not be identified or duplicated. ■ All electrical power was lost during cruise flight. Copilot noticed fluid leaking from battery inspection panel. Postlanding inspection revealed destroyed battery, supposedly from internal failure.

U-21

2 Precautionary Landings ■ (H series) Pilot noticed fuel siphoning from left wing filler cap. Landing was completed after burning off enough fuel to land below landing weight limit. Fuel cap was improperly secured. ■ Crew detected burning insulation odor. All electrical equipment was secured and landing was made. Vent blower assembly armature burned out.

T-28

1 Incident ■ On landing rollout pilot found left brake inoperative. Pilot used right brake and left rudder but was unable to stop before end of runway. Nose gear buried in sand, damaging prop. □

MAINTENANCE BRIEFS

MSG B. R. Bailey ■ 558-3901

0 Accidents, 0 Fatalities, 0 Injuries, Estimated Costs: \$203

UH-1

1 Incident ■ Preflight inspection was performed using operator's checklist. Aircraft was flown 1.8 hours. IP stated he felt no unusual vibrations. Postflight inspection revealed hole in tail rotor drive shaft cover. Further inspection revealed ratchet and mallet were left under No. 4 tail rotor drive shaft, causing damage to drive shaft, hanger bearing, and drive shaft cover.

OV-1 EJECTION SEAT

USAAVSCOM Message 282035Z Jul 76, subject: Maintenance Advisory Message OV-1 Ejection Seat MK-J5 Delta (OV-1-76-9).

1. The reduced primary cartridge set, NSN 1377-00-845-5242, manufacture lot number Uncle (U) five (5) four (4) five (5), used with the Mark Jay Five Delta ejection seat, may be continued in service through

March 1977 without compromise to safety or ejection seat performance. The cartridge manufacture lot number is recorded on the ejection seat records for ready reference. However, if the lot number has been inadvertently omitted from records, the lot number is stenciled on the primary cartridge case by the manufacturer in black ink.

2. Requisitions for replacement cartridges for the above manufacture lot number will be honored beginning mid-November of this year. For the purposes of clarity, replacement of the reduced primary cartridge set does not cause the installed drogue cartridge, guillotine cartridge nor rocket motor to be replaced concurrently. Each explosive has a lot number, and an installed life and/or shelf life limitation.

3. The above extension in useful life of reduced primary cartridge set, lot number Uncle (U) five (5) four (4) five (5), will not be reflected in a formal change to the ejection seat maintenance manual because this extension is for interim purposes. Installed life and shelf life for other lot number cartridges remain unchanged and as cited in the Mark Jay Five Delta ejection seat maintenance manual. □

AVIATION-RELATED GROUND MISHAPS

William P. Christian ■ 558-4202

2 Mishaps, 0 Fatalities, 0 Injuries, Estimated Costs: \$19,650

OH-58

■ Civilian aircraft was taxiing south of taxiway when right wing tip struck main rotor blade of parked (ARNG) OH-58. OH-58 was parked 61 feet 3 inches from centerline of taxiway. Wing span of civilian aircraft measures 51 feet 8 inches from center of aircraft to wing tip. Civilian aircraft should have cleared the parked OH-58 by 9 feet 5 inches. This accident was preventable. FAA regulations require a minimum distance of 300 feet between active runways and parked aircraft. However, there is no regulation requiring parked aircraft to be any specific distance from taxiways. All ARNG aircraft parked at this installation were moved to a new position of approximately 75 feet from taxiway centerline, providing additional clearance.

UH-1

■ Aircraft mechanic, while operating tug, backed into tail boom of parked UH-1. Mechanic stated it was necessary to operate tug close to aircraft so he could reach top of tail boom while repairing loose hanger bearing on tail rotor drive shaft. Corrective action taken by this unit to prevent this type mishap was to establish a policy which restricted the use of an aircraft tug as a maintenance platform. □

MAKE AVIATION SAFETY THE SPIRIT OF '76

DEPARTMENT OF THE ARMY
UNITED STATES ARMY
AGENCY FOR AVIATION SAFETY
FORT RUCKER, ALABAMA 36362

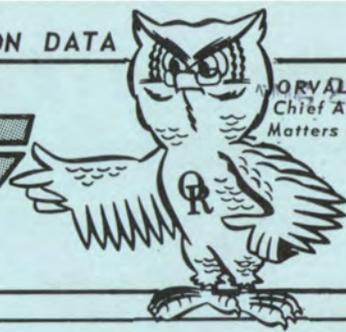
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FLIGHT FAX

ORVAL RICH
Chief Advisor on
Matters of Aviation

A USAAVS PUBLICATION

VOL. 4, NO. 43 ■ 18 AUGUST 1976

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INSPECTION OF OH-58A MAIN DRIVE SHAFT FOR CORROSION

USAAVSCOM Message 061900Z Aug 76, subject: Emergency EIR OH-58A Main Drive Shaft, DA Form 2407, Control No. 556344.

There is no indication that an unsafe condition exists as a result of main drive shaft internal corrosion.

Cadmium plating has been incorporated on the inside diameter of main drive shaft assemblies S/N ALF 60385 and subsequent. This change was implemented in October 1971.

Older drive shaft assemblies do corrode internally. Indications are corrosion progresses slowly.

Effective immediately inspect inside diameter of main drive shaft assemblies at every periodic inspection interval and any time main drive shaft is removed for other maintenance. Inside diameter can be visually inspected from either end with a small light or by use of Borescope, NSN 6650-00-349-6030.

All serviceable drive shaft assemblies prior to S/N ALF 60385 must be treated internally not later than the next periodic inspection interval or servicing interval for the shaft, whichever comes first.

Clean up inside diameter of shaft with sand paper 400 grit P-P-101, steel wool FF-S-740, or abrasive cloth 320 grit P-C-451. Abrasive cloth, etc., can be attached to a rotary drill. Surface may be wet polished using P-D-680 Type II.

After removal of corrosion products, thoroughly clean inside diameter with P-D-680 Type II, then treat inside diameter with MIL-P-23377. Install tapered nonmetallic plug in one end of shaft. Apply primer to the inside diameter by flowing into bore while rotating the shaft. Place shaft in upright position after insuring complete cover-

age of inside diameter. Remove plug and allow to drain and dry. A double coating is recommended for best results.

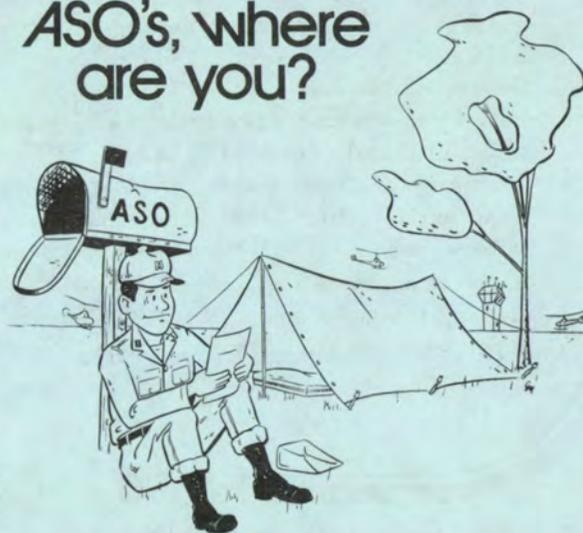
Inside diameter of shaft after cleanup must not exceed 1.090 inches. If pitting cannot reasonably be removed by the means described or by honing if tools are locally available, replace the shaft with one which is cadmium plated.

Hold one of these shafts as an exhibit. Disposition instructions will be forthcoming.

PREVENTER

The first issue of a new quarterly newsletter—PREVENTER—for ASOs is now in the mail. If you don't get yours, it's because you are not on our safety officer mailing list. Write or phone us and we'll see that you get the first issue and add you to our distribution. Write Commander, USAAVS, ATTN: IGAR-PG, Ft. Rucker, AL 36362, or call AUTOVON 558-6385.

ASO's, where are you?



FY 76 ACCIDENT BRIEF

SYNOPSIS 20-76

Type Aircraft: OH-58
 Time: 1010 Classification: Major (Total)
 Fatalities/Injuries: 0 Fatalities, 1 Injury
 Estimated Materiel Damage Cost: \$151,565
 Mission: Training
 Grade/Age/Experience:

Grade	Age	RW Hrs	FW Hrs	Tot Flt Hrs
P CW2	29	1935	-	1935

Description of Accident: During hover termination of downwind NOE approach, tail stinger struck ground. Tail rotor separated causing loss of aircraft control. Main rotor struck ground. Aircraft rolled on right side.

Causes of Accident

Initial: Crew Error—Pilot allowed aircraft tail

rotor to strike ground because of inattention and fatigue.

Contributing: Supervision—Pilot was allowed to fly 32.6 hours in a 76-hour period, with only three sleep periods totaling 7.5 hours.

Remarks: Nearly 4½ hours of the flight just before accident were NOE. Indications are that pilot's diet was also inadequate.

Corrective Action: MACOM message has been released addressing crew rest and listing specific guidelines to be followed. USAAAVS is addressing the crew rest problem at all levels of command. Pilots can expect to see more definitive guidance on crew rest in the future.



SYNOPSIS 21-76

Type Aircraft: JU-1A
 Time: 2240 Classification: Major (Total)
 Fatalities/Injuries: 0 Fatalities, 2 Injuries
 Estimated Materiel Damage Cost: \$112,128
 Mission: Service
 Grade/Age/Experience:

Grade	Age	RW Hrs	FW Hrs	Tot Flt Hrs
P DAC	37	1252	1879	3131

Description of Accident: Pilot entered IMC and crashed on mountainside while attempting to return to VFR conditions. Crash considered partially survivable due to breakup of aircraft and impact forces. Aircraft did not burn.

Causes of Accident

Initial: Pilot Error—Pilot entered IMC at night while VFR and attempted to regain VFR conditions by descending in a mountainous area.

Contributing: Pilot Error—Pilot violated regulations and unit SOP by exceeding 6-hour flight time limitation. Pilot failed to use proper VFR maps and adequately plan flight. Supervision—No copilot was furnished, thereby

prohibiting filing under IFR conditions IAW AR 95-1. Command—Failure to provide reasonably modern navigation radio equipment on obsolete aircraft. Weather—Low clouds along route of flight.

Remarks: Pilot's weather briefing indicated marginal VFR conditions en route. Forecaster recommended en route weather checks before reaching mountains. Pilot never made weather checks. Accident is another example of get-home-itis.

Corrective Action: This accident points up the need for continued emphasis, warnings, and pilot education concerning the hazards of weather flying, particularly in trying to mix VMC and IMC flight. The November 1974 issue of the U.S. ARMY AVIATION DIGEST recommended survival kit and components be carried aboard Army aircraft. Accident report did not explain why this equipment was not carried. Had the proper equipment been available, rescue may have been expedited. Commanders are encouraged to remind crews of the importance of survival gear.

FY 76 ACCIDENT BRIEF

FY 76 ACCIDENT BRIEF

FY 76 ACCIDENT BRIEF

SYNOPSIS 22-76

Type Aircraft: UH-1H

Time: 2310 Classification: Major (Total)

Fatalities/Injuries: 0 Fatalities, 5 Injuries

Estimated Materiel Damage Cost: \$293,070

Mission: Training-tactical landing in minimum lighted area

Grade/Age/Experience:

	Grade	Age	RW Hrs	FW Hrs	Tot Flt Hrs
IP	CW2	27	1008	-	1008
P	CPT	33	1342	-	1342
CP	CPT	29	895	43	938

Description of Accident: Pilot flew aircraft into ground 300 feet short of minimum lighted helipad during night approach. When initial ground contact was made pilot reacted with abrupt aft cyclic and collective pitch, causing aircraft to rise near vertically to approximately 80 feet agl. Aircraft then fell vertically,

striking ground with very low rotor rpm.

Causes of Accident

Initial: Crew Error-Pilot flew aircraft into ground at night under conditions of reduced visibility.

Contributing: Weather-Ground fog in area; restricted visibility. Crew used excessive control input in attempt to recover from short landing and lost rotor rpm. Crew fatigue is suspected. Pilot had been on flying duty for 17 hours and had logged more than 6 hours before night mission. Fatigue may have contributed to disorientation. Copilot was not wearing glasses as required by latest physical.

Corrective Action: MACOM message has been released addressing crew rest and listing specific guidelines to be followed. USAAAVS is addressing the crew rest problem at all levels of command. Pilots can expect to see more definitive guidance on crew rest in the future.



SYNOPSIS 23-76

Type Aircraft: UH-1H

Time: 0410 Classification: Major

Fatalities/Injuries: None

Estimated Materiel Damage Cost: \$13,602

Mission: Training-tactical troop lift

Grade/Age/Experience:

	Grade	Age	RW Hrs	FW Hrs	Tot Flt Hrs
P	CW2	26	705	-	705
CP	O2	27	237	-	237

Description of Accident: Aircraft was second in flight of two for night troop extraction. Pilot lost visual contact with lights in LZ and elected to land in LZ of his own choice. Upon termination of approach pilot began hovering to designated LZ. En route he encountered field wires. Pilot reduced collective in at-

tempt to avoid wires and aircraft settled in a depression. Tail boom was damaged.

Causes of Accident

Initial: Crew Error-Pilot attempted tactical landing when visual contact with designated landing site was lost.

Contributing: Two-way radio communication was lost during approach. Fatigue is suspected as crew did not take full advantage of rest period provided before mission. Unmarked and unreported field wires were installed close to LZ. Pilot's artificial horizon and RMI were inoperative.

Corrective Action: Local command reemphasized to all crewmembers the importance of conducting adequate recon of LZs before landing and reidentified the hazards associated with inadequate crew rest.

FY 76 ACCIDENT BRIEF

FY 76 ACCIDENT BRIEF

UNSAFE CONDITIONS IN OH-6A AIRCRAFT WITH CRASH RESISTANT FUEL CELLS

USAAVSCOM Message 101510Z Aug 76, subject: Technical Advisory Message, OH-6A Aircraft, No. OH-6A-76-02, Crash Resistant Fuel System.

OH-6A aircraft with crash resistant fuel system, MWO 55-1520-214-50-6, installed have experienced two unsafe conditions.

Two aircraft had engine flameouts after installation of the fuel system. Large amounts of fiber residue were found in the element assembly, fuel filter, NSN 2915-00-924-7785, P/N 02-14629. Another aircraft had a forced landing from fuel exhaustion. During preflight inspection, fuel was seen in the gravity fill neck. But this was only a small quantity trapped in the neck by the break-away valve flapper door which was not open.

It is strongly recommended that the following actions be taken:

Replace element assembly, fuel filter, NSN 2915-00-924-7785, P/N 02-14629, 5 flight hours after installation of the crash resistant fuel system (MWO 55-1520-214-50-6).

When visually checking fuel quantity:

1. Remove the fuel cap and pull the attached cable until fully extended.
 2. Hook cable assembly detent balls in the notch at the gravity fill opening.
 3. Continue visual inspection.
- (See FLIGHTFAX, Vol. 4, No. 42, 11 Aug 1976, for further information.)

NICAD BATTERY MAINTENANCE

Each week this summer, USAAAVS has received four to five reports of mishaps caused by battery malfunctions. To solve this problem, we recommend that your battery maintenance procedures and voltage regulator settings be in accordance with USAAVSCOM message 131030Z Mar 75, subject: *Maintenance Advisory Message, Maintenance of Aircraft Nicad Batteries (GEN-75-7)*. Spewing and overheating problems will be greatly reduced when you play it safe and follow scheduled maintenance requirements.

SAFETY FILMS

We're working on a catalog of Air Force, Navy, and Army aviation safety training films. This publication will give catalog number, title, and synopsis of current safety films and tell you how to get them. Hopefully, we will have the data we need from the Air Force and Navy soon and get this publication out to you.

UH-1 AND AH-1 MAINTENANCE HOISTS

Indications from the field show that maintenance hoists T101452 and T101520 are being used improperly. Instructions for use of these hoists are contained in TM 55-1520-210-20 and TM 55-1520-221-20, along with necessary cautions and warnings. We recommend strict adherence to these instructions. Also, the hoists should be inspected for serviceability before use.

EIR REPORTING

USAAVSCOM Message 051242Z Aug 76, subject: New AVSCOM Telephone Numbers for EIR Reporting.

The new AVSCOM EIR Control Office telephone numbers are: AUTOVON 698-5467/5468/5469/5460. EIR's which are normally submitted by mail to AVSCOM (ATTN: DRSAV-FEM) may also be called in to one of these numbers if circumstances warrant a more rapid response.

U.S. ARMY AGENCY FOR AVIATION SAFETY
FORT RUCKER, ALABAMA 36362

Prepared from information compiled by the
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and Investigation

Lieutenant Colonel Curtis M. Sanders, Director
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COMMERCIAL: 255-XXXX

AUTOVON: 558-XXXX

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Plans, Operations, and Education	4479/4812
Management Information System	5286/4200
Publications and Graphics Division	6385/3493
Medical Division	6788
Staff Duty Officer (1800-0700 hours)	6510

UTILITY/ATTACK BRANCH

MAJ William C. Childree, Chief ■ 558-4198

0 Accidents, 0 Fatalities, 0 Injuries, Estimated Costs: \$13,482

UH-1

4 Incidents—following are selected briefs ■ Left turn was initiated while in mask phase of NOE flight along creek bed. Main rotor blades struck tree damaging both main rotor blades. ■ After landing from NOE flight, inspection revealed damage to one tail rotor blade on leading edge 3 inches from tip. ■ Postflight inspection after recon of six areas revealed 3-inch hole in underside of fuselage.

1 Forced Landing ■ Aircraft was in cruise flight at 9,900 feet when engine oil pressure dropped to approximately 4 psi and engine oil pressure caution light came on, followed by rise in engine oil temperature. During descent at approximately 600 feet, N1 dropped 20 percent momentarily, then returned to normal. Egt began to increase and several loud noises were heard from engine area. Engine failed at approximately 25 feet and autorotation was completed. Fire flash from exhaust was seen before touchdown by personnel on ground.

20 Precautionary Landings—following are selected briefs ■ Magnetic brake failure caused extreme lateral binding in cyclic during hover/taxi. ■ Master caution and right fuel boost pump lights came on during cruise flight at 5,000 feet msl. Caused by failure of right fuel boost pump. ■ Unusually high exhaust gas and engine oil temperatures were noted during cruise flight. Maintenance inspection revealed cooling air loss in anti-icing system due to faulty O-ring. ■ Transmission oil hot light illuminated in flight. Inspection revealed loose wire on thermostat switch. ■ Fuel boost pump caution light came on accompanied by squealing noise. Left fuel boost pump was replaced.

AH-1

1 Incident ■ No unusual noises or vibrations were noted during tactical NOE flight. Postflight inspection revealed damage to inboard sides of both tail rotor blades. Blades were replaced.

3 Precautionary Landings ■ Ninety-degree gearbox chip detector light came on during refueling. Aircraft was shut down. Maintenance inspection revealed large chips on magnetic plug. Gearbox was replaced. ■ Master caution light flickered during takeoff. Discrepancy could not be duplicated and aircraft was released for flight. ■ Fuel line ruptured during runup. Fuel line was replaced.

THOUGHT FOR THE WEEK

Never be afraid to ask what you think is a stupid *question*. They're a lot easier to answer than a stupid *mistake*. □

LOH/CARGO BRANCH

MAJ Robert P. Judson, Chief ■ 558-4202

2 Accidents, 0 Fatalities, 2 Injuries, Estimated Costs: \$90,393

OH-6

2 Precautionary Landings ■ Engine oil bypass light came on. After shutdown, oil was leaking from engine case drain line. Caused by failure of internal oil pump gasket. ■ Oil cooler bypass light came on. System was blocked and engine oil was not returning to tank.

OH-58

1 Accident ■ Aircraft rocked from one skid to the other on sod lane during touchdown autorotation. Rotor rpm dropped from 225 to 220. After shutdown, damage to fuselage was discovered.

1 Incident ■ Main rotor struck small tree during tactical training. Red main rotor blade tip was damaged.

1 Forced Landing ■ Low rpm audio and engine out light came on during cruise flight at 600 feet agl. During

autorotation descent, rpm stabilized at 68 percent and TOT at 350°. Caused by failure of governor assembly.

12 Precautionary Landings—following are selected briefs ■ Aircraft was on short final at night for landing to lighted tee. At 25 to 30 feet agl, pilot heard engine whine as if rpm were increasing. He also noted TOT pegged at 1000°. Suspect failure of turbine wheel or bearings. ■ Transmission hot oil light came on during cruise flight. Caused by failure of sending unit. ■ Transmission oil pressure light came on. Transmission oil pressure sending unit failed. ■ During NOE flight master caution, generator, and inverter lights illuminated. Pilot made unsuccessful attempt to reset generator. All nonessential electrical equipment was turned off, and aircraft was flown to field base. Caused by internal failure of starter generator. ■ Transmission oil hot light came on. Transmission oil cooler inlet hose was clogged with grass and dirt. Hose was cleaned and aircraft flown to home base by maintenance officer. *Unit is submitting DA Form 2028 to change TM to require more frequent inspections of inlet hoses.*

TH-55

1 Accident ■ IP initiated forced landing and reduced throttle. SP lowered collective and applied right pedal. He then made a left cyclic turn toward forced landing area and apparently applied left pedal, inducing an attitude from which IP could not recover.

1 Precautionary Landing ■ Engine oil pressure exceeded upper limit during cruise flight. Inspection revealed failure of oil pressure sending unit.

CH-47

2 Incidents ■ Copilot's jettisonable door assembly separated from aircraft during cruise flight. Pilot indicated that door was normal during preflight and runup. Aircraft had been on static display where door was held in place by security devices. Personnel may have tampered with release handles during display. Copilot reported he had difficulty removing security devices from his door. ■ Copilot's emergency door came off in flight and went through forward rotor blades, damaging blades. Cause undetermined.

3 Precautionary Landings ■ Crew chief reported that ramp was creeping down during cruise flight. Attempts to correct the situation were unsuccessful. Utility system pressure dropped to 1900 psi, and precautionary landing was made. Caused by failure of linear directional flow valve. ■ No. 2 engine chip detector light came on twice during flight. Inspection revealed chips on plug were from Nos. 4 and 5 bearings. ■ Loud squeal was heard coming from flight control closet accompanied by pedal vibration during approach. Caused by regulating fluid pressure valve.

CH-54

1 Precautionary Landing ■ Flight engineer saw smoke and fluid near right landing gear during takeoff. Caused by cracked forward fitting on oil line from accessory gearbox to Nos. 4 and 5 bearing package on No. 2 engine. □

FIXED WING BRANCH

CPT Donald P. Johnston, Chief ■ 558-3901

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

RU-21H

1 Precautionary Landing ■ Copilot observed fuel siphoning from left outboard wing tank. Pilot landed and resecured fuel cap. (This is the only mishap we had this week. And, unfortunately, this fuel siphoning mishap was almost identical to one reported last month.) □

MAKE AVIATION SAFETY THE SPIRIT OF '76

MAINTENANCE BRIEFS

MSG B. R. Bailey ■ 558-3901

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

AH-1

1 **Precautionary Landings** ■ Transmission low oil pressure warning light came on. Maintenance inspection revealed incorrect torque applied to oil line fitting.

OH-58

2 **Precautionary Landings** ■ Pilot heard loud grinding noise from engine compartment. Free-wheeling unit seal had been replaced before this mishap. Suspect improper maintenance procedures during seal replacement. ■ Engine chip detector light came on at hover. Oil analysis showed metal on chip plug to be titanium. Liner of engine compressor section showed signs of coming apart. Historical records indicate this T63-A-700 engine had a total time and time-since-overhaul of 736 hours. *Data indicates this engine had a yellow liner installed. If so, the engine should have been rebuilt at 450 hours. Reference USAAVSCOM message 151930Z May 74, Safety-of-Flight Advisory, "Technical Maintenance" Message OH-58A/OH-6 Helicopters (OH-58-74-5 and OH-6-74-6); also Change 8, dated 18 July 1975, TM 55-2840-231-24.*

CH-47

2 **Precautionary Landings** ■ Hydraulic pressure line from No. 2 flight boost failed during flight, causing loss of No. 2 hydraulic system. Caused by installation of 1500 psi line instead of 3000 psi line. ■ No. 2 generator dropped off line during flight. Shortly thereafter, burning wiring was smelled in cockpit. Tunnel cover strut chafed through generator wiring bundle and shorted out wires. Wires were burned in half. Strut is located in fifth tunnel section from front.

CH-47 DOOR PROBLEMS

The CH-47 mishaps involving the loss of jettisonable cockpit doors show that neither unit had incorporated door modification provisions outlined in TB 43-0001-2-4, Equipment Improvement Report and Maintenance Digest, dated January 1976, and an EIR supplement to correct omission dated 8 July 1976. Compliance with the provisions in TB 43-0001-2-4 will prevent door problems. □

AVIATION-RELATED GROUND MISHAPS

William P. Christian ■ 558-4202

5 Mishaps, 0 Fatalities, 0 Injuries, Estimated Costs: \$4,395

AH-1

■ Crew chief instructed vehicle driver to back vehicle up to aircraft to serve as temporary work platform. Driver misjudged distance and backed vehicle into outer rocket pod and left horizontal elevator of aircraft. Driver was not licensed to drive vehicle nor were ground guides used.

OH-6

■ Mechanic drove jeep to parked aircraft to check equipment log. He positioned jeep on right side of helicopter under rotor blades. When he started to drive off, flag staff on jeep struck main rotor blade tiedown rope. This caused the rope plastic cap on the blade to slip off. He replaced cap with the rope attached and noticed no blade damage. Four days later when aircraft was untied for runup, it was discovered that one main rotor blade showed signs of skin wrinkling approximately 6 inches inboard from the tip. The damaged blade, however, was not the one that had the tiedown cap pulled off. *This is a classic example of the hazards of driving any vehicle under the main rotor blades of helicopters.*

TH-55

■ Mechanic tried to run up aircraft with main rotor blade tied down. All maintenance personnel authorized to run up aircraft were given additional instructions on complying with published procedures.

CH-47

■ Forklift approached aircraft from left side to load large piece of cargo. Forklift boom struck the aircraft at station 600. Forklift was being used because unit being supported had neither properly prepared cargo nor requested that support unit bring the proper loading equipment.

T-42

■ Aircraft was being towed into hangar when tow pin on nose gear sheared. Tow bar dropped to ground, and aircraft rolled into hangar door, damaging wing tip. All personnel were briefed on proper procedures for moving aircraft in accordance with SOP. □

RECAP OF AVSCOM MESSAGES

AVSCOM message 261704Z July 1976, subject: Safety-of-Flight and Worldwide Technical Messages. Following is a list of all AIG 8881 addressed messages transmitted by AVSCOM (DRSAV-F) from 1 January 1976 to 30 June 1976 for the UH-1.

- UH-1-76-1 Authorization to Use Preliminary Draft Instructions Accompanying "B" Kit for IR Suppressors Installation for UH-1 Series Aircraft
- UH-1-76-2 UH-1D/H Main Rotor Blades, TB 55-1520-210-20-12
- UH-1-76-3 Daily Inspection of the Tail Rotor Drive Shaft Hanger Assemblies for AH-1/UH-1 Series
- UH-1-76-4 Change to TM 55-1520-210-10 Operators Manual, Army Model UH-1D/H, dated 25 Aug 71
- UH-1-76-5 Proper Installation of the Main Blade Bolt Recessed Washer, P/N 204-011-152-1 on UH-1/AH-1S
- UH-1-76-6 UH-1D/H Main Rotor Blades
- UH-1-76-7 UH-1/AH-1 Aircraft
- UH-1-76-8 UH-1/B/D/H Hydraulic Servo Cylinder Assembly, P/N 205-076-09907
- UH-1-76-9 Replacement Glass Windshields for UH-1B/C/D/H/M Aircraft
- UH-1-76-10 UH-1 Series Tail Rotor Hub Assemblies
- UH-1-76-11 UH-1/AH-1 Aircraft Form Requirements for Main Rotor Blades
- UH-1-76-12 Supplemental Information for Installation of UH-1B/C/D/H/M Safety Glass Windshields
- UH-1-76-13 Solid State Replacement Voltage Regulators, UH-1B/C/D/H/M Series

Other aircraft SOF and worldwide technical messages will be published in future issues of FLIGHTFAX.

DEPARTMENT OF THE ARMY
UNITED STATES ARMY
AGENCY FOR AVIATION SAFETY
FORT RUCKER, ALABAMA 36362

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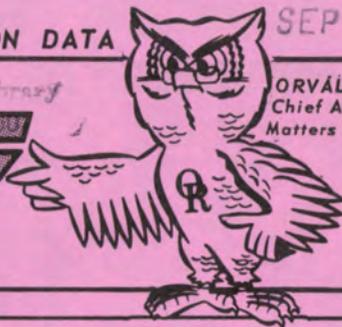
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FLIGHT FAX

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Chief Advisor on
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A USAAAVS PUBLICATION

VOL. 4, NO. 44 ■ 25 AUGUST 1976

mishaps for the period of 6-12 AUGUST 1976

OPERATIONAL HAZARD REPORTS

rapid method of bringing hazards to the attention of those who can, and will, take corrective action to eliminate them

How well a pilot plans each mission; how thoroughly he performs his preflight inspections; his use of cockpit checklists; his adherence to regulations and SOPs; how closely a mechanic follows by-the-book procedures when he performs maintenance and inspections—these are but a few of the types of individual actions that can make or break any safety program. But of all the safety tools available to aviation personnel, one of the most effective ones has barely been touched. It bears the unglamorous designation of DA Form 2696 and is better known as the Operational Hazard Report (OHR).

The OHR is designed to be a rapid method of bringing existing hazards not previously recognized to the attention of those who can, and will, take corrective action to eliminate them. AR 95-1 provides instructions for use of this form in accordance with AR 95-5 which gives examples of the types of operational hazards to be reported. The advantages of the OHR program are numerous and varied. It is the only program in the field of aviation safety that places every person associated with Army aviation in the "driver's" seat, regardless of duty assignment or rank. Each becomes, in part, his own safety officer with full authority and freedom to put his point across to

the commander and to those who can take necessary corrective action. In effect, he becomes a part of management and his sphere of influence, no matter how small, brings others into the program. When everyone associated with Army aviation actively participates in the OHR program, we are automatically provided with as many safety officers as we have personnel, and the beneficial effects on safety become far more significant than could otherwise be possible. The OHR program is one of the greatest deterrents to accidents presently available.

COLONEL RYNOTT NEW USAAAVS COMMANDER



COL Keith J. Rynott has assumed command of the U.S. Army Agency for Aviation Safety (USAAAVS), succeeding COL Norman W. Paulson. COL Rynott, a Master Army Aviator, was rated in 1954 and is both fixed wing and rotary wing qualified.

U.S. ARMY AGENCY FOR AVIATION SAFETY
FORT RUCKER, ALABAMA 36362

Prepared from information compiled by the
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SYNOPSIS 24-76

Type Aircraft: **TH-55A**
 Time: **1402** Classification: **Major (Total)**
 Fatalities/Injuries: **No Fatalities, 1 Injury**
 Estimated Materiel Damage Cost: **\$35,590**
 Mission: **First supervised solo**
 Grade/Age/Experience:

	Grade	Age	RW Hrs	FW Hrs	Tot Flt Hrs
SP	1LT	27	15	-	15

Description of Accident: Instructor pilot exited aircraft after completion of 1-hour dual presolo checkride flight. He proceeded to the tower to supervise student pilot on his first solo

flight. Student was instructed to carefully make a takeoff to a hover. When he made the takeoff, he immediately overcontrolled throttle and engine rpm increased high enough to activate engine overspeed device. Student immediately added excessive collective pitch and throttle, resulting in climbing and left spinning action to high hover (40'-50'). Aircraft fell to the ground and landed hard.

Causes of Accident

Initial: Crew error—Student pilot lost control.
Contributing: Unit (flight) commander—Four IP changes without additional flight training hours in presolo phase.



SYNOPSIS 25-76

Type Aircraft: **UH-1H**
 Time: **0901** Classification: **Major (Total)**
 Fatalities/Injuries: **No Fatalities, 12 Injuries**
 Estimated Materiel Damage Cost: **\$293,070**
 Mission: **Service—tactical airmobile exercise**
 Grade/Age/Experience:

	Grade	Age	RW Hrs	FW Hrs	Tot Flt Hrs
P	03	27	764	-	764
CP	03	33	702	19	721

Description of Accident: Aircraft lost tail rotor and 90-degree gearbox while in low-level NOE flight. Aircraft yawed right, crashed in clearing, rolled over, and burned. At time of failure, tail rotor grip had 868 hours since new.

Causes of Accident

Initial: Fatigue failure of one tail rotor blade

grip assembly, causing tail rotor and 90° gearbox to come off in flight.

Contributing: Crew error—Crew failed to execute emergency landing IAW approved procedure. Supervisory error in scheduling two staff aviators on critical mission with minimum current experience.

Corrective Action: Grip finite life has been reduced from 1,200 hours to 900 hours (TB 55-1500-206-20-24) with subsequent reduction to 500 hours (AVSCOM message UH-1-76-10). Tracking and balancing interval of tail rotor was reduced from 300 hours to 100 hours in AVSCOM message 151840Z Oct 75. An ECP on the vent shutoff valve has been approved by AVSCOM to prevent fuel spillage in case of rollover. It is estimated it will be 2 years before complete fleet will be modified.

FY 76 ACCIDENT BRIEF

SYNOPSIS 26-76

Type Aircraft: **U-1A**

Time: **1045** Classification: **Minor**

Fatalities/Injuries: **None**

Estimated Materiel Damage Cost: **\$3,300**

Mission: **Service-passenger dropoff**

Grade/Age/Experience:

	Grade	Age	RW Hrs	FW Hrs	Tot Flt Hrs
P	DAC	28	2,853	2,501	5,354
CP	DAC	42	7,100	600	7,700

Description of Accident: After landing, pilot taxied to parking area and found area had deep ruts made by trucks. Pilot stopped and looked the area over and decided to turn around before he became stuck in soft sand. While turning

around, tail wheel hit hard-packed 6-inch rut, damaging tail wheel area.

Causes of Accident

Initial: Crew error—Attempted taxi over unsuitable terrain.

Contributing: Environment—Lack of airfield maintenance.

Errors: Pilot attempted taxi in unsuitable area; supervisory error in not providing adequate maintenance of parking area.

Remarks: Accident report was returned by USAAVCS through channels to unit due to incompleteness.

Corrective Action: The FAA has been contacted for assistance in implementing a program to improve conditions at unattended airstrips.



SYNOPSIS 27-76

Type Aircraft: **UH-1H**

Time: **1715** Classification: **Major**

Fatalities/Injuries: **None**

Estimated Materiel Damage Cost: **\$64,000**

Mission: **Service**

Grade/Age/Experience:

	Grade	Age	RW Hrs	FW Hrs	Tot Flt Hrs
P	CW2	31	641	-	641

Description of Accident: In cruise flight at 1,300 feet, pilot heard loud bang in engine compartment. N2 began to decay. Pilot at-

tempted to regain rpm with no response. Pilot entered autorotation and landed hard, collapsing skids.

Causes of Accident: Reported as materiel malfunction of engine. However, cause of engine malfunction was not established in final teardown analysis.

Contributing: Pilot used incorrect procedure during autorotation, causing aircraft to land hard. Pilot failed to perform safe autorotation landing following engine failure. Pilot misjudged terrain slope and made pitch pull too high.

2 Accidents, 0 Fatalities, 3 Injuries, Estimated Costs: \$68,000

UH-1

2 Accidents ■ Pilot entered descent, then tried to recover. Aircraft would not respond. Low rpm audio came on. Pilot attempted landing to rice paddy. Aircraft struck dike and tail boom was severed from aircraft just behind synchronized elevator. Aircraft then came to rest on side. Accident is under investigation. ■ N2 tach generator failed at 1,000 feet agl. Pilot interpreted this as an engine failure and autorotated to small clearing with uneven terrain and short scrub brush. Hard landing resulted.

1 Forced Landing ■ During climbout from runway, aircraft reached an altitude of approximately 350 feet agl about 1 mile from airfield. Compressor stalls and excessive loss of engine rpm occurred. Pilot rolled off throttle to flight idle and requested tech observer to place governor switch to emergency. This allowed recovery of engine rpm with throttle. However, with application of collective to regain altitude, engine rpm could not be maintained. Aviator managed to reach taxiway and entered full autorotation at altitude of approximately 250-300 feet. Aircraft was landed without damage. Maintenance inspection revealed bleed band and VIGV out of rig.

21 Precautionary Landings—following are selected briefs ■ Cyclic was binding in flight. Maintenance replaced right lateral irreversible valve. ■ Aircraft was at hover when tail rotor chip detector light came on. Aircraft was returned to parking area. During shutdown, main rotor and tail rotor took approximately one-half of the normal time to come to complete stop. Maintenance inspection revealed internal failure of 90° gearbox. ■ Transmission oil pressure went to zero while aircraft was maneuvering at 1,000 feet agl. Condition could not be duplicated by maintenance and aircraft was released for flight. ■ Fire warning light came on. No other abnormalities were noted. Engine and engine deck area were washed before flight. Suspect water condensation shorted fire warning system. ■ Transmission oil pressure gauge dropped to zero reading. Maintenance inspection revealed broken wire at transmission oil pressure transmitter.

AH-1

4 Precautionary Landings ■ Master caution and engine oil pressure segment lights came on. Engine oil pressure showed 88 psi. Caused by failure of engine oil pressure switch. ■ While at hover, pilot noticed wet oil spot where they had been hovering previously. Aircraft was landed. All controls became stiff and master caution and No. 2 hydraulic pressure lights came on. Fitting securing No. 2 hydraulic system return line located at top right portion of forward ammo bay structural wall had backed off. ■ Aircraft was at hover when pilot smelled hydraulic fluid. Caused by broken return line from No. 2 hydraulic filter to reservoir. ■ Transmission oil bypass light illuminated on takeoff. Internal transmission oil filter gasket was improperly seated during installation.

MESSAGES RECEIVED

- 061804Z Aug 76—Maintenance Advisory Message Concerning Engine Oil Cooler Turbine Bearings for UH-1/AH-1 Aircraft (UH-1-76-17 and AH-1-76-13).
- 061800Z Aug 76—Maintenance Advisory Message, Electrical Cable Chafing Oil Tubes, UH-1 Aircraft (UH-1-76-18)
- 061458Z Aug 76—Technical Advisory Message, Limited Use of Turret/Turret Select Switch on AH-1Q/S Helicopters (AH-1-76-14)
- 121320Z Aug 76—Maintenance Advisory Message, Use of CH-47 Starter, 114P1010-1, EA 1030-070, NSN 2995-00-072-5652 with T55-L-11 Engines (CH-47, 1976-11). □

WIRE STRIKES

Wire strikes which occur while aircraft are operating in open terrain are usually attributed to pilot error. When a wire strike occurs at a proposed landing zone, there are usually more people at fault than just the pilot. Maybe even you. Wire hazards should be reported and corrected immediately, and the OHR (DA Form 2696) is the way to do this.

1 Accident, 0 Fatalities, 0 Injuries, Estimated Costs: \$2,026,200**OH-58**

7 Precautionary Landings ■ In cruise flight, pilot noticed TOT at 890°. Previous checks had indicated normal. Pilot initiated power-on descent and during touchdown TOT again rose to 890°. Caused by 3-inch crack on discharge tube, compression, NSN 2840-00-152-1822. ■ During power recovery, TOT rose to 900°. Hot end inspection revealed no damage. ■ Pilot noticed engine oil temperature increased to 90° and smelled something burning. Temperature rose to 150° after landing. Cause not reported. ■ On landing, rpm started to rise. On the ground, fully beeped down, N2 maintained 107 percent. Caused by partial high-side governor failure. ■ Master caution and transmission chip detector lights came on. Small metal particles were found on plug. Transmission was flushed and MOC completed. During MOC, light came on again. More chips were found. Caused by internal failure. ■ Transmission oil hot light illuminated. Caused by chafed wire grounding on airframe. ■ Transmission oil pressure light would not extinguish during runup. Caused by transmission oil pressure warning light shorting out.

TH-55

1 Precautionary Landing ■ Engine oil pressure dropped below lower limit during hovering flight. Caused by failure of oil pressure sending unit.

CH-47

1 Accident ■ Aircraft was running on the ground awaiting taxi instructions when torque needles started fluctuating and high frequency vibration occurred in rear of aircraft. Crew chief told pilot to shut down. Pilot reached for condition levers, but aircraft started hopping with sufficient violence to prevent movement of condition levers. Bouncing stopped when forward and aft rotor and transmission assemblies left aircraft. Fire erupted in aft transmission area. Caused by failure of aft transmission.

1 Precautionary Landing ■ No. 1 flight boost hydraulic system failed during flight. The shouldered shaft was not replaced by rebuild facility during rebuild with external drive shaft. Retaining device for shouldered shaft assembly is a piece of .32 safety wire. When wire breaks, shaft slides out of pump splines and into accessory gearbox, causing pump failure.

THOUGHT FOR THE WEEK**WHEN IS A TIP A TIP?**

- When it is the tapered end of an object.
- When it is the end of a wing, rotary or fixed, opposite the root.
- When it is a small gift of money for services rendered.
- When something upsets the balance of scales.
- When an object is in a slanted position.
- When something is turned over or upset.
- When a baseball is struck with a glancing blow.
- When it is a friendly helpful hint.

HERE'S A TIP FOR YOU: An Operational Hazard Report can save your life. Read AR 95-5, par. 5-5. □

FIXED WING BRANCH**CPT Donald P. Johnston, Chief ■ 558-3901****0 Accidents, 0 Fatalities, 0 Injuries, Estimated Costs: \$775****T-42**

1 Precautionary Landing ■ After climbing to traffic pattern altitude, power was reduced to 2300 rpm. No. 1 engine went to full rpm and prop lever had no resistance. Prop control could not be regained. Landing was made at reduced power. Prop control assembly cable had frayed and separated inside shield approximately 7 inches from prop governor.

RU-21

2 Incidents ■ (A series) While pilot was circumnavigating thunderstorm, lightning discharged in close proximity to aircraft. Top of rudder was burned and one static wick holder was melted, along with a small portion of aft section of ventral fin. ■ (D series) Aircraft was in ice for approximately 1 minute when upper left horizontal stabilizer VHF antenna separated from aircraft.

1 Precautionary Landing ■ Oil was seen coming from engine nacelle and landing was made. Crew had improperly installed oil filler cap after preflight inspection.

U-8

2 Precautionary Landings ■ Gear handle light remained on after raising gear, indicating gear was not fully up. Smoke was seen coming from under copilot seat. Gear circuit breaker was pulled and gear lowered manually. Landing was uneventful. Suspect landing gear actuator motor overheated. (ARNG) ■ After aircraft was leveled off at altitude, No. 1 manifold pressure needle failed to move. Aircraft returned for landing and faulty gauge was replaced. □

MAINTENANCE BRIEFS

MSG B. R. Bailey ■ 558-3901

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

T-42

2 Precautionary Landings ■ At cruise, No. 1 engine fuel pressure and engine rpm fluctuated after fuel selector was switched to auxiliary tank. Suspect pilot encountered vapor lock when auxiliary tank was selected. However, maintenance inspection also revealed fuel pressure was out of adjustment. ■ When landing gear was lowered, down light came on but mechanical indicator did not show nose gear full down. Mechanical nose gear indicator linkage was found to be improperly adjusted, causing indicator to move only about three-quarters of full travel.

U-8

1 Precautionary Landing ■ Right main gear green light would not illuminate, gear handle light remained on, and warning horn sounded when throttles were reduced. Inspection revealed that gear was fully extended but not locked. Locking mechanism was adjusted during PMP and functioned normally on ground check. However, it did not function in flight. Readjustment was accomplished and aircraft was test flown and released.

OV-1

1 Precautionary Landing ■ Pilot heard loud popping noise, aircraft yawed, and torque dropped to about 25-30 pounds. Maintenance inspection revealed dirty compressor blades. Compressor wash was performed.

ATTENTION T-42 USERS

(Reference Letter No. 16 of T-42A Aircraft Problems and Recommended Corrective Action)

Additions to the Component Overhaul and Retirement Schedule

Investigation of control cable failures has revealed that some cables break in shielded or sleeved areas. Since the area is not visible, inspections will not necessarily reveal impending failures. Therefore, a 1,500-hour retirement schedule is established for the propeller, throttle, and mixture control cables. This time coincides with the overhaul time established for the engine, propeller, and governor. This requirement will be included in a future revision to the maintenance manual. □

MAKE AVIATION SAFETY THE SPIRIT OF '76

5 Mishaps, 0 Fatalities, 2 Injuries, Estimated Costs: \$1,897,385

UH-1

■ Mechanic was repositioning overhead electric hoist when length of ¼-inch rope attached to hoist circuit breaker box became entangled on UH-1 transmission and mast assembly. Continued movement of hoist pulled transmission off balance, toppling it into maintenance workstand and then to floor. Transmission was incorrectly stored, as it was sitting in shipping container without ear bolts in place. TM 55-1520-210-34, par. 7-2a(2), calls for transmission to be placed on maintenance stand with Sweeney adapter and bolted in place. Had this been done, damage to the assembly might have been prevented. Ropes have been shortened to prevent contact with equipment in hangar and SOPs are being revised to provide additional supervision during hoist operations. ■ While performing maintenance, crew chief slipped and fell from top of UH-1. No apparent unsafe mechanical, physical, or equipment conditions were involved. Adequate management and safety policies are in effect covering this type hazard. ■ While securing maintenance hangar for the day, maintenance man noticed that towing tug was not chocked or grounded or in its assigned parking place. When tug was started and shifted to forward, it immediately started moving with a stuck throttle. Foot brake and hand brake did not slow the tug down. Ignition key was then turned off, but tug's momentum allowed it to hit left front chin bubble of parked aircraft. Tug's throttle linkage was found to be defective.

OTHER TYPE MISHAPS

■ Maintenance personnel had removed synchronized elevator from helicopter and laid it on shop floor under tail boom. Crew chief stepped down from crew stand, slipped, and stepped on elevator which slid across floor, causing him to fall to floor. His lower vertebra was fractured. Maintenance personnel should be cautioned not to lay parts on shop floor, but to place them in proper storage areas. ■ Unforecast severe winds of unknown force struck Army heliport, causing extensive damage to one CH-54 and two CH-47s. Lesser degree of damage was discovered on 4 CH-47s, 41 TH-55s, and 22 military vehicles. Seven buildings were damaged. Met Watch Advisory was received and was valid from 1200 hours to 2300 hours and called for isolated thunderstorms with winds of 35K in the vicinity of the thunderstorms. During summer months, a Met Watch Advisory of this type is considered to be routine, and the only action required is to assure that aircraft and equipment are secured to prevent damage from high winds. The weather was normal throughout the day of this mishap until approximately 1458 hours. At this time, a small cloud with rain was noted approaching from the southwest. Almost instantly, strong winds, moderate rain, and hail began buffeting the flight line area, and within 3 minutes, wind and hail had ceased, leaving only a moderate rainfall and the above listed property damage. Maintenance personnel had followed approved procedures for protection of personnel and government property. □



RECAP OF AVSCOM MESSAGES

AVSCOM message 261704Z Jul 1976, subject: Safety-of-Flight and Worldwide Technical Messages. Following is a list of all AIG 8881 addressed messages transmitted by AVSCOM (DRSAV-F) from 1 January 1976 to 30 June 1976 for the OH-6, OH-58, TH-55, CH-47, and CH-54.

- OH-6-76-1 T-63A-5A/A-700 Power Turbine Governor (TB 55-1500-336-20)

- OH-58-76-1 Self-Locking Nuts
- OH-58-76-2 One-Time Inspection, Main Rotor Hubs and Latch Bolts
- OH-58-76-3 T63-A-5A/A-700 Power Turbine Governor (TB 55-1500-336-20)
- OH-58-76-4 Engine Oil Pressure Indicators
- OH-58-76-5 Honeycomb Panels

- TH-55-76-1 Helicopter Tail Rotor Blades

- CH-47-76-1 CH-47 Aircraft Rescue Hoist Hook Quick Disconnect
- CH-47-76-2 Adequacy of CH-47 Rescue Hoist Hook Quick Disconnect
- CH-47-76-3 One-Time Inspection of Honeycomb Tunnel Covers On CH-47A, B, C Aircraft, TB 55-1500-210-20-30
- CH-47-76-4 CH-47C/T55-L-11 Engine Dual Chip Detector
- CH-47-76-5 Relocation of Fuel Suction Lines in Aircraft with the Crashworthy Fuel System
- CH-47-76-6 CH-47B/C Rotor Blades
- CH-47-76-7 CH-47 Rotor Head Lifting Device
- CH-47-76-8 One-Time Inspection of MS27576 Series Bolts in CH-47A, B, C Aircraft
- CH-47-76-9 CH-47 Rotor Head Lifting Device

- CH-54-76-1 CH-54B Main Gearbox Lubrication System
- CH-54-76-2 One-Time Inspection of MS27576 Series Bolts in CH-54B Aircraft

Other aircraft SOF and worldwide technical messages will be published in future issues of FLIGHTFAX.

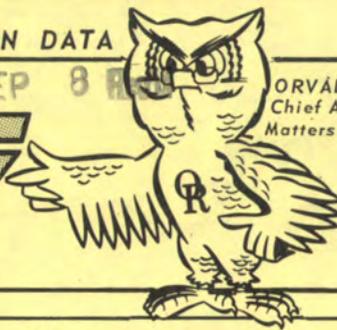
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VOL. 4, NO. 45 ■ 1 SEPTEMBER 1976

for the period of 13-19 AUGUST 1976

SAFETY-OF-FLIGHT MESSAGES

■ 241515Z Aug 76, subject: Safety-of-Flight Message No. OH-58-76-7, One-Time Inspection of Improved Seatbelts and Attachment Points Kits Modified Per MWO 55-1520-228-30-19, TB 55-1520-228-20-11. *Summary:* A Wisconsin maintenance unit has reported receiving six defective kits out of a total of thirteen kits, NSN 1560-00-161-0434, P/N 1560-OH58-095-1, Improved Seatbelts and Attachment Points for MWO 55-1520-228-30-19. The defect was: Kit support assembly, NSN 1560-00-314-7875, P/N 1560-OH58-095-3, contains pin, P/N MS20253P3-225 which was 1 5/8 inches long instead of the required 2 1/4-inch length. The short pins would cause a reduction in strength of support assembly. The defective pins are part of kit, NSN 1560-00-161-0434, manufactured by Aerial Machine and Tool Corp., delivered under contract number DAAJ01-75-C-0228 (P1A) and completed January 1976. Accord-

ing to USAAVSCOM records, 117 of these kits have been installed. *Contact:* Mr. Dierker, USAAVSCOM, AUTOVON 698-3891.

■ 241912Z Aug 76, subject: Safety-of-Flight Message No. OH58-76-8, One-Time Inspection for OH-58 Main Rotor Hubs and Strap Assemblies, TB 55-1520-228-20-20. *Summary:* An accident in the Gulf of Mexico involved a commercial model 206B helicopter. Results of extensive investigations by Bell Helicopter, Textron, and AVSCOM led to the belief that the probable cause of the accident was failure of the P/N 206-010-105-3 strap assembly. The OH-58A uses identically the same strap assembly as the commercial model helicopter. To assure an adequate margin of safety the finite life of the tension, torsion strap assembly is being reduced to 1,200 hours. *Contact:* Mr. Dierker, USAAVSCOM, AUTOVON 698-3891.

LIGHTNING STRIKES

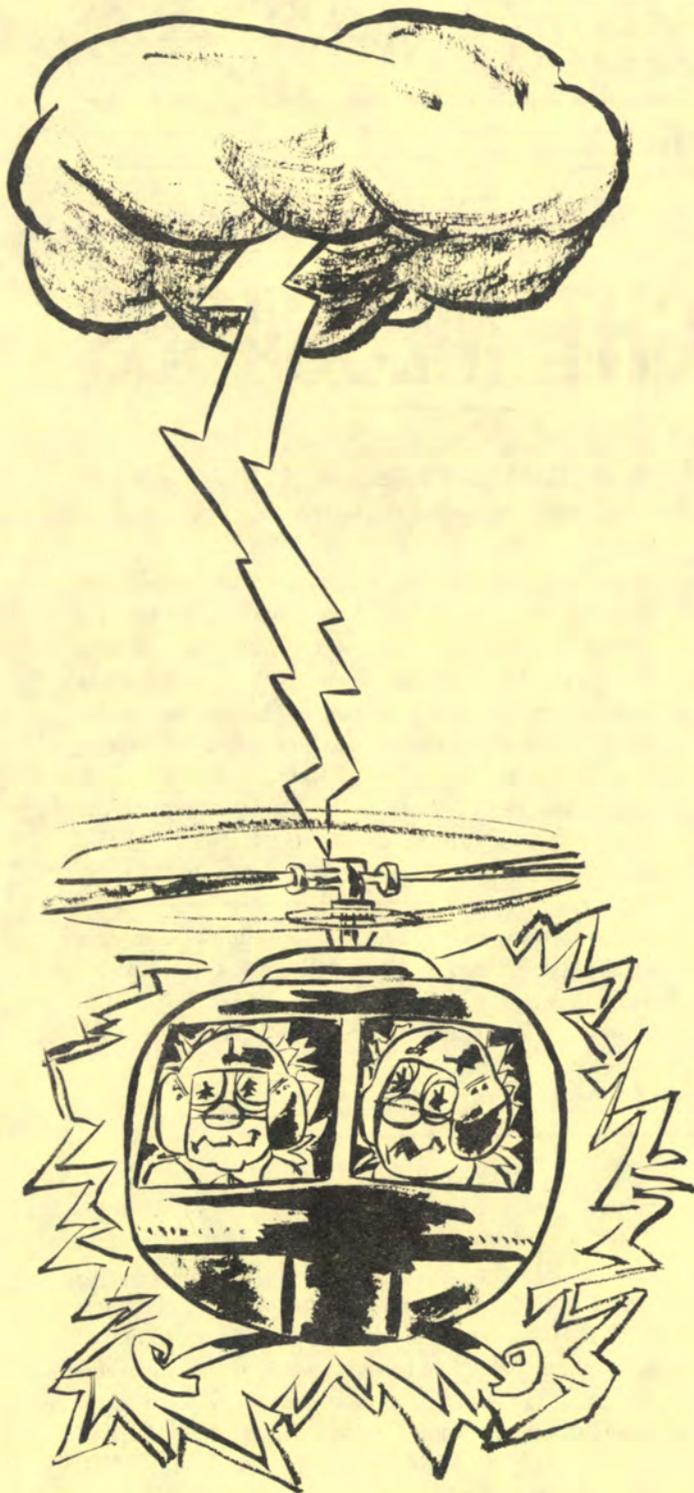
AVSCOM recently sent the following special inspection letter to all its field maintenance technicians on action to be taken on UH-1/AH-1 aircraft after they were struck by lightning. This criteria is expected to be added to the dash 20

manual as a special inspection in the future. The magnetometer referenced is not a normal item of Army supply and therefore must be procured locally or borrowed from another service. AVSCOM has requested that they be notified of all strikes by type aircraft, serial number, severity, and results of inspection. For additional information, contact Charles B. Bright, Utility/Attack Branch, USAAVSCOM, St. Louis, MO, AUTOVON 698-6516.

SUBJECT: UH-1/AH-1 Series Helicopters—Lightning Strike Inspection

Continued on page 2

Continued from page 1



DISCUSSION: The current UH-1/AH-1 series manuals do not contain any inspection instructions for helicopters struck by lightning while on the ground or in flight.

POLICY: The instructions contained herein comprise the inspection requirements for UH-1/AH-1 series helicopters involved in known lightning strikes.

INSTRUCTIONS: The following general and specific inspections shall be performed whenever a lightning strike occurs:

A. General Requirements:

1. Determine the lightning entry and exit points.
2. Trace path to the extent possible using a magnetometer.
3. Check the magnetic compasses for accuracy. This may serve as an indicator of the severity of the strike.
4. Inspect aircraft structure for damage, particularly arcing or buckling. Repair as necessary.
5. Inspect wiring for damage.
6. Check operation of electrical and avionics systems. Repair/replace as necessary.
7. On AH-1 series helicopters only—perform operational check of SCAS, TM 11-1520-221-34, paragraph 5-24.

B. Specific Requirements:

1. If lightning strike is evident on tail rotor, proceed as follows:
 - a. Remove and condemn tail rotor hub and blade assembly.
 - b. Remove and condemn pitch change links, crosshead bearing, and control quill bearings.
 - c. Inspect crosshead, control quill components, and control rod for any indications of arcing. Replace as necessary.
 - d. Remove both the 42-degree and 90-degree gearboxes and return them for overhaul.
 - e. Check hangers for residual magnetism. Replace any magnetized hanger bearings.
 - (1) If all hangers are magnetized, remove transmission and return for overhaul.
 - (2) Check short shaft for residual magnetism. If magnetized, return engine for overhaul and teardown short shaft for inspection.
2. If lightning strike is evident on main rotor, proceed as follows:
 - a. Inspect the blades for damage. Only

the blade(s) with damage need be replaced.

b. Remove hub assembly and return for overhaul.

c. Replace all bearings (or next higher assembly if required) in the fixed and rotating control system located above the servo cylinders.

d. Remove swashplate assembly, mast assembly, and transmission assembly, and return for overhaul.

e. Check short shaft for residual magnetism. If magnetized, remove, disassemble, and visually inspect short shaft and remove engine and return for overhaul.

f. Additionally, for UH-1 series helicopter only--If strike occurred on stabilizer bar, replace the bar in question. Inspect the remainder of the stabilizer assembly for damage.

EFFECTIVITY: All Army UH-1/AH-1 series helicopters.

FORMS AND RECORDS: Record the lightning strike in Block 17 of the helicopter DA Form 2408-13.

WHEN TO ACCOMPLISH: Perform this inspection whenever a lightning strike has occurred.

NOTE: A reading of 1 unit or less on the magnetometer is considered normal.

The upper mast assembly has a high reading (± 4 - ± 8) after flight due to static charges. As long as the lower mast, immediately above the transmission case has a normal reading, the upper mast reading may be disregarded. The upper mast charge may take a day or more of inactivity to dissipate.

RECAP OF AVSCOM MESSAGES

AVSCOM message 261704Z Jul 1976, subject: Safety-of-Flight and Worldwide Technical Messages. Following is a list of all AIG 8881 addressed messages transmitted by AVSCOM (DRSAV-F) from 1 January 1976 to 30 June 1976 for the OV-1, U-21, U-8, and T-42.

- OV-1-76-1 Support Harness, P/N 11-1-2037 Used with MK-J5D Ejection Seat on OV-1 Aircraft
- OV-1-76-2 Suspension Line Stowage Tray, P/N 11-1-1912, NSN 1670-00-196-1921, Used with MK-J5D Ejection Seat Parachute System on OV-1 Aircraft
- OV-1-76-3 OV-1 Mohawk Aircraft--Battery Assembly AV 111050-1
- OV-1-76-4 One-Man Life Rafts Used With OV-1 Overwater Survival Kits
- OV-1-76-5 Hydraulic Line Chafing on OV-1 Mohawk Aircraft
- OV-1-76-6 28V DC Solid State Voltage Regulator, OV-1 Mohawk Aircraft
- OV-1-76-7 RV/OV-1 C/D Aircraft (T53-L-15/701/701A Engines)

- U-21-76-1 U-21 Series Aircraft
- U-21-76-2 MWO 55-1510-209-30/15, Installation of Electrothermal Windshield (U-21A Aircraft)

- U-8-76-1 U-8F Aircraft, Emergency Exit Placard
- U-8-76-2 U-8/RU-8 Aircraft, Aircraft Grounding Receptacle

- T-42-76-1 Correction to Letter, T-42A Aircraft Problems and Recommended Corrective Action, Letter No. 15, Dated 23 Feb 76, T-42A Aircraft
- T-42-76-2 T-42 Series Aircraft

Other aircraft SOF and worldwide technical messages will be published in future issues of FLIGHTFAX.

U.S. ARMY AGENCY FOR AVIATION SAFETY
FORT RUCKER, ALABAMA 36362

Prepared from information compiled by the
Directorate for Aircraft Accident Analysis
and Investigation

Lieutenant Colonel Curtis M. Sanders, Director
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COMMERCIAL: 255-XXXX

AUTOVON: 558-XXXX

Questions Concerning Aviation Portions of
ARs 95-5, 385-40, and 385-10 4479/4812
For Assistance in Locating Proper Directorate 4479
Aircraft Accident Analysis and Investigation 3913/4202
Technical Research and Applications 6404/6410
Plans, Operations, and Education 4479/4812
Management Information System 5286/4200
Publications and Graphics Division 6385/3493
Medical Division 6788
Staff Duty Officer (1800-0700 hours) 6510

FY 76 ACCIDENT BRIEF

SYNOPSIS 28-76

Type Aircraft: **AH-1G**
 Time: 1450 Classification: **Minor**
 Fatalities/Injuries: **None**
 Estimated Materiel Damage Cost: **\$19,000**
 Mission: **Training NOE**
 Grade/Age/Experience:

	Grade	Age	RW Hrs	FW Hrs	Tot Flt Hrs
P	W2	27	1198	-	1198
CP	W2	(Age and flight time not included in report.)			

Description of Accident: Aircraft struck tree with tail rotor during NOE training flight. Pilot felt vibration, flew aircraft 400 meters

to first available field, and landed.

Cause of Accident

Initial: Crew-Pilot misjudged clearance between tree and tail rotor, causing extreme damage to tail rotor.

Contributing: None

Remarks: Out-of-balance condition of tail rotor contributed to damage to 90° gearbox following tree strike. Pilot had limited recent experience. The 6.6 hours on this flight was his only flight time in the past 60 days.

Corrective Action: Elimination of this type mishap depends on strict adherence to the precautions and training requirements set forth in FM 1-1.



SYNOPSIS 29-76

Type Aircraft: **TH-55A**
 Time: 0938 Classification: **Major**
 Fatalities/Injuries: **No Fatalities, 2 Injuries**
 Estimated Materiel Damage Cost: **\$19,590**
 Mission: **Training-practice hover autorotation**
 Grade/Age/Experience:

	Grade	Age	RW Hrs	FW Hrs	Tot Flt Hrs
IP	CAC	49	8000	-	8000
SP	WOC	25	9	66	75

Description of Accident: Aircraft was at stationary hover over hard-surfaced area. Student pilot closed throttle to perform hovering autorotation as directed by his instructor pilot. On landing, aircraft started severe vibration and main rotor head with blades attached separated from aircraft. Both crewmen received minimal injuries.

Causes of Accident:

Initial: Materiel failure—Mast fractured due to overstress forces generated by resonance vibration.

Contributing: Instructor pilot failed to make timely correction when student pilot applied excessive right pedal.

Remarks: Fractured mast was analyzed by Corpus Christi Army Depot and Hughes Aircraft Corp. Both analyses determined that the fracture was not progressive (fatigue) but due to an overstress mechanism of undetermined nature. The overstress mechanism was assessed to be a resonance vibration where the oscillatory forces peaked sufficiently to fracture the mast before any other damage. The TH-55 main rotor mast meets the design criteria for structural properties and no modification is contemplated.

FY 76 ACCIDENT BRIEF

FY 76 ACCIDENT BRIEF

SYNOPSIS 30-76

Type Aircraft: **UH-1H**
 Time: **1457** Classification: **Major (Total)**
 Fatalities/Injuries: **3 Fatalities, No Injuries**
 Estimated Materiel Damage Cost: **\$293,070**
 Mission: **Instrument Training**
 Grade/Age/Experience:

	Grade	Age	RW Hrs	FW Hrs	Tot Flt Hrs
IP	W2	28	1120	-	1120
SP	O1	24	91	-	91

Description of Accident: Aircraft was on routine instrument training flight. Witness

information indicated aircraft was heading east between 250-400 feet, went into diving left turn, impacted ground, exploded, and burned. Crash nonsurvivable.

Cause of Accident

Initial: Cause of accident is listed as undetermined.

Remarks: Aircraft was equipped with crash-worthy fuel cells and lines. Aircraft was also equipped with noncrashworthy auxiliary fuel tank. Board was reconvened and USAAAVS participated in deliberations. Cause remains undetermined.



SYNOPSIS 31-76

Type Aircraft: **OH-58A**
 Time: **0803** Classification: **Major (Total)**
 Fatalities/Injuries: **1 Fatality, No Injuries**
 Estimated Materiel Damage Cost: **\$151,665**
 Mission: **Service-passenger pickup**
 Grade/Age/Experience:

	Grade	Age	RW Hrs	FW Hrs	Tot Flt Hrs
P	CW2	28	1554	-	1554

Description of Accident: Solo pilot encountered inadvertent IMC while attempting to land at intermediate AAF on service mission from field site. Pilot flew aircraft into ground. Crash was nonsurvivable.

Causes of Accident

Initial: Crew error—Pilot flew into inadvertent weather conditions, lost control, and crashed.

Contributing: Supervisory error—Assignment of relatively new (three weeks in country) pilot to perform solo mission in marginal weather (low visibility with ground fog). No weather

information was available before takeoff and first weather report was from destination AAF tower.

Errors: Aircraft was not properly equipped to operate in IMC in that the attitude indicator was inoperative and aircraft is not instrument certified IAW Army regulations.

Remarks: Pilot's desire to complete personal considerations (coordinate off-post housing, shower, and receive medical attention) motivated him to attempt landing at AAF rather than return to suitable landing area at field site.

Corrective Action: Command is continuing to emphasize that pilots must execute discretionary landings when questionable or marginal weather conditions are encountered. SOPs have been revised or updated as required to cover weather information and the use of aircraft in obtaining weather information. The OH-58C aircraft will have an improved IMC capability.

FY 76 ACCIDENT BRIEF

FY 76 ACCIDENT BRIEF

UTILITY/ATTACK BRANCH

MAJ William C. Childree, Chief ■ 558-419

3 Accidents, 0 Fatalities, 1 Injury, Estimated Costs: \$141,000

UH-1

3 Accidents ■ Aircraft landed hard, damaging skids, swashplate, and short shaft. Accident is under investigation. ■ During simulated forced landing, tail stinger collapsed after hitting runway, allowing tail rotor blades to contact runway. Accident is under investigation. ■ Aircraft crashed while on search and rescue mission. Accident is under investigation with USAAAVS participation.

4 Forced Landings ■ Aircraft was at 4,000 feet and 80 knots when rpm audio came on. Rpm decreased below 6,000. Autorotation was initiated and crew insured that throttle was full open and governor was at max beep. Power was again applied and rpm went below 6,000. Autorotation was completed. Condition could not be duplicated by maintenance personnel. ■ Transmission oil pressure gauge dropped to zero. Maintenance inspection revealed failure of transmission internal oil filter gasket. ■ Engine fuel pump failed in cruise flight. ■ Series of loud bangs and vibrations occurred following power adjustment from climb to cruise. Pilot reduced power and then initiated autorotation. Aircraft is presently undergoing engine and power train inspection.

19 Precautionary Landings—following are selected briefs ■ Engine chip detector light activated on takeoff. Maintenance replaced engine. ■ At 3,500 feet, engine fire detection warning light came on. Short circuit was caused by moisture in connector. ■ Shortly after takeoff, crew noticed high frequency vibration through antitorque pedals. Takeoff was aborted. Aircraft was landed immediately and shut down. Caused by failure of hanger bearing assembly. ■ Aircraft was at 200 feet msl at 30 pounds torque and level flight when moderate vibration in airframe and tail rotor pedals was felt. Power was reduced and vibration lessened until power was applied for landing. Postflight inspection revealed approximately 1 to 2 feet free play in tail rotor blade movement. Ninety-degree gearbox was on 5-hour oil sample program for high metal content. (Chip detector did not illuminate.) Maintenance replaced 90° gearbox. ■ Pilot detected smoke and electrical fumes in cockpit and landed. Caused by loose electrical connection on UHF amplifier.

AH-1

4 Precautionary Landings ■ Engine oil bypass light came on. Aircraft was not serviced with engine oil after it was noted low. ■ Aircraft yawed right and torque, N1, and N2 fluctuated. Suspect fuel control malfunction. ■ Rpm audio came on and rotor rpm tachometer indication dropped to zero. Inspection revealed rotor tachometer generator failure. ■ SCAS went off line and voltmeter went to zero then came back on. Wing aircraft said he saw smoke coming from tail boom. Inspection revealed battery failure. □

LOH/CARGO BRANCH

MAJ Robert P. Judson, Chief ■ 558-4202

0 Accidents, 0 Fatalities, 0 Injuries, Estimated Costs: \$2,314

OH-6

1 Precautionary Landing ■ At 1,500 feet msl, engine began surging and aircraft was landed in field. Caused by failure of power turbine governor assembly.

OH-58

1 Incident ■ Main rotor blade struck evergreen tree branches while aircraft was hovering in confined area.

1 Forced Landing ■ N2 decreased to 74 percent. Collective was lowered in an attempt to regain power. However, engine did not regain normal operating range, and aircraft was landed in open field. Caused by failure of double check valve.

3 Precautionary Landings ■ Details of one precautionary landing not reported on PRAM. However, the PRAM stated that special oil samples were being required for main transmission every 5 hours and is

ing complied with. Now, what really happened is this: 23 minutes after takeoff, transmission chip detector light came on. Landing was made. Transmission is to be changed and EIR submitted. As you can see, we need all the information possible on PRAMs to assist you in safety matters. ■ At 1,500 feet msl, engine began surging. Collective pitch was reduced and aircraft was landed in field. Caused by failure of power turbine governor assembly. ■ Engine chip detector light came on. Inspection revealed excessive amount of metal chips on chip detector plug. Caused by internal failure of engine.

TH-55

1 Human Factor Mishap ■ Student pilot reported severe headache and dizziness. Medical evaluation revealed severe middle ear blockage caused these symptoms. Pilot has been grounded for treatment.

CH-47

1 Forced Landing ■ While in level flight at 2,000 feet agl, pilot felt immediate change in aircraft flight characteristics, coupled with severe lateral vibration and high-pitched whistling noise. Blade tip cap came loose on forward rotor blade and bent forward 90°, causing vibration.

2 Precautionary Landings ■ While descending from 3,000 feet msl to 2,000 feet msl in standard rate left turn, aircraft developed one-to-one vertical vibration in aft rotor. After approximately 2 minutes, vibration increased to moderate intensity. Vibration progressively increased in intensity during approach. Caused by rotor blade bonding failure. ■ Crew chief noticed hydraulic fluid in aft transmission sight gauge during flight. Seal between No. 1 flight boost pump and aft transmission failed.

MESSAGES RECEIVED

- 091400Z Aug 76, subject: Maintenance Advisory Message OH58A-76-6, Tail Rotor Blade Retention Bolts.
- 191604Z Aug 76, subject: Army-Interim Change to AR 60-21/AFR 147-15, Air Force-Emergency Change to AFR 147-15/60-21. □

FIXED WING BRANCH

CPT Donald P. Johnston, Chief ■ 558-3901

0 Accidents, 0 Fatalities, 0 Injuries, Estimated Costs: \$360

C-12

1 Precautionary Landing ■ (A series) No. 2 engine chip detector light came on. Caused by faulty chip detector plug.

RU-21

1 Incident ■ (B series) No. 1 propeller anti-ice boot separated from prop and dented aircraft skin. Loud noise caused crew to suspect failure of landing gear system. After landing, maintenance inspection revealed cause of noise. All prop boots were inspected and replaced.

1 Precautionary Landing ■ (D series) Pilot noticed .15 fluctuation of loadmeter. Battery switch was turned off and fluctuation decreased to about .05. Aircraft returned for landing. Caused by loose connection on multimeter.

U-21

3 Precautionary Landings ■ (A series) Fuel was siphoning from left nacelle fuel cap. Faulty fuel cap was replaced. ■ (G series) Fire warning light came on and warning horn sounded at 10,000 feet. There was no visible evidence of fire, but aircraft diverted for landing. No. 1 and No. 2 fire detector assemblies of left engine failed. ■ (F series) During test flight, pilot detected heat coming from cabin outlets. Pilot switched environmental control from auto to manual, moved blower to high and depressed heat decrease switch, but heat continued. Cabin air temperature circuit breaker was pulled and heat was reduced. Crew

stated temperature was above 110° F. and unbearable. Landing was completed and windows opened after rollout. Suspect malfunction of bleed-air bypass valve of flow control unit, causing bleed-air to dominate and overpower airconditioning system.

U-8

2 **Precautionary Landings** ■ After gear handle was placed in down position, unsafe gear indication was received. Emergency gear extension was used and landing was uneventful. Landing gear bolt/nut assemblies were worn excessively. (ARNG) ■ No. 1 engine failed on short final after power was reduced to zero thrust and before touchdown. Camshaft sheared at midpoint, causing vibration dampener, cap assembly, and cylinder push rod assembly to protrude through center of crankcase.

U-10

1 **Forced Landing** ■ Engine began running rough during IMC climbout. Pilot turned on boost pump to no avail. Immediate approach was initiated and engine quit during roundout for landing. Cause could not be determined by maintenance.

C-7

1 **Precautionary Landing** ■ While on final approach to LZ with skydivers, No. 2 engine oil temperature began to rise, pressure dropped, and low pressure light came on. Engine was secured and jumpers departed aircraft. Pilot returned for successful single-engine landing. Metal particles were present in oil. Suspect internal engine failure. □

MAINTENANCE MISHAPS

MSG B. R. Bailey □ 558-3901

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

OV-1

1 **Precautionary Landing** ■ Fuel was leaking from aircraft. Caused by improper torque on bolts securing aft fuel boost pump to fuel cell.

U-8

2 **Precautionary Landings** ■ Prop lever on No. 2 engine would not control rpm. Suspect improper torque on screw that secures lever assembly of governor to serrations of shaft and worm assemblies, thus permitting separation. ■ During test flight after PMP, No. 2 engine was shut down and feathered. Accumulator would not unfeather prop. Prop accumulator system was not charged.

U-3

1 **Precautionary Landing** ■ Landing gear failed to retract after takeoff. Internal failure of landing gear switch was caused by corrosion. *According to T.O. 1U-3A-2, paragraph 5-83A, switch 1VA20 will be packed with insulating compound to provide moistureproofing and prevent corrosion or shorting of switch.* □

AVIATION-RELATED GROUND MISHAPS

William P. Christian ■ 558-4202

7 Mishaps, 0 Fatalities, 3 Injuries, Estimated Costs: \$7,253

UH-1

■ UH-1 was being moved from wash ramp to hangar. Mechanic had finished jacking aircraft up with ground handling wheels. Tug driver asked for the "all clear" and got negative responses by crew. Tug proceeded and ground handling wheels on left side of aircraft ran over mechanic's left foot. All maintenance personnel were rebriefed on an administrative SOP which requires an all clear response. ■ An aviation unit conducted a mission to airlift a mobile air traffic control tower to the roof of a maintenance hangar. Initial operation of sling-loading the tower to the roof of the hangar was conducted early in the morning without incident. Later the same day it was decided to airlift a large box of windows to the roof. Ground guide maintained

radio contact with UH-1 pilot with a portable radio and he began walking backward in an attempt to maintain a safe distance from the helicopter. He did not realize he was approaching the edge of the hangar due to his preoccupation with guiding the helicopter. Ground guide tripped over a 3-inch-high lightning arrester cable, one foot from the roof edge and tumbled backwards over the edge of the roof. He fell 40 feet, landing face down on a secondary roof. A DF was prepared with the commander's signature placing all hangar roofs off limits to unauthorized personnel. Also, signs reading "OFF LIMITS TO UNAUTHORIZED PERSONNEL" will be placed on all ladders/steps leading to hangar roof. ■ As UH-1 was being towed into maintenance hangar, ground handling wheels installed on left skid were jarred loose from attaching point, allowing skid to fall on one of the hangar door rails, damaging skid beyond repair. This unit submitted a work order to post engineers to fill the spaces between the hangar door sliding rails with wood or concrete to make them flush with the floor. Also, an EIR was submitted to have the ground handling wheels redesigned.

OH-6

■ Climbing to upper deck of helicopter, mechanic apparently strained his back while trying to maintain his balance. Employee was cautioned about taking unsafe positions while working in high places.

OH-58

■ Individual was piloting remote control miniature aircraft in support of Vulcan demonstration firing. After launching remote control aircraft, operator lost all control due to suspected radio interference, causing aircraft to crash into OH-58. Investigation is underway to determine if interference from communication equipment on Army aircraft may cause remote control pilots to lose control.

CH-47

■ After refueling right fuel tank, fuel truck driver proceeded to drive M49C vehicle away from aircraft. He attempted to pass under forward main rotor blades and ramp flag, and top of fuel tanker struck underside of forward red rotor blade. Skin was punctured on blade in four places and leading edge of spar was gouged. Driver had been instructed on previous occasions *not* to drive under the forward rotor system of CH-47 aircraft. Authorized drug use may have been a factor in this mishap as the truck driver had been taking Valium (a tranquilizer) for about a month and a half. The POL unit involved was *again* instructed *not* to drive under blades of CH-47 helicopters. The truck driver has had his driving privileges suspended.

OV-1

■ Mechanic was working in cockpit of OV-1D to replace ID-663 navigation instrument when portion of instrument fell under pilot's seat. In an attempt to retrieve the part, he climbed out of the hatch and with one foot on the upper step, he leaned in the cockpit to pick up the part. His left foot slipped from the upper step and he reached to grab a corner of the pilot's seat, but mistakenly grabbed manual external stores release handle and left external fuel tank was released from wing and fell to pavement. Before this mishap, aircraft had been readied for flight and external stores safety pins, as well as landing gear locking pins, had been removed. Action to prevent a recurrence of this mishap was initiated by repainting all worn nonslip paint surfaces and establishing a policy that all external stores safety pins and landing gear locking pins stay installed until removed by the pilot before actual flight. □

MAKE AVIATION SAFETY THE SPIRIT OF '76



STACOM 7 ■ 1 SEPTEMBER 1976

DEPUTY FOR STANDARDIZATION, USAAVNC, FT. RUCKER, AL 36362
COL CLEMENT A. WYLLIE ■ 558-2603/3514

NICE COOL RUNNING ENGINE

A pilot's misinterpretation of HIT check procedures was cited as a factor during the investigation of a recent aircraft accident. Seems the HIT check performed by the crew prior to flight revealed an indicated egt of more than 30° C. BELOW baseline. The pilot remembering the dash 10 admonition of ". . . 30° C. or greater, aircraft should not be flown . . ." apparently felt that if baseline egt was good, -30° below was awfully good. The problem was that he had overlooked the rest of the sentence which states in its entirety, "If the DIFFERENCE between indicated egt and baseline egt is 30° C. or greater, aircraft should not be flown until troubleshooting determines cause for excessive egt." This applies to variations ABOVE and BELOW the line. The reference in this particular case is step 9b, paragraph 3-23A, TM 55-1520-210-10. It is quite possible that the term "excessive egt" is the real culprit. The adjective "excessive," as used here, relates to an unacceptable temperature variance from baseline and not necessarily to a very *high* egt. Maybe the dash 10 writers should take another look at this and see if the intent of this sentence could be more clearly stated.

POSITION REPORTS, QUESTIONS & ANSWERS

■ I recently encountered an unusual situation while flying a UH-1H. After turning on the battery switch, I noticed that the low engine oil pressure light did not illuminate. The segment light did come on when I pressed the caution panel test switch though. Do you have any idea what caused this and was the aircraft really safe to fly?

The oil pressure transmitter and the master caution system are on separate electrical circuits—28 VAC and 28 VDC respectively—so the situation you describe was not really unusual. What was indicated is that a fault existed in the oil pressure indicating and warning system. The aircraft should not have been flown until this was corrected. Paragraph 4-6, TM 55-1520-210-10, describes the actions to be taken when such a failure occurs in flight, and it is only logical that a takeoff should not be attempted when the fault is discovered on the ground. The fact that the segment light came on when you tested the caution panel merely indicates that the bulbs were OK and that the master caution system worked properly. The reset-test switch *does not* check the individual warning systems. Take a look at TM 55-1520-210-10, chapter 2, paragraphs 2-27 through 2-34.

■ There seems to be a contradiction in paragraph 3-30, AR 95-1. This paragraph says first that supplementary oxygen is required above 10,000 feet, then authorizes flight all the way up to 14,000 without it. Was it intended to restrict flight above 10 to the conditions stated, or is the phrase ". . . necessary to clear high terrain or local weather . . ." only used as an example?

The intent was to restrict flight above 10,000 feet to those two conditions, and only for the time period indicated. Flight above 10,000 feet without oxygen is not authorized for any other purpose. This paragraph has not been clearly understood in the past so the revised 95-1 will state "solely for the purpose of clearing high terrain or local weather."

- **What is your opinion of using the UH-1H stinger as a support to stand on while inspecting the tail rotor? Won't this damage the aircraft?**

While the possibility of damage to the aircraft is fairly remote, damage to the inspector is an eventual certainty. About the best advice that can be given anyone who insists on using the stinger for this purpose is to be sure both legs come down on the same side of the thing when the fall occurs—ás it will. Should this advice be ignored, the unlucky inspector will quickly learn a new dimension of the term "stinger." Quite simply stated, it's a dumb idea; use a ladder or maintenance platform if you wish to closely inspect the tail rotor area.

- **We have heard of some units establishing training policies which prohibit approaches to the ground or touchdown autorotations for the first 30 minutes of flight in UH-1H aircraft. There have been all sorts of reasons given for these policies, some of which don't sound reasonable. Is there really any purpose for this limitation?**

The restriction applied to touchdown autorotations and approaches to the ground is related to aircraft CG location, not necessarily to flight time. The reference on this is contained in paragraph 7-11, TM 55-1520-210-10. This reference is a CAUTION note which states that when flying with an aft CG (STA 140 to 144) terminate all approaches to a 5-foot hover. Apparently, units which have imposed a time restriction have computed the CG to be forward of that point after 30 minutes based on fuel consumption and a standard loading configuration. There is nothing wrong with this, providing a 365F is available for the aviator to verify that the CG will in fact be forward of STA 140.0 after 30 minutes of flight.

- **Under what circumstances may an aviator (not a maintenance officer) change an aircraft status symbol to a Red X?**

An aviator may change the symbol to a Red X ANYTIME he feels the condition is more serious than presented. An example would be a write-up stating "slight dent in leading edge of white M/R blade," which turns out to be a gaping 6" rip. The reference on this is TM 38-750, page 4-2.

- **How can an SIP who is not tactics/NOE qualified fully comply with the requirements of TC 1-35, Appendix C, paragraph 2b(3)(b)2? This reference states that four maneuvers from each operational area (including tactics) are required to be performed during an IP flight evaluation.**

Friend, you have touched a very sensitive area. AR 95-63, paragraph 1-16b(1), established a requirement that instructor pilots be qualified to instruct tactics, visual, instrument flight procedures, and safety way back in 1973. At the time this regulation was written, it was recognized that not all instructor pilots would possess these skills but it was very definitely intended that they would gain them. As far as the TC is concerned, you still have an out in that the circular does not prohibit using two SIPs to give one evaluation. So if you are not presently tactics/NOE qualified, have an SIP who is qualified in this area conduct that portion of the evaluation. In the meantime, get yourself up to speed.

LET'S EVERYBODY GET INTO THE ACT

STACOM has been appearing regularly for 6 months now with very favorable field response. So favorable, in fact, that we would like your help in writing it. Currently, the questions and comments that appear are gleaned from observations made during our evaluation/assistance visits and phone calls, letters, etc., that we receive. We then print those items that are considered to be of general interest or concern to the most people. Now here's the rub; regardless of the number of calls we get, or the amount of traveling we do, we can't see it all. Therefore, we make no pretense of knowing it all (though we're sure trying). That's where you come in. In addition to asking for answers to specific questions, how about giving us and the rest of Army aviation the benefit of your knowledge and experience by providing some input yourselves. If you've had some unique experience or learned something that the rest of us may not have, let's get the word out. Please don't keep it to yourself because of a feeling that you may have just learned something

that everyone else already knew. You would be surprised. No need to bother with formal military correspondence either. Just write or type your comment, observation, revelation, or whatever on a handy piece of paper and mail it to: Commander, U.S. Army Aviation Center, ATTN: ATZQ-S-FS (STACOM), Fort Rucker, AL 36362. Please include a reference, if appropriate, and your name and phone number.

NOTICE

We have changed our 24-hour Flight Standardization Information Center number to AUTOVON 558-2603 or Commercial (205) 255-2603. There were just too many complaints of poor reception quality on 3504 so we're going to give this new number a tryout. Let us know if you have any problems with it.

DEPARTMENT OF THE ARMY
UNITED STATES ARMY
AGENCY FOR AVIATION SAFETY
FORT RUCKER, ALABAMA 36362

OFFICIAL BUSINESS

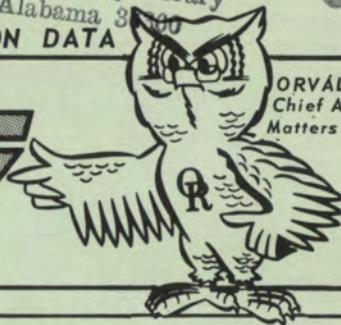


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FLIGHTFAX/13-19 AUGUST 1976



FLIGHT FAX



ORVAL RIGHT
Chief Advisor on
Matters of Aviation

A USAAVS PUBLICATION

VOL. 4, NO. 46 ■ 8 SEPTEMBER 1976

mishaps for the period of 20-26 AUGUST 1976

OFF WITH THE JEWELRY

These photographs show what can happen when you wear jewelry and other items around machinery. Any type of jewelry is out of place in shops and while working around aircraft. Fingers can be lost or other serious injury could be caused. Rings, watches, chains, etc., should not be worn while working near battery terminals because a short circuit may cause an arc and result in a severe burn.



While checking a UH-1 battery for fluid level, a crew chief hit her watch on one of the connecting straps. The top was off the battery and the cell connecting straps were exposed. The watch was ruined and the battery was completely discharged. The crew chief sustained first- and second-degree electrical burns.

The owner of this hand was preflighting a helicopter when he slipped and fell. His wedding band caught on a projecting piece of metal and dug into his flesh.



A crew chief was reaching into the battery compartment of a UH-1 to remove a piece of safety wire when his wings touched the battery terminals, causing a shorting condition.



Safety-of-Flight Message

■ 301500Z August 76, subject: Safety-of-Flight Message: One-Time Inspection of Forward and Aft Main Transmissions on all CH-47A, B, C Aircraft. Summary: During teardown analysis of a failed CH-47 aft transmission it was determined that the failure probably was caused by an improper shim which had been installed in the first stage sun and bevel gear assembly at time of overhaul. A plain solid shim had been erroneously installed instead of the required scalloped tin-plated configuration. Subsequent investigation has revealed no evidence

to indicate that other forward and aft transmissions were incorrectly assembled with plain solid shims and the probability of another similar failure is very remote. Nevertheless, to insure that all shims are scalloped, an inspection of all listed transmissions which have been repaired or overhauled will be performed by a contractor team. Inspection will cover installed transmissions and those spares located at unit level and in depot stock. The team will use contractor-furnished inspection tools and require the assistance of Army depot or unit maintenance personnel and field maintenance tech. Contact: Mr. Gil Adkins, AVSCOM, AUTOVON 698-6042, commercial (314) 268-6042.

FY 76 ACCIDENT BRIEF

SYNOPSIS 32-76

Type Aircraft: **AH-1G**
 Time: 1600 Classification: **Minor**
 Fatalities/Injuries: **None**
 Estimated Materiel Damage Cost: **\$86,040**
 Mission: **Training—gunnery training**
 Grade/Age/Experience:

	Grade	Age	RW Hrs	FW Hrs	Tot Flt Hrs
IP	W2	30	1407	200	1607
P	O3	29	294	-	294

Description of Accident: Aircraft attempted takeoff from rearming pad. Insufficient power and antitorque control resulted in descending turn to right. Aircraft struck tree and ground,

causing major damage.

Causes of Accident

Initial: Crew—IP attempted to take off when aircraft exceeded maximum design gross weight by 285 pounds.

Contributing: Unit commander—Failed to enforce operational procedures pertaining to weight and balance of aircraft. Weather—High density altitude further reduced aircraft performance capability.

Remarks: USAAAVS has submitted letters to the CG, TRADOC, and CG, DARCOM, containing proposed recommended changes to the UH-1 and AH-1G operating manuals and recommendations to revise training programs.



SYNOPSIS 33-76

Type Aircraft: **TH-1G**
 Time: 1720 Classification: **Minor**
 Fatalities/Injuries: **None**
 Estimated Materiel Damage Cost: **\$61,873**
 Mission: **Transition training**
 Grade/Age/Experience:

	Grade	Age	RW Hrs	FW Hrs	Tot Flt Hrs
IP	O3	29	3104	-	3104
Rated SP	W2	26	1008	-	1008

Description of Accident: During touchdown autorotation, tail rotor, tail stinger, and tail boom struck ground. Visual inspection was made and flight was continued. Postflight inspection revealed damage to tail rotor and

90° gearbox.

Causes of Accident

Initial: Crew error—IP allowed SP to pull excessive pitch during touchdown autorotation, causing loss of rotor rpm. Hard landing resulted.

Contributing: IP had 7 hours IP experience in this model/series aircraft.

Remarks: IP and pilot continued to fly aircraft approximately 20 minutes after hard landing in violation of AR 95-1, AR 95-26, as supplemented by USAAVNC and TRADOC publications. Supervision is considered a noncontributing factor. IP had not read the regulations contained in the reading file pertaining to action following suspected damage.

FY 76 ACCIDENT BRIEF

FY 76 ACCIDENT BRIEF

FY 76 ACCIDENT BRIEF

FY 76 ACCIDENT BRIEF

FY 76 ACCIDENT BRIEF

FY 76 ACCIDENT BRIEF

SYNOPSIS 34-76

Type Aircraft: **NRU-9D**
 Time: **0955** Classification: **Minor**
 Fatalities/Injuries: **None**
 Estimated Materiel Damage Cost: **\$2,228**
 Mission: **Service**
 Grade/Age/Experience:

	Grade	Age	RW Hrs	FW Hrs	Tot Flt Hrs
P	LTC	46	2201	2829	5030

Description of Accident: Pilot was on takeoff roll when nose gear collapsed.
Causes of Accident
Initial: Materiel failure of nose gear steering

assembly.

Contributing: Suspect prior stress damage to steering cylinder assembly and over center lock resulting from previous ground handling accident. Maintenance (suspect)—No record of required inspection IAW page 81, TM 1-16-26-6, and par. 7-117, TM 55-1500-204-25/1, following ground handling mishap was indicated. Cited manuals require dye penetrant or magnetic particle inspection. Training (suspect)—The Army has no formal military school maintenance training courses for this aircraft.



SYNOPSIS 35-76

Type Aircraft: **OH-58A**
 Time: **1300** Classification: **Major**
 Fatalities/Injuries: **None**
 Estimated Materiel Damage Cost: **\$21,000**
 Mission: **Training—CRF. Simulated anti-torque failure**
 Grade/Age/Experience:

	Grade	Age	RW Hrs	FW Hrs	Tot Flt Hrs
IP	W3	37	2240	1235	3475
P	O2	26	430	18	448

Description of Accident: During fixed right pedal antitorque practice, IP demonstrated landing with transition pilot controlling pedals. When power recovery was attempted, severe spike knock was encountered, resulting in major damage.
Causes of Accident
Initial: Crew error—IP attempted nonstandard maneuver beyond his capability.

Contributing: Limited experience of IP in OH-58 aircraft. Design—Limited flapping angle of main rotor head (8½°) induces spike knock and pylon whirl with minimal control input at critical phase of flight. Supervision (suspected)—Designation of IP by commander leaves reasonable doubt the most qualified individual was selected. Training—Local training of IP inadequate.

Remarks: USAAAVS data indicate that since 1 July 1969, the OH-58 has been involved in seven training mishaps during simulated anti-torque maneuvers. Four of these mishaps were total loss accidents. During the same period only two actual in-flight emergencies occurred involving loss of antitorque control. Both resulted in precautionary landings. USAAVNC is presently conducting stuck pedal as a "demonstration only" for initial entry students. Maneuver is still required for all aviators during unit standardization rides.

FY 76 ACCIDENT BRIEF

UTILITY/ATTACK BRANCH

MAJ William C. Childree, Chief ■ 558-4198

1 Accident, 0 Fatalities, 0 Injuries, Estimated Costs: \$64,701

UH-1

1 Accident ■ Aircraft lost engine and rotor rpm 100 feet agl. Pilot completed autorotation to downhill slope. Main rotor severed tail boom on touchdown and aircraft slid to stop upright. Accident under investigation.

1 Incident ■ Hellhole panel and cargo hook ring were damaged by oscillating load of lumber being sling loaded to field site.

1 Forced Landing ■ Aircraft was in cruise flight at 500 feet agl when engine rpm decreased to 6000. Pilot lowered collective to maintain rotor rpm, engine rpm increased to 6600, and pilot rolled throttle down to prevent engine overspeed and established autorotative glide. Engine surged and needles split. Maintenance test revealed failure of governor assembly (overspeed).

25 Precautionary Landings—following are selected briefs ■ Tail rotor chip detector light came on during hover/taxi. Ninety-degree gearbox was replaced. ■ Master caution light came on with no segment lights. Master caution panel assembly was replaced. ■ Crew heard thud and felt aircraft yaw slightly. Caused by internal compressor failure. ■ Left fuel boost pump light and master caution light activated. Caused by failure of left fuel boost pump. ■ Transmission oil pressure warning light came on. Oil pressure transmitter was replaced.

AH-1

4 Precautionary Landings ■ Engine oil temperature indication dropped to zero. Ground wire to engine oil temperature indicator shorted out. ■ Engine chip detector light illuminated and loud grinding was heard from engine. Suspect accessory gearbox failure. ■ Pilot detected battery fumes coming from forward battery compartment. Inspection revealed improperly adjusted voltage regulator. ■ No. 2 hydraulic light and master caution light came on. Hydraulic pump was replaced.

MESSAGES RECEIVED

■ R201925Z Aug 76—Maintenance Advisory Message from AVSCOM Concerning UH-1 Hoses, Part No. 70-009 (GEN-76-22). □

LOH/CARGO BRANCH

MAJ Robert P. Judson, Chief ■ 558-4202

0 Accidents, 0 Fatalities, 0 Injuries, Estimated Costs: \$16,000

OH-58

1 Incident ■ Approximately 30 feet agl, pilot heard loud popping sound and experienced control shudder. Aircraft lost power and settled to ground, resulting in hard landing. Suspect failure of No. 4 axial compressor.

5 Precautionary Landings ■ Transmission hot light came on. Caused by corrosion in warning light connector. ■ Transmission oil pressure light came on. Caused by failure of switch, NSN 5930-00-168-8019. ■ Pilot smelled strong fumes and saw liquid on right cargo floor. Passenger had kicked over a can of engine cleaner. ■ Aircraft was on maintenance test flight when hydraulics and master caution illuminated, coupled with surging type noise from engine area. Emergency procedures failed to return hydraulic assist on line. Test pilot completed landing to runway. Postflight inspection revealed loss of fluid caused by nut on "T" fitting of collective servo backing off. ■ Aircraft was on climbout when master and hydraulic caution lights illuminated and there was stiffness in control response. Caused by failure of hydraulic pump.

MAKE AVIATION SAFETY THE SPIRIT OF '76

U.S. ARMY AGENCY FOR AVIATION SAFETY
FORT RUCKER, ALABAMA 36362

Prepared from information compiled by the
Directorate for Aircraft Accident Analysis
and 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,
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COMMERCIAL: 255-XXXX

AUTOVON: 558-XXXX

Questions Concerning Aviation Portions of
ARs 95-5, 385-40, and 385-10 4479/4812
For Assistance in Locating Proper Directorate 4479
Aircraft Accident Analysis and Investigation 3913/4202
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Staff Duty Officer (1800-0700 hours) 6510

TH-55

Forced Landing ■ Engine started running rough and then began losing power at an increasing rate. Caused by failure of push rod assembly on No. 4 cylinder.

1 Precautionary Landing ■ IP noted high frequency vibration immediately after takeoff. Maintenance inspection revealed excessive movement in pulley assembly and frame of main rotor belt transmission.

CH-47

1 Incident ■ During preflight, pilot partially fastened upper fastener on combining transmission clamshell access doors to secure them from the wind. Crew chief did not finish securing fasteners after pilot's preflight. Fastener vibrated loose in flight and clamshell doors flew open. Crew had no indication of the condition until another aircraft advised them that doors were open and bent back behind engine nacelles. Caused by improper preflight inspection. (ARNG)

4 Precautionary Landings ■ Crew chief discovered hydraulic leak in vicinity of No. 2 flight boost pump. (ARNG) ■ Pilot and crew detected hydraulic fumes in aircraft during flight. Utility pressure dropped to zero. Utility hydraulic pump failed, causing shaft failure and cracking bearing housing. Crack in housing caused loss of system fluid and pressure. (USAR) ■ Combining transmission oil pressure dropped to 15 psi during flight. Caused by defective pressure transducer. ■ Oil leak developed in aft transmission's AGB area during flight. Spring in generator garlock seal broke, allowing transmission oil to flow through seal.

THOUGHT FOR THE WEEK

KILL IT BEFORE IT SPREADS . . . you across the countryside—
with the mission comes the challenge,
with the challenge comes performance,
with performance comes perfection,
with perfection comes confidence,
with confidence comes COMPLACENCY,
with COMPLACENCY comes tragedy,
with tragedy comes flowers,
with flowers comes the countryside.
COMPLACENCY is for "coffin-pits," not cockpits!

FIXED WING BRANCH

CPT Donald P. Johnston, Chief ■ 558-3901

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

T-42

1 Incident ■ Upon landing, aircraft bounced and began "porpoising." Aircraft remained on runway after fourth bounce. Inspection revealed both blades of No. 2 prop were bent aft approximately 1 inch. Three prop strikes were found in runway about 600 feet from threshold.

1 Precautionary Landing ■ During cruise flight at 8,500 feet msl, No. 1 engine cylinder head temperature and oil temperature increased to high limits and oil pressure decreased to lower limit. Pilot went to full rich while descending through 5,000 feet and gauge returned to normal. Definite cause could not be determined.

U-8

1 Precautionary Landing ■ Immediately after gear retraction on takeoff, No. 2 engine began to surge and lose power. Engine was secured and single-engine landing was made. Cause could not be determined, but fuel injector nozzle and other fuel system components were changed as a precaution.

RU-21

1 Forced Landing ■ (A series) During approach for landing at refueling stop, pilot noticed smoke coming from floor aft of copilot seat. Within 5 seconds, thick smoke filled aircraft and pilots were unable to see each other. Copilot could not see to secure electrical equipment. Opening both vent windows made the situation worse. Pilot's vent was then closed, allowing smoke to vent out copilot's window. Descent was accelerated and landing was made. One tire was damaged by hard braking. Crew and passengers all suffered from smoke inhalation. Caused by thermal runaway of nicad battery.

1 Precautionary Landing ■ (D series) During takeoff and landing, instructor pilot noticed severe vibration. Maintenance found that balance pad on left wheel had shifted. □

AVIATION-RELATED GROUND MISHAPS

William P. Christian ■ 558-4202

4 Mishaps, 0 Fatalities, 2 Injuries, Estimated Costs: \$2,690

UH-1

■ Mechanic was lowering right skid ground handling wheel assembly on UH-1H before removing wheel. Left wheel came down faster than right wheel, causing right skid to spring up and bounce back down. As right skid bounced down, right ground handling wheel assembly disengaged from skid, striking mechanic on left forearm. An EIR, number 514333, was submitted recommending that all hydraulic jack/truck helicopter assemblies be modified to increase the length of the pin and pin support on jack assembly. ■ Mechanic was preparing to relocate helicopter from parking pad to wash rack. He installed ground handling wheels and was operating hydraulic jack handle when support pin, NSN 5315-00-895-6799, and fixed pin, NSN 1680-00-670-7977, slipped out of eyebolt, NSN 5306-00-883-4462, and struck and injured his left hand and arm. All personnel at this unit were presented instructions on the proper procedures and operation of ground-handling wheels. Mechanic was working alone and did not lower tail of aircraft during hydraulic pumping procedure.

AH-1

■ Helicopter was being towed from paint shop to flight line. Approximately 75 feet from hangar, crossing over railroad tracks, left ground-handling truck assembly became disengaged from eyebolts, flew upward, and careened off inboard pylon. The tug was stopped, but the aircraft passed over the truck assembly, causing damage to underside of aircraft. EIR was submitted recommending the installation of a positive locking device to secure pin support in full extended position.

T-42

■ Aircraft was on jacks for landing gear maintenance. Tail block was installed with bolt through tiedown ring. Bolt came out of tiedown ring and tail stand. (Landing gear was retracted.) Aircraft nosed over and shifted to right, hitting No. 2 prop on hangar floor and caused right-hand jack to slide aft, puncturing fuselage 12 inches aft of right-hand jacking point. □

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FLIGHT FAX



ORVAL RIGHT
Chief Advisor on
Matters of Aviation

A USAAVS PUBLICATION

VOL. 4, NO. 47 ■ 15 SEPTEMBER 1976

mishaps for the period of 27 AUG-2 SEP 1976

US Army Aviation Training Agency
Fort Rucker, Alabama 36360

MURPHY STRIKES AGAIN

A recent Equipment Improvement Recommendation (EIR) reported the following: A T-42 was test flown and released for flight after the left engine was removed and reinstalled for engine mount replacement. After approximately 5 hours of seemingly normal operations during short missions the pilot complained of a fuel odor on takeoff.

WANTED FOR CORRECTION

Think life is just a game. Everything he designs goes together in some neat set way.

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

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

Investigation revealed that fluid was venting overboard from the anti-icing reservoir and that the reservoir was full of 115/145 AVGAS. Further investigation revealed that Hose Assy, Eng Fuel Return (MS28741-4-0222), figure 76, item #1, and Hose, L/H Anti-icing Fluid (MS28741-4-0170), figure 73, item #39, T-42 Repair Parts Manual, had been crossed aft of engine baffle, P/N 96-910015-49, during reinstallation of the engine. This allowed

fuel returned from the engine to be directed to the anti-icing reservoir, forcing fluid overboard.

The EIR recommended "possibly changing one of the bulkhead fittings and associated lines to a different size to preclude crossing of these lines and to help eliminate the possible introduction of fuel and fuel vapors into the electrical bay of the aircraft."

While this is the ideal design technique, identification (color coded) of the lines as prescribed in par. 3-155 through par. 3-163, TM 55-1500-204-25/1, General Aircraft Maintenance Manual, and caution when reconnecting lines will minimize the chances of this recurring.

AVIATION LIFE SUPPORT EQUIPMENT FIREMAN'S BOOTS

Boots, Fireman's, rubber, black, 13½ inches high, in sizes 4, 5, 6, 7, 9, 11, 12, 13, 14, and 15, are not listed as an adopted Army item in chapter 8 of SB 700-20. However, sizes 8 and 10 are listed under line C-07571. Action is being taken to adopt all sizes for Army use. Availability and requisitioning instructions will be listed in the Supply Information Letter when published by Defense Personnel Support Center.

Contact points:

■ Commander, USAAVSCOM, ATTN: DARCOM-POLSE (Mr. A.B.C. Davis), P.O. Box 209, St. Louis, MO 63166, AUTOVON 698-3241/3291.

■ Commander, USAAAVS, ATTN: IGAR-TA, Fort Rucker, AL 36362, AUTOVON 558-4806/2091.

**U.S. ARMY AGENCY FOR AVIATION SAFETY
FORT RUCKER, ALABAMA 36362**

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FY 76 ACCIDENT BRIEF

SYNOPSIS 36-76

Type Aircraft: **UH-1H**

Time: 1014 Classification: **Major**

Fatalities/Injuries: **3 Fatalities, No Injuries**

Estimated Materiel Damage Cost: **\$293,070**

Mission: **Training**

Grade/Age/Experience:

	Grade	Age	RW Hrs	FW Hrs	Tot Flt Hrs
IP	W2	29	3026	-	3026
P	W2	30	2891	-	2891

Description of Accident: Aircraft had just refueled and was beginning the second flight period. Aircraft made normal takeoff and appeared to be flying normal traffic pattern. On downwind, pilot reported, "I'm going down." Witnesses stated aircraft made a turn away from the airfield and appeared to be in autorotation. No further transmissions were received from aircraft. Aircraft crashed in small open area surrounded by tall trees. Postcrash fire con-

sumed aircraft. Crash was nonsurvivable.

Causes of Accident

Initial: Materiel (engine). Primary cause of engine failure was not determined by CCAD. Ultimate engine failure can be attributed to creep rupture of the first stage gas producer turbine.

Contributing: Supervisor failed to require that engine be sent to maintenance when FOD was detected. Maintenance failed to use adequate diagnostic procedures for repeated pilot write-ups of inadequate aircraft performance. IP failed to use established emergency procedures by attempting to extend his glide.

Corrective Action: More definitive guidance has been included in the maintenance SOP for actions to be taken on pilot reports of inadequate engine performance or out of tolerance-HIT checks. Operational pilots have been made aware of the correct maximum glide procedures for UH-1 aircraft.



SYNOPSIS 37-76

Type Aircraft: **UH-1H**

Time: 1325 Classification: **Major (Total)**

Fatalities/Injuries: **5 Fatalities, 5 Injuries**

Estimated Materiel Damage Cost: **\$293,070**

Mission: **Service**

Grade/Age/Experience:

	Grade	Age	RW Hrs	FW Hrs	Tot Flt Hrs
IP	W2	32	3121	252	3373
P	O1	21	201	300	501

Description of Accident: Shortly after takeoff from field site, aircraft entered right descending turn into canyon and crashed into canyon wall. Accident considered nonsurvivable due to deformation of occupiable area and/or G forces, although five individuals survived. Aircraft did not burn.

Causes of Accident

Initial: Crew error-IP attempted tactical flight at conditions of weight, power available, and weather beyond the capabilities of the aircraft.

Contributing: IP attempted tactical flight with passengers and field equipment load in excess of aircraft capability. Deteriorated engine

(erosion) resulted in less than rated military power available for aircraft. Unit maintenance failed to take proper corrective action for known engine performance deficiencies. Overall condition of engine and aircraft indicates substandard maintenance practices. Unit commander failed to provide adequate maintenance supervision and did not assure adequate mission planning. Suitable, easy-to-use power charts are not presently available to field units to accurately determine UH-1H performance capability.

Remarks: Investigation revealed no catastrophic failure of any of the aircraft components or systems. However, teardown analysis of the engine did show an abnormal amount of erosion in the compressor section and on the N1 nozzle.

Corrective Action: USAAAVS has initiated action to upgrade quality and clarity of UH-1/AH-1 performance charts; has recommended formal weight and balance training be increased; has recommended a compact computer (whiz wheel) be developed for easy and accurate use in the cockpit.

FY 76 ACCIDENT BRIEF

FY 76 ACCIDENT BRIEF

SYNOPSIS 38-76

Type Aircraft: **OH-58A**
 Time: **1045** Classification: **Major**
 Fatalities/Injuries: **None**
 Estimated Materiel Damage Cost: **\$21,000**
 Mission: **Training**
 Grade/Age/Experience:

	Grade	Age	RW Hrs	FW Hrs	Tot Flt Hrs
IP	CW2	23	1198	-	1198
P	CPT	31	464	15	479

Description of Accident: After two IP demonstration autorotations, pilot was attempting his first autorotation. Deceleration and initial pitch was applied at the proper time. At a point 6 inches to 1 foot off the ground, pilot applied aft cyclic, causing tail stinger and aft portion of skids to hit ground. IP took control of aircraft and completed maneuver. Landing damaged tail boom and aft fuselage.

Causes of Accident

Initial: Crew error—IP failed to take appropri-

ate corrective action in time to prevent aircraft from landing in tail-low attitude.

Contributing: Pilot error—Pilot applied aft cyclic at a critical point in the maneuver, causing tail stinger to hit ground.

Remarks: The input by the pilot is partially explained as a reflex and not an intentional input. There is a potential for negative habit transfer during autorotation between the UH-1 which requires aft cyclic during termination and the OH-58 which requires a forward application. All units of the command were made aware of the suspected psychological factors involved in this mishap.

Corrective Actions: Noncontributory factors present in this mishap resulted in USAAAVS recommending that the qualification checkride be given by an IP not involved in the pilot's transition training. As a result of several practice autorotation mishaps, DA is currently reviewing its practice touchdown autorotation policy.



SYNOPSIS 39-76

Type Aircraft: **T-42A**
 Time: **1050** Classification: **Minor**
 Fatalities/Injuries: **None**
 Estimated Materiel Damage Cost: **\$5,453**
 Mission: **Service—passenger pickup**
 Grade/Age/Experience:

	Grade	Age	RW Hrs	FW Hrs	Tot Flt Hrs
P	CW3	42	529	3800	4329
CP	CW2	27	1675	427	2102

Description of Accident: Electrical failure occurred during IFR flight. Pilot descended to VFR and located landing site. Copilot cranked gear down for landing, using emergency procedures. However, he failed to crank gear down sufficiently to place gear in locked position. Crew relied on mechanical nose gear down indicator to verify gear down and locked.

Causes of Accident

Initial: Design—Landing gear failed to fully extend and lock although crew followed prescribed manual gear extension procedures. No positive locking indications are available to the crew without electrical power.

Contributing: Materiel—Left alternator failed due to broken field wire. Maintenance—Right alternator had excessively loose belt which caused it to be inoperative when placed under extra load. Supervisory—Airworthiness Directive 72-19-4, Battery Monitoring System, dated 27 Sep 73, had not been complied with. Instructions would have provided positive indication of electrical drain and enabled conservation of electrical power.

Errors: Supervision—Maintenance failed to properly tighten right alternator drive belt. Noncompliance with airworthiness directives.

Corrective Action: This aircraft is a "unique" aircraft and no military maintenance training is provided for unit personnel. There is a training program established by the vendor; however, tuition and TDY must be funded by organization sending personnel. Beech has published service bulletin #724-211 authorizing the installation of a positive down lock system on the T-42A. USAAAVS is coordinating with AVSCOM recommending this bulletin be made a mandatory compliance item for T-42 aircraft.

FY 76 ACCIDENT BRIEF

FY 76 ACCIDENT BRIEF

FY 76 ACCIDENT BRIEF

UTILITY/ATTACK BRANCH

MAJ William C. Childree, Chief ■ 558-4198

1 Accident, 0 Fatalities, 0 Injuries, Estimated Costs: \$301,550

UH-1

1 Accident ■ At 1,000 feet msl, crew heard explosion-type sound from rear of aircraft, followed by rpm warning indication. This was accompanied by left yaw. Pilot entered autorotation and turned toward shoreline. Successful ditching and egress were accomplished. Accident is under investigation.

1 Incident ■ Aircraft was engaged in NOE flight training. Pilot hovered too close to tree line, resulting in main rotor blade strike.

19 Precautionary Landings—following are selected briefs ■ During straight and level flight, cyclic lurched forward and left. Suspect failure of left lateral servo irreversible valve. ■ Left fuel boost warning light illuminated during NOE pinnacle operation. Caused by left fuel boost pump failure. ■ Rotor tachometer failed in flight. Tachometer generator shaft was sheared. ■ Transmission oil hot caution light and master caution light came on. Maintenance replaced temperature switch. ■ EGT rose to 590° C. with 94% N1. Engine is under evaluation by maintenance personnel. Aircraft was previously red X'ed for high HIT check.

AH-1

2 Incidents ■ During NOE flight over lava rock formation, aircraft yawed right, causing right skid to hit rock formation. Skid broke at forward crosstube attaching point. ■ Aircraft struck powerlines, severing UHF/VHF antenna from aircraft.

5 Precautionary Landings ■ Engine chip detector light came on. Special oil sample was submitted. Suspect engine deterioration. ■ Transmission oil hot light came on. Maintenance cleaned oil cooler radiator and aircraft was released for flight. ■ On takeoff, whining sound from hydraulic pump was heard and No. 2 hydraulic caution light illuminated. Caused by cracked elbow fitting. ■ No. 2 hydraulic system light came on, followed by loss of No. 2 hydraulic system. Caused by loose fitting in N2 hydraulic system on pressure return line. ■ No. 2 hydraulic warning light came on. Caused by failure of hydraulic solenoid valve. □

LOH/CARGO BRANCH

MAJ Robert P. Judson, Chief ■ 558-4202

0 Accidents, 0 Fatalities, 0 Injuries, Estimated Costs: \$8,226

OH-6

2 Precautionary Landings ■ Transmission oil pressure light came on. Caused by dirty oil filter. ■ Transmission oil pressure light came on during hover before takeoff. Transmission oil filter was clogged. Magnesium was found and transmission replaced. These precautionary landings occurred 5 days apart and involved the same aircraft.

OH-58

8 Precautionary Landings ■ Transmission oil pressure light came on. Caused by failure of switch, NSN 5930-00-168-8019. ■ Pilot noticed engine oil temperature was 110° C. on short final. Approach was completed and temperature went back to normal. Condition could not be duplicated. ■ Aircraft was in cruise flight when hydraulic oil pressure light started flashing. Crew could hear squeal emitting from vicinity of hydraulic pump. Caused by failure of hydraulic pump. ■ Ammeter surged from 25 to 100 amps in 15 seconds. Battery fumes entered cockpit as all electrical systems were secured. Caused by failure of voltage regulator. ■ Engine chip detector light came on. Metal chips were found on plug. Caused by failure of No. 2 compressor bearing. ■ Aircraft was in cruise flight when pilot smelled odor in cockpit similar to burning electrical wiring. *No other information was received on this mishap. PRAMs should contain all the information required by paragraph 13-4, AR 95-5.* ■ Transmission hot light came on. Caused by failure of heat sensing unit, NSN 5390-00-299-1066. ■ Transmission chip detector light came on during climbout. Caused by internal failure of transmission.

TH-55

2 Incidents ■ During hovering autorotation, SP applied abrupt up collective at throttle reduction. IP added throttle for power recovery. SP added right pedal, requiring IP to apply left pedal to correct SP error. IP's left pedal broke and his foot went through the windshield. Landing was made without further damage. ■ SP completed start, rotor engagement, and warmup with all operations normal. Rpm was reported at 1850 for less than 5 seconds when loud grinding noise was heard and aircraft shuddered. Engine rpm went to about 4000 and rotor rpm decayed. IP closed throttle and turned off all switches. Caused by failure of aft bearing cone on main transmission input pinion shaft.

3 Forced Landings ■ All three were caused by engine stoppage due to fuel exhaustion while aircraft were being hovered for parking at cross-country destination.

7 Precautionary Landings ■ Two aircraft were landed short of cross-country destination because of low fuel state. Aircraft were refueled and continued to destination. ■ Three precautionary landings were caused by engine oil pressure exceeding upper limit. All three were caused by failure of sending unit. ■ Main transmission warning light came on. Caused by failure of oil pressure switch. ■ Engine ran rough with excessive mag drop. Caused by fouling spark plugs. □

FIXED WING BRANCH

CPT Donald P. Johnston, Chief ■ 558-3901

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

OV-1

1 Precautionary Landing ■ Pilot noticed smoke coming from behind console. Maintenance found oil coming from bleed band on right engine. Caused by leaking rear No. 1 bearing seal. Smoke entered cockpit through heating and ventilation system.

U-3

1 Precautionary Landing ■ No. 2 engine began running rough. Caused by defective exhaust valve rocker arm assembly. (USAR) □

AVIATION-RELATED GROUND MISHAPS

William P. Christian ■ 558-4202

5 Mishaps, 0 Fatalities, 2 Injuries, Estimated Costs: \$808,500

OH-58

■ During removal of main rotor head on OH-58, blade grip positioning links popped out, causing blades to turn 90°. This caused damage to tension-torsion straps. Caused by inexperienced mechanic using improper maintenance procedures.

CH-47

■ In July 1976, approximately \$800,000 damage to CH-47 main rotor blades and aircraft occurred due to unforecast winds exceeding 60-80 knots. A severe weather warning was forecast. All aircraft were properly tied down with the exception of those undergoing maintenance operational checks and scheduled test flights. Attempts to secure these aircraft were unsuccessful because of the intensity and quickness with which the winds passed through the CH-47 ramp area. In the future, when weather warnings are issued, equipment and maintenance stands will be secured to lessen the possibility of damage to aircraft.

OTHER TYPE MISHAPS

■ Civilian aircraft flying below low cloud cover crashed into side of mountain. Military passenger received serious injuries. ■ Truck driver was driving south on four-lane divided highway when he noticed traffic accident up ahead. He also saw medevac helicopter land somewhere to his front. He next saw stationary helicopter on his right. As he passed helicopter, he noticed it had moved. He immediately pulled over into emergency lane and stopped. He was later told his truck struck and damaged helicopter's main rotor blade. ■ During rappelling training demonstration, a second individual was cleared to exit hovering helicopter. During his descent, he overtook the first person on rappel on adjacent ropes at about

20 feet above the ground. While passing this individual, he lost his braking hand grip. Safety belay man pulled on the ropes to brake the descent. However, he did not fully control the descent, and individual was injured when he struck the ground. The first person on rappel should have descended more rapidly and the person on belay should have been totally alert. The cause of this mishap was insufficient instructions and lack of supervision in a high risk area. □

RECAP OF AVSCOM MESSAGES

AVSCOM message 261704Z Jul 1976, subject: Safety-of-Flight and Worldwide Technical Messages. Following is a list of AIG 8881 addressed messages transmitted by AVSCOM (DRSAV-F) from 1 January 1976 to 30 June 1976.

- GEN-76-1 Defective Coating Compound
 - GEN-76-2 Aircraft Lub Oil, Continental Motors Spec. MHS24A
 - GEN-76-3 Defective Epoxy Primer (MIL-P-23377)
 - GEN-76-4 Potential Safety Hazard, Category 1, NSN 6230-00-299-5879, Floodlight Sets, Contract DSA 400-75-C-4606, Manufacturer AALL Bidders Inc., and Contract AF 33 (038) 16516, Mfg Unknown
 - GEN-76-5 Attaching Foreign Objects to Ignition Lockout Switch Keys for all Army Aircraft
 - GEN-76-6 Aircraft Ignition Lockout Switch and Keys
 - GEN-76-7 Coating Compound
 - GEN-76-8 Low Reflective IR Paint (MIL-L-46159)
 - GEN-76-9 Contaminated Hydraulic Fluid, MIL-H-5606, NSN 9150-00-223-4134, Contract DSA 600-74-C-1368, Royal Lubricants, Co, Lot 73
 - GEN-76-10 Correction to Message on Low Reflective IR Paint (GEN-76-8)
 - GEN-76-11 Aviation Life Support Equipment on the Functional Status of Signal Smoke Illumination, Marine AN-MK-13 MOD O (1370L275)
 - GEN-76-12 Noise Warning Labels
 - GEN-76-13 Requisitioning Procedures for MIL-H-83282, Fire Resistant Hydraulic Fluid
 - GEN-76-14 Painting of Army Aircraft
 - GEN-76-15 Aircraft Seatbelt, NSN 1680-00-447-9504, Supplied on Contract DAA J01-75-C-1138
 - GEN-76-16 24-Month Test for AAU32, NSN 6610-00-134-5625 Altimeter Used on UH-1D, H; U-8D, F, C; U-21A, F, C; RU-21A, B, C, D, E, H; CH-47A, B, C; T42; OV-1B, C, D
 - GEN-76-17 Hydraulic Fluid, NSN 9150-00-223-4134, Contract DSA 600-73-C-1509, Royal Lubricants, Batch/Lot 53, DOP May 73, MIL-H-5606
 - GEN-76-18 Aviation Life Support Equipment: Requirement for Webbing Retarder Spring in Adjuster Assemblies on Seatbelts and Shoulder Harnesses
 - GEN-76-19 Low Reflective Infrared Aircraft Paint; Color Variations
- USAAAVS 76-1 Use of Shoulder Harness

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FLIGHT FAX

A USAAAVS PUBLICATION

VOL. 4, NO. 48 ■ 22 SEPTEMBER 1976

US Army Aviation Training Library
Fort Rucker, Alabama 36360
for the period of 3-9 SEPTEMBER 1976

Adapted from MECH, Fall 1976

A COOL LOOK AT A HOT SITUATION

An increasing number of nicad batteries have recently been reported as overheating in Army aircraft. This condition presents a serious hazard for the aircraft, the crew, and the personnel responsible for removal of the overheated battery.

You can generally tell an overheated aircraft battery condition by one of the following indications: smoke or fumes coming either from the battery compartment or vent tubes; a sound described as a "bang" or "thud" coming from the battery compartment; or battery electrolyte leaking into the battery compartment or from the vent tubes.

The following instructions apply to an overheated nicad aircraft battery:

(1) If any of the above indications occur, remove the battery from the charging source by turning the battery switch OFF. This action prevents the occurrence of a thermal runaway condition, if caught soon enough.

(2) If on the ground, secure all power, vacate the aircraft and alert the crash crew. If airborne, land as soon as practicable, secure all power, and alert the crash crew.

(3) After the aircraft has been secured, crash crew personnel (wearing suitable protective clothing) should open the battery compartment, visually check for the following conditions, then take indicated actions:

- Flame. If present, use CO2 extinguishers.
- No flame; however, smoke, fumes, or electrolyte coming from the battery or vent tubes. Spray the battery with low velocity waterfog to lower the battery temperature.
- No flame, smoke, fumes, or electrolyte emitting from the battery or the vent tubes. No remedial action required.

After sufficient cooling, battery should be sent to support maintenance for inspection.

WARNING!

CO2 is an acceptable fire extinguisher agent once a fire has developed. In no case should CO2 from a portable fire extinguisher be directed into a battery compartment to effect cooling or to displace explosive gases. The static generated by the discharge of the extinguisher could explode hydrogen/oxygen gases trapped in the battery compartment.

Removal and replacement of the battery at prescribed maintenance intervals will greatly alleviate the problem of overheated batteries.

Maintenance of batteries when accomplished in accordance with TM 11-6140-203-15-2 will increase the life of your batteries and cut down on your battery problems.

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Staff Duty Officer (1800-0700 hours)	6510

FY 76 ACCIDENT BRIEF

SYNOPSIS 40-76

Type Aircraft: JAH-1G
 Time: 1445 Classification: Major
 Fatalities/Injuries: None
 Estimated Materiel Damage Cost: \$200,915
 Mission: Service-admin flight

Grade/Age/Experience:

	Grade	Age	RW Hrs	FW Hrs	Tot Flt Hrs
P	W2	28	1,944	-	1,944
CP	O3	31	966	12	978

Description of Accident: During cruise flight generator and inverter lights illuminated, followed immediately by SCAS failure. Loss of power occurred and autorotation was entered. Touchdown slightly damaged aft cross tubes. Aircraft had major damage from fire in engine compartment. Crew did not know they had aircraft fire before landing.

Causes of Accident

Initial: Materiel—Starter generator bearing failed, causing generator cooling fan to disintegrate. Cooling fan fragments ruptured inlet guide fuel line resulting in loss of engine power and in-flight fire.

Contributing: Sealed generator bearing failed due to lack of lubrication.

Remarks: (1) Aircraft was not equipped with MWO 55-1520-221-30-43, a fire detection system which is available for installation on AH-1G aircraft. Had fire detection system been installed, immediate crew action to combat the fire after landing may have reduced damage. (2) CCAD was unable to determine cause of loss of generator bearing lubricant.

Corrective Action: Action is presently underway to retrofit the AH-1 fleet with a fire detector system.

SYNOPSIS 41-76

Type Aircraft: TH-55A
 Time: 1525 Classification: Major (Total)
 Fatalities/Injuries: None
 Estimated Materiel Damage Cost: \$35,590
 Mission: Training (solo flight)

Grade/Age/Experience:

	Grade	Age	RW Hrs	FW Hrs	Tot Flt Hrs
SP	CPT	33	36.6	-	36.6

Description of Accident: During preflight, allied student pilot intentionally placed retaining pins for antitorque pedals in pocket. His intentions were to test for a comfortable pedal setting during flight and then replace the pins. While hovering toward the takeoff point, the left pedal came off the pedal arm.

Aircraft began a rapid uncontrolled turn and student pilot abruptly lowered collective to full down. Hard landing resulted.

Causes of Accident

Initial: Student pilot removed and did not replace antitorque pedal retaining pins before takeoff.

Contributing: Training—language barrier which led to inability to comprehend instructions printed in English. Pilot preflight checklist did not fully explain requirement for replacing retaining pins before takeoff. Supervision—IP failed to communicate requirement for replacing retaining pins before takeoff.

Corrective Action: Preflight checklist has been modified to fully explain the requirement for antitorque retaining pin installation.

SYNOPSIS 42-76

Type Aircraft: OH-58A
 Time: 1420 Classification: Major
 Fatalities/Injuries: None
 Estimated Materiel Damage Cost: \$3,645
 Mission: Service

Grade/Age/Experience

	Grade	Age	RW Hrs	FW Hrs	Tot Flt Hrs
P	CPT	27	360	-	360

Description of Accident: During final approach to landing, pilot noticed violent shudder. Rotor was at approximately 260 rpm. Pilot rolled on throttle after finding it partially reduced. Rotor rpm returned to operating range and landing was made. Postflight inspection

revealed buckled tail boom one foot aft of mounting.

Causes of Accident

Initial: Crew error—Pilot unintentionally retarded throttle during approach to landing.

Contributing: Supervision—Low rpm warning system (MWO 55-1520-228-30-14) was not installed. MWO kit had been received, but not installed.

Corrective Action: AVSCOM has advised all commands of requirement to install low warning MWO. An undesirable feature of the MWO is the lack of provisions to deactivate the system during practice autorotations. USA-AAVS is continuing to work with AVSCOM to overcome this problem.

FY 76 ACCIDENT BRIEF

FY 76 ACCIDENT BRIEF

FY 76 ACCIDENT BRIEF

UTILITY/ATTACK BRANCH

MAJ William C. Childree, Chief ■ 558-4198

0 Accidents, 0 Fatalities, 0 Injuries, Estimated Costs: \$4,000

AH-1

1 Incident ■ Postflight inspection revealed dents and bonding separation at main rotor blade tip. Suspect tree strike while aircraft was flying contour route.

13 Precautionary Landings—following are selected briefs ■ Ninety-degree gearbox chip detector light came on. Gearbox was replaced. ■ During takeoff, moderate lateral vibration was felt. Aircraft was inspected, test flown, and released for flight. Vibration could not be duplicated. ■ Aircraft yawed slightly right and left and crew heard constant series of loud sounds coming from engine. Suspect compressor stall. ■ Hydraulic pressure caution light came on. Caused by failure of hydraulic pressure switch. ■ Hydraulic caution light illuminated. Caused by cracked hydraulic line.

AH-1

4 Precautionary Landings ■ Pilot noticed binding in tail rotor control pedals in cruise flight. Maintenance inspection revealed failure of silent chain assembly. ■ On runup prior to takeoff, aircraft yawed 15° left and engine made loud popping noises. Suspect compressor stall. ■ While at hover during NOE flight, crew heard loud rumble from engine area, followed by shuddering of aircraft and loss of power. Inspection revealed improperly adjusted inlet guide vanes. ■ No. 2 hydraulic system caution light came on, followed by loud noise from hydraulic pump. Maintenance inspection revealed cracked nipple on lateral servo pressure check valve.

MESSAGE RECEIVED

■ R091815Z Sep 76—Maintenance Advisory Message, subject: Maintenance Records for AH-1Q/S Inconsistencies on Helicopters from Amarillo BHT Overhaul Facility (AH-1-76-17). □

OH/CARGO BRANCH

MAJ Robert P. Judson, Chief ■ 558-4202

0 Accidents, 0 Fatalities, 0 Injuries, Estimated Costs: \$2,314

OH-58

1 Incident ■ Pilot was performing authorized/supervised NOE flight. While making sharp right bank to line up with LZ, aircraft struck tree, damaging one main rotor blade.

2 Precautionary Landings ■ Aircraft was on approach to field site with collective pitch reduced when IP noted N2 had dropped to 95 percent and stabilized. After landing, throttle was retarded to flight idle and then rolled back to full rpm. This time, N2 returned to 103 percent. Maintenance test pilot could not duplicate problem and aircraft was released for flight. ■ Engine lost power in cruise flight. Pilot landed in a field with partial power. Caused by failure of double check valve, NSN 2915-00-924-7789.

CH-47

3 Precautionary Landings ■ Pounding vibration occurred in flight controls during takeoff. SAS was turned off but had no effect on vibration. Caused by excessive play in aft vertical shaft output mast. ■ Pilot smelled electrical burning odor and crew chief noticed fumes coming from battery vent during flight. Caused by thermal runaway of battery. ■ During power change No. 2 engine beep would not advance. Caused by failure of No. 2 engine wiring harness.

CH-54

4 Precautionary Landings ■ Aircraft had released sling load when crew chief noticed smoke on upper deck. No warning lights were seen and engine gauges were normal. No. 2 engine had a leaking oil line spraying oil on engine exhaust, causing smoke. ■ Aircraft developed hydraulic leak at hover. Hydraulic line in hoist well was broken. ■ Aircraft was in level flight at 4,000 feet on IFR flight plan in IMC. Master

caution and transmission oil pressure warning lights came on, accompanied by drop to zero of transmission oil pressure. Aircraft descended to VFR conditions and landed. Total time in flight with zero transmission pressure was approximately 4 to 5 minutes. Caused by internal failure of main transmission. Teardown analysis has been requested. (ARNG) ■ No. 2 engine dropped off line during flight due to bird ingestion. Before engine could be shut down, overtemperature of 875° occurred. Engine was changed because of overtemperature.

THOUGHT FOR THE WEEK

Many crew error mishaps result from control inputs which develop excessive bank angles during low-level flight. A basic law of aerodynamics states that as the bank angle of an aircraft increases, the stall speed is increased, or for a helicopter, the speed at which the aircraft begins to "mush through." For a 60-degree bank angle, the stall speed will be increased 40 percent, regardless of the type aircraft. If this increase is enough that the stall speed exceeds the true airspeed, continued flight is impossible and the aircraft will begin to fall through. At this point sufficient power may not be available. The corrective action for this is to level the aircraft and reduce pitch attitude to regain airspeed and lift. At low altitude, this is often impossible and a mishap may result. The lesson to be remembered is that abrupt control input, excessive bank angle, low airspeed, and low altitude form a deadly trap. Smooth control, minimum bank, and adequate power provide you the safety margin for operation at low airspeed and low altitude. □

FIXED WING BRANCH

CPT Donald P. Johnston, Chief ■ 558-3901

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

U-21

2 **Precautionary Landings** ■ (A series) During after-takeoff check, pilot noticed fuel siphoning from left wing cap. After returning for landing, crew chief tightened bottom retaining nut one-half turn, the fuel cap was reinstalled and mission continued. New caps (NSN 1560-00-087-7926) are available and should be used to replace defective caps. ■ (G series) After takeoff and gear retraction, primary pitch light illuminated. No. 1 propeller feathered. Engine was secured and single-engine landing was successful. Caused by failure of solid state switch (P/N 8-060-10).

OV-1

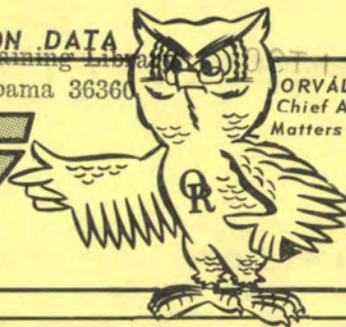
2 **Precautionary Landings** ■ Smoke and fumes entered cockpit during final approach. Caused by battery thermal runaway. ■ Thermal runaway of battery during flight caused fire. Pilot landed at nearby airfield and extinguished fire with hand-held extinguisher. □

DEPARTMENT OF THE ARMY
UNITED STATES ARMY
AGENCY FOR AVIATION SAFETY
FORT RUCKER, ALABAMA 36362

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DOD-314



FLIGHT FAX

A USAAVVS PUBLICATION

VOL. 4, NO. 49 ■ 29 SEPTEMBER 1976

mishaps for the period of 10-16 SEPTEMBER 1976

AVIATION LIFE SUPPORT EQUIPMENT

Floatation Survival Equipment

Technical Manual 5-4220-202-14 maintenance instructions, with parts breakdown, and USAF T.O. 14S-1-102 have been combined into a joint Army/USAF publication utilizing both numbers. Instructions for LRU-1/P liferaft will suffice for MK-7 liferaft. Differences in these liferafts are minor and do not require separate maintenance instructions.

Floatation equipment installed in OV-1 aircraft (Martin-Baker ejection seat) will be inspected and serviced during seat cycle inspection. All aviation units should immediately request the joint USAF/Army publication from the Adjutant General, Publications Center, 1655 Woodson Road, St. Louis, MO 63114. Publication should

be available to all aviation personnel.

Contact points:

- Commander, USAAVSCOM, ATTN: DARCOM-POLSE (Mr. A.B.C. Davis), P.O. Box 209, St. Louis, MO 63166, AUTOVON 698-3241/3291.
- Commander, USAAAVS, ATTN: IGAR-TA, Ft. Rucker, AL 36362, AUTOVON 558-4806/2091.

SAFETY-OF-FLIGHT MESSAGE

- USAAVSCOM Message 152015Z September 76, subject: Safety-of-Flight Message Advisory Technical/Maintenance for OH-6A Aircraft With MWO 55-1520-214-50-6, Crashworthy Fuel System Installed, Message No. OH-6A-76-03. *Summary:* During a ferry mission, an OH-6A had an in-flight engine failure resulting in major damage to the aircraft. Investigation showed that the fittings on hose assemblies, P/N 369A8485-3 and P/N 369A8485-5 were loosely connected to the fuel shutoff valve, P/N 369A8469. Tests have verified that when this condition exists, and the fuel level in the fuel cell drops below the fuel shutoff valve, air is drawn into the fuel line and causes fuel starvation. *Contact:* Mr. Victor Feldmann, USAAVSCOM, AUTOVON 698-3018, commercial 314-268-3910.

NICAD BATTERY TRAINING

The Army Electronics Command provides, upon written request, formal and over-the-shoulder, on-the-job training on all types of aircraft and nonaircraft nicad batteries to regular Army, National Guard, and Reserve units. For further information, call Mr. Emie Boer, AUTOVON 992-3222/1017, or write Commander, U.S. Army Electronics Command, ATTN: DRSEL-MA-TA, Fort Monmouth, NJ 07703.

U.S. ARMY AGENCY FOR AVIATION SAFETY
FORT RUCKER, ALABAMA 36362

Prepared from information compiled by the
Directorate for Aircraft Accident Analysis
and Investigation

Lieutenant Colonel Curtis M. Sanders, Director
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COMMERCIAL: 255-XXXX

AUTOVON: 558-XXXX

Questions Concerning Aviation Portions of ARs 95-5, 385-40, and 385-10	4479/4812
For Assistance in Locating Proper Directorate	4479
Aircraft Accident Analysis and Investigation	3913/4202
Technical Research and Applications	6404/6410
Plans, Operations, and Education	4479/4812
Management Information System	5286/4200
Publications and Graphics Division	6385/3493
Medical Division	6788
Staff Duty Officer (1800-0700 hours)	6510

FY 76 ACCIDENT BRIEF

SYNOPSIS 43-76

Type Aircraft: OH-58A
 Time: 1003 Classification: Major (Total)
 Fatalities/Injuries: No Fatalities, 2 Injuries
 Estimated Materiel Damage Cost: \$151,565
 Mission: Training-CRF (simulated antitorque failure)

Grade/Age/Experience:

	Grade	Age	RW Hrs	FW Hrs	Tot Flt Hrs
IP	W2	24	2,036	3	2,039
P	W2	31	2,601	365	2,966

Description of Accident: Pilot was performing simulated fixed right pitch pedal emergency procedure. Skids dug into sod and aircraft tipped up on its nose. Main rotor severed tail boom. Aircraft became airborne a second time, spun right several times, and struck ground.

Causes of Accident

Initial: Crew attempted critical landing ma-

neuver to unsuitable landing area.

Contributing: Facilities-Tower advised use of unevaluated sod area without knowledge of surface condition. IP attempted critical landing maneuver in sod area without knowledge of surface condition or adequate reconnaissance.

Corrective Action: TRADOC has directed all subordinate units, except the USAAVNS, to conduct all running landings in rotary wing aircraft on hard surface. FORSCOM directed aviation units to conduct thorough ground reconnaissance of sod areas to ensure suitability prior to ground run/slide operations. USAAAVS has recommended to DA that simulated tail rotor failures to the ground be eliminated from the emergency procedures training syllabus due to the excessive number of training mishaps as compared to actual failures experienced.



SYNOPSIS 44-76

Type Aircraft: OH-58
 Time: 1455 Classification: Minor
 Fatalities/Injuries: None
 Estimated Materiel Damage Cost: \$5,000
 Mission: Service-photographic flight and passenger transport

Grade/Age/Experience:

	Grade	Age	RW Hrs	FW Hrs	Tot Flt Hrs
P	CPT	27	455	2	457

Description of Accident: Pilot initiated normal takeoff from confined area and main rotor struck tree.

Causes of Accident

Initial: Pilot used incorrect procedures in

attempting normal takeoff from confined area.

Contributing: Training-Pilot was not instructed in confined area takeoff procedures during OH-58 transition or subsequent standardization rides in OH-58. Supervision-Unit commander failed to establish OH-58 training program IAW current regulations and directives. A false sense of urgency resulted in inadequate time allowed the pilot for proper flight planning.

Corrective Actions: Pilot has been retained to include confined area operations. Command assistance inspection of the unit was conducted with special emphasis on noted deficient areas. Command emphasis has been placed on the unit's operations, training, and standardization.

FY 76 ACCIDENT BRIEF

FY 76 ACCIDENT BRIEF

SYNOPSIS 45-76

Type Aircraft: OH-58A

Time: 1230 Classification: Major (Total)

Fatalities/Injuries: No Fatalities, 4 Injuries

Estimated Materiel Damage Cost: \$151,565

Mission: Service-Passenger transport at training area

Grade/Age/Experience:

	Grade	Age	RW Hrs	FW Hrs	Tot Flt Hrs
P	03	27	675	-	675

Description of Accident: While tuning to final in traffic pattern, pilot felt aircraft shudder and elected to turn out of the traffic pattern to "check out the engine" before landing. Aircraft shuddered again and pilot attempted to make precautionary landing. During very steep approach downwind to open field, aircraft developed high sink rate and struck ground.

Causes of Accident

Initial: Crew error—Pilot placed heavily loaded aircraft in very steep approach downwind from which he could not recover before ground contact.

Remarks: The teardown analysis found the engine to be fully operational; however, it was found to be in a coastdown condition at time of impact. An undetected engine malfunction, i.e., a sticking double check valve, or the pilot having subconsciously closed the throttle in anticipation of engine failure, may have contributed.

Corrective Actions: Aviator training has been consolidated at a higher level and semiannual standardization rides initiated for all aviators. Unit personnel requisitions for instructor pilots and safety officers have been given priority.



SYNOPSIS 46-76

Type Aircraft: AH-1G

Time: 0945 Classification: Major

Fatalities/Injuries: No Fatalities, 2 Injuries

Estimated Materiel Damage Cost: \$75,000

Mission: Training—hover fire

Grade/Age/Experience:

	Grade	Age	RW Hrs	FW Hrs	Tot Flt Hrs
P	CW2	25	1,271	-	1,271
CP	CW2	24	1,167	-	1,167

Description of Accident: During hover fire, antitorque pedals stuck and aircraft made three to four revolutions and landed hard. Skids collapsed and tail boom separated.

Causes of Accident

Initial: Silent chain malfunction in tail rotor system.

Contributing: Maintenance—Inspection not performed IAW existing publications. Supervision—Failure to insure required maintenance checks and scheduling aircraft overdue required inspection. Crew—Accepted aircraft for flight overdue required inspection.

Remarks: CCAD analysis substantiates malfunction of tail rotor chain. Chain jammed in the housing.

Corrective Action: AH-1/UH-1 manuals have been changed to require that all tail rotor chains be inspected every 10 hours. This change is reflected in TM 55-1520-210-20, change 25; and TM 55-1520-221-20, change 1.

FY 76 ACCIDENT BRIEF

FY 76 ACCIDENT BRIEF

FY 76 ACCIDENT BRIEF

2 Accidents, 0 Fatalities, 2 Injuries, Estimated Costs: \$60,967

UH-1

1 Accident ■ Approximately 50 feet agl, aircraft was hit by pyrotechnic explosive simulator fired by ground personnel. The simulator entered the aircraft through the left chin bubble and detonated by the copilot's left leg, causing damage to floor panel, bulkheads, chin bubble, cabin roof, and door. Aircraft was landed with no further damage. The copilot sustained fragment wounds to the leg.

9 Incidents—following are selected briefs ■ Aircraft was repositioning for takeoff when tail rotor struck tree. ■ Aircraft was being repositioned in confined area and began slow right turn. After turning 180°, right turn rate increased with full left pedal applied. Aircraft landed hard, spreading fore and aft crosstubes. Maintenance inspection revealed failure of 42° gearbox output coupling. ■ Aircraft was in level flight when sound-proofing material from left side of transmission firewall departed from aircraft. Inspection revealed 6-inch rip in aft portion of left synchronized elevator. ■ Flight of six aircraft was conducting insertion. On initial insertion, go-around was started with right turn to 100 feet agl. During turn, two explosions were seen directly below flight. Inspection revealed shrapnel damage to aircraft. ■ Aircraft was in right turn avoiding flock of 20 buzzards when bird struck radio compartment door. ■ Tail rotor thrust was lost when 42° gearbox failed internally. Aircraft began spinning. Pilot reduced throttle and began descent to gain airspeed. Spin was stopped and at approximately 100 feet agl, power was reapplied but was reduced again when aircraft began to spin again. Autorotation landing was made with some rotation upon contact with ground. WELL DONE to CPT Van S. Ellis.

18 Precautionary Landings—following are selected briefs ■ Transmission oil hot light came on. Maintenance replaced temperature transmitter. ■ Right fuel boost pump light illuminated. Caused by failure of right fuel boost pump. ■ Fire light came on. Maintenance inspection revealed broken connection on light. ■ During approach at 700 feet agl, pedals froze in right pedal setting. Running landing was made. Two small links on tail rotor chain were broken and were catching inside sprocket guard. ■ Fire detector warning light came on during cruise flight at 2,000 feet msl. Caused by moisture on cannon plug.

AH-1

1 Accident ■ Aircraft struck powerline while performing authorized, supervised NOE flight.

1 Incident ■ Aircraft was at 100 feet agl and 100 knots when leading edge of left stub wing struck bird.

1 Forced Landing ■ During NOE flight, small wire 5 feet off the ground was spotted while crossing under major powerline. As pilot attempted to avoid the wire during quick stop, engine had partial power loss to 5500 rpm. Aircraft was landed with partial power and engine rpm built up quickly, resulting in high egt of 820°.

4 Precautionary Landings ■ High frequency vibration was felt in tail rotor pedals in all phases of flight. Maintenance could not duplicate condition and aircraft was released for flight. ■ Transmission oil bypass light illuminated. Aircraft was inspected and released for flight. ■ Ninety-degree gearbox chip detector light came on. Maintenance replaced terminal lug. ■ During route navigation, emergency governor light came on. Light in caution panel was found to be faulty and there was water in caution panel.

MESSAGES RECEIVED

■ USAAVSCOM Message R141335Z Sep 76—Maintenance Advisory Message for AH-1Q, TM 55-1520-221-34P, and AH-1S, TM 55-1520-234-23P (AH-1-76-18).

■ USAAVSCOM Message R152045Z Sep 76—Inspection of UH-1 and AH-1 Booster, Fuel Pump, NSN 2915-00-017-9021, □

2 Accidents, 0 Fatalities, 1 Injury, Estimated Costs: \$89,213

OH-58

2 Accidents ■ Aircraft struck powerlines. Main rotor mast separated, tail boom was chopped off, and aircraft landed in nose-low attitude. ■ Pilot applied power to avoid wires and engine lost power. Pilot entered autorotation, then applied collective to clear wires. Damage resulted from hard landing.

2 Incidents ■ Aircraft was performing scouting mission when main rotor blade tips hit tree branches. ■ Aircraft completed NOE quick stop, hovered sideways, and hit top of small pine tree. Winds were gusting 20 to 30 knots with drizzle.

1 Forced Landing ■ Engine failed when IP rolled throttle to idle stop during demonstration of hovering autorotation. Engine was inspected and MOC performed. Maintenance was unable to duplicate malfunction. *Past history has proven these symptoms to be a dirty or intermittently sticking double check valve.*

5 Precautionary Landings ■ Crew smelled odor similar to burning wires. Instruments were normal and there was no indication of fire. Suspect cause was construction work north of airfield. ■ During autorotation flare, tail skid hit runway. IP took controls, leveled aircraft and noted 1:1 vibration. He then landed aircraft. Inspection revealed no visible damage. ■ Pilot made power change and noticed power loss and rpm starting to decay. Pilot continued to airfield and made power-on approach. Maintenance found bleed air line loose and dirty double check valve. ■ Main transmission chip detector light came on. Caused by metal particles. ■ During pretakeoff check, pilot noted high reading on ammeter and fumes coming from battery vent. Caused by internal failure of battery.

TH-55

1 Incident ■ SP lowered collective pitch abruptly as IP reduced throttle for simulated forced landing. SP's helmet struck and broke top right canopy.

2 Precautionary Landings ■ Pilot saw smoke in cockpit. Caused by failure of proximity warning system. ■ Student detected fuel fumes in cockpit and, after landing, noted fuel leak and spray at No. 2 cylinder ejector nozzle. Fuel ejector line had broken at ejector nozzle.

CH-47

2 Incidents ■ During VFR climbout, copilot's cockpit jettison door came off. Modification provided in TB 43-0001-2-4, Equipment Improvement Report and Maintenance Digest, dated January 1976, and change dated 8 July 1976, had not been applied. ■ Crew chief heard whistling sound on final approach. Postflight inspection revealed dent on aft rotor blade 2 inches from tip. Foreign matter on blade indicated bird strike.

3 Precautionary Landings ■ Transmission chip detector light came on. Metal chips were found on aft transmission chip detector and in aft transmission filter. Serviceability check was performed with the same results. Caused by internal failure of transmission. Unit was replaced. ■ Aircraft was on takeoff with sling load when No. 2 flight boost failed. Sling load was released and aircraft was landed within 39 seconds. No. 1 flight boost system was cavitating and emergency shutdown was performed. Caused by failure of aluminum connector at phenolic block forward of bulkhead at combining box. ■ No. 1 engine chip detector light came on. Metal chips were found on chip detector of sufficient size to warrant engine change. Teardown analysis was requested.

CH-54

1 Precautionary Landing ■ First stage servo pressure light illuminated during flight and gauge went to zero. Caused by failure of first stage hydraulic pump. □

1 Accident, 0 Fatalities, 0 Injuries, Estimated Costs: \$25,000

OV-1

1 Accident ■ During panoramic photo mission at 50 feet, pilot spotted wires across highway, elected to fly under them, and struck top of semitrailer van in military convoy. After successful landing, maintenance found large tear in skin just aft of missing UHF/VHF antenna.

2 Precautionary Landings ■ Pilot noticed zero hydraulic pressure before landing and used emergency gear extension. Locally manufactured hydraulic pressure line to nose gear actuator failed. ■ As power levers were reduced to cruise, No. 1 engine made loud explosion, failed, and seized. No problem was indicated before mishap. Single-engine landing was successful. Suspect internal engine failure.

T-42

1 Incident ■ Deer ran into path of aircraft taking off. Pilot was unable to evade and deer struck nose of aircraft, damaging nose cone, taxi light, anticollision light, gear doors, and ADF antenna.

2 Precautionary Landings ■ Landing gear would not extend normally and emergency procedure was performed. Maintenance replaced landing gear relay switch. ■ No. 1 throttle could not be reduced for cruise flight. Engine was secured and landing was made. Throttle control support clip had spread, allowing throttle cable to bend.

U-21

2 Precautionary Landings ■ (A series) Crew smelled fumes in cockpit. Radar and heater were secured and fumes dissipated. Copilot then noticed fuel siphoning from right nacelle cap. Aircraft returned for landing and fuel cap (NSN 1560-00-087-7926) was replaced. ■ (H series) Pilot had difficulty exhaling through oxygen mask and could not locate malfunction after recommended checks. Mission was aborted. Caused by failure of oxygen pressure regulator.

U-8

1 Precautionary Landing ■ Following stop-and-go landing, pilot neglected to place prop levers in low pitch position, taking off with 45 inches manifold pressure at 2600 rpm for approximately 30 seconds. Aircraft is undergoing double engine change.

1 O-2A and 1 C-7A had precautionary landings. □

MAINTENANCE BRIEFS

MSG B. R. Bailey ■ 558-3901

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

OH-58

1 Precautionary Landing ■ Pilot heard noise from rotor system. He then landed and found blade grips empty. Grips had an airlock and had not been completely filled.

OV-1

1 Precautionary Landing ■ Safe gear-down indication was not received for landing. Emergency gear extension was used after three recycling attempts. Tower confirmed gear appeared down and touch-and-go landing was completed to test gear. Landing was successful. Downlock microswitch was out of adjustment. □

MAKE AVIATION SAFETY THE SPIRIT OF '76

1 Ground Accident, 8 Mishaps, 0 Fatalities, 2 Injuries, Estimated Costs: \$15,303

UH-1

■ UH-1 was being readied for ground transportation back to its home station. Aircraft was placed on a tractor-drawn "low boy" trailer. Trailer was a 25-ton, dual axle, four-wheel model. This is not a soft ride suspension trailer. Upon arrival at aircraft's home station, it was found that shipping skid crosstubes had made contact with belly of aircraft and some damage had been done to aircraft's support assemblies, P/N 204-040-104 and P/N 204-040-105, and their supporting structure. Further investigation revealed forward cross beam cap assemblies had been installed in aft position and none were installed in front position. This mishap was discussed with all personnel involved in recovery operations. Future recoveries by the unit will be made by air. ■ Aircraft was being ground handled from hangar through two inoperative doors. While being pushed through door opening, tail rotor blade struck one of the doors. Damage necessitated blade turn-in and replacement. Service order was submitted on inoperative hangar doors with command emphasis being requested to insure their timely repair. ■ Two maintenance personnel were draining main rotor blade grip reservoir as part of a periodic inspection. One man was maneuvering blade to drain off oil from blade grip, when the other man inadvertently placed his hand between main rotor static stop and mast assembly. His finger was caught between the two and was crushed. (It was determined that the above procedure for draining blade grip reservoir was correct.) All maintenance personnel were briefed on the mishap to prevent recurrence. ■ Mechanic assisting in moving aircraft from hangar was holding tail skid with both hands while aircraft was being moved backwards. Heels of skids hit section of concrete around drainage grate which was approximately 2 inches above the ramp. Aircraft came to a sudden stop, causing tail boom to move sharply downward, striking and injuring mechanic's shoulder. The unit involved has reviewed their ground handling procedures to insure they are conducted in the safest possible manner and initiated a more thorough safety education program to instill greater safety awareness within their unit. The drainage grate was modified. ■ Mechanic was cranking an APU to start a UH-1. Crank handle did not disengage, causing it to spin. It injured mechanic's right hand before flying off APU and striking left side of tail boom. Rust was found on end of socket where it fits on the shaft of the APU. In the future, this unit will not use the hand-cranking method unless absolutely necessary. All hand cranks were cleaned and greased.

OH-58

■ Parked OH-58 was struck by unknown vehicle. Witness stated that no units had been involved in the operations of the helicopter when it was struck. Front portion of aircraft received major damage. Investigation under AR 15-6 is being conducted.

AH-1

■ Ground crew was ground handling AH-1G down a driveway into parking lot when right rocket pod of aircraft struck left rear fender of parked automobile. There was no ground guide for the right side of the aircraft. In the future, the NCOIC will insure there are enough ground guides available and that parking of automobiles on the driveway be restricted.

CH-47

■ During air equipment sling-out operation training mission, backhoe A-27 was dropped from a CH-47. The CH-47 had lifted the backhoe successfully but as the aircraft departed the landing zone it lost altitude. Backhoe struck top of adjacent trees. At this point, pilot elected to release the backhoe rather than jeopardize aircraft and crew. The cause of this mishap appears to be an error in computing the lift capability under the operating conditions.

GROUND ACCIDENT

■ Maintenance team was tracking main rotor blades of AH-1G when tracking flag hit main rotor blade. New flagman had just been taught how to do a low rpm track and was in the process of being taught how to do a high rpm track when pilot felt aircraft shift around. Pilot reduced power to stabilize aircraft. Flagman was unable to remove the flag before it hit underside of red main rotor blade. Damage was discovered on post-runup check. □



STACOM 8 ■ 29 SEPTEMBER 1976

DEPUTY FOR STANDARDIZATION, USAAVNC, FT. RUCKER, AL 36362
COL CLEMENT A. WYLLIE ■ 558-2603/3514

THE CASE OF THE SOPWITH CAMEL ISSUED IN LIEU OF AN AH-1G OR

WHAT TO DO ABOUT STANDARDIZATION SUPPORT OF NONSTANDARD AIRCRAFT

For many years, the Army's aircraft inventory has been augmented with a variety of nonstandard, one-of-a-kind or decidedly low-density aircraft. In fact, we currently operate 121 of these birds, composed of 15 different fixed wing and seven different rotary wing designs. The density of these aircraft ranges from some 60 U-3A/Bs, to a lone F-51D, and they are flown approximately 2,000 hours per month.

Now, let's look at the current situation and the future plans for standardization support of these aircraft. To begin with, the USAAVNC has limited resources with which to fully support the required standardization evaluations in these aircraft. Quite understandably, it is simply not cost effective to qualify and maintain a force of proficient SIPs for each of the nonstandards; however, we do have qualified SIPs for several of them. Should we be unable to provide an SIP qualified in a particular aircraft, we still make every effort to complete a requested evaluation; either by performing it in a similar aircraft (T-42 for U-3, as an example), or by obtaining an SIP from another standardization board.

Though standardization evaluations are certainly a headache, an even greater problem exists in obtaining up-to-date publications for these aircraft. Here's how the situation looks in this area:

- There is presently no program in AVSCOM to develop or update operator's manuals or checklists for these aircraft.

- From the date of request for operator's manuals or checklists, it is estimated that development, publication, and distribution of these items would require approximately 24 months.

- It is estimated that the current program for development of training circulars (TCs) for standard aircraft would delay the TCs for nonstandards until mid-1978.

- It is anticipated that many of the nonstandard designs will be phased out during the time frames discussed above, leaving us with a pile of good publications for aircraft which are either in museums or salvage yards. We can also expect that we'll pick up some other nonstandards even as the current crop is being phased out.

As can be seen, the problem is very complex; however, every command level from DA on down is acutely aware of it and we are taking action to get a viable nonstandard aircraft program established. Here's what's going on.

- Standardization of low-density or nonstandard aircraft will be an agenda item for discussion at the DA Standardization Policy Board meeting.

- The regulatory provisions establishing a nonstandard aircraft program are currently being prepared for inclusion in ARs 95-1 and 63.

- A conference hosted by the Directorate of Standardization has been scheduled for the last week in October to formalize Army policy regarding these aircraft. It is expected that attendees at this conference will include representatives of HQDA and all major commands. We expect to have this program established soon—by the end of the year if we don't hit too many snags we don't already know about.

We also wish to solicit comments and recommendations from anyone with an interest in this matter. Either contact your representative to the meeting in October, or write us directly: Commander, U.S. Army Aviation Center, ATTN: ATZQ-S, Fort Rucker, Alabama 36362.

IT WORKED THIS TIME, BUT . . .

A recent issue of FLIGHTFAX contains a maintenance brief describing the successful landing of a U-8 with an unlocked right main gear. As stated, the landing was successful and the aircraft received no damage—even though the dash 10 emergency procedures for this SPECIFIC malfunction WERE NOT FOLLOWED. The proper procedure in this case would have been to land gear up, which would, of course, have resulted in a somewhat skinned-up airplane. But consider the alternative—had that gear folded on touchdown or shortly thereafter (which the odds were heavily in favor of its doing), the result most probably would have been a cartwheel or at the least a vicious ground loop. So, we had a situation where a pilot faced with the certainty of doing some damage to the aircraft by following the prescribed procedures, chose instead to literally bet his life on the long shot. Either through the exercise of extraordinary skill, plain luck, or a combination of both, he won—this time.

Remember, the established aircraft operating procedures, either normal or emergency, are NOT something to be followed when all else fails—it is, in fact, exactly the other way around.

NOTE TO C-12 OPERATORS

TC 1-34 has been changed by DA MSG 271720Z Jul 76 to accommodate field qualification of aviators in C-12 aircraft. Although the message has been out for about 6 weeks, apparently not everyone who should be is aware of it. The following extract of this message states the necessary changes to TC 1-34.

1. Pending revision of Ref A, the following changes to TC 1-34 will be implemented upon receipt of this MSG:

- A. Page 7, Figure 1, Line 6, ADD: "C-12" so as to read "U-8, U-21, C-12."
- B. Page 7, Figure 1, Note 4, after U-21F, ADD "and C-12" so as to read ". . .for U-21F and C-12 only."
- C. Page 8, Figure 2, Line 6, ADD "C-12" so as to read "U-8, U-21, C-12 (Note 3)."
- D. Page 9, Figure 3, Line 7, ADD "C-12."

POSITION REPORTS, QUESTIONS & ANSWERS

■ Would you clarify the intent of paragraph 4-2, AR 95-1? Does the 30-minute VFR fuel reserve requirement apply only to cross-country flights, or is it equally applicable to local area and traffic pattern flying? There seems to be a general interpretation here that so long as "some" fuel remains after a local flight, the fuel reserve requirements have been met as the aircraft never left its destination. I think this is wrong and that these personal opinions regarding fuel reserve have been a contributing factor in some of our more ridiculous fuel exhaustion accidents.

The fuel reserve requirements stated in AR 95-1 were established for the purpose of preventing fuel exhaustion due to unplanned delays or higher than expected fuel consumption. Since these conditions can occur whether the aircraft is being flown on an extended cross-country trip or in the local area, no distinction as to the type of flight—other than VFR or IFR—is considered in applying these rules. The fuel reserve requirements apply under *all* conditions to *all* Army aircraft wherever operated. The belief you expressed that "personal opinion" of the intent of these rules is a contributing factor in many fuel exhaustion accidents is true. These mishaps occur with distressing regularity, solely because of some incomprehensible individual interpretation of one of Army aviation's most clear and simply stated requirements.

■ Must all aviation units have a weight and balance technician designated, or is this required only in cargo outfits?

According to paragraph 3c(5), AR 95-16, the commanding officers of units *operating, maintaining, or modifying* Army aircraft will be responsible for appointing a weight and balance technician on written orders. This seems to be pretty much all-inclusive, doesn't it?

■ Just who is authorized to perform a maintenance test flight? Our MO has a habit of grabbing anyone who happens to be standing around and sending them out on test flights. This bothers me, as I'm not too sure that some of these guys know what they're doing.

Your maintenance officer has developed a mighty bad habit, one that could cause some real trouble for everyone in your unit, from the commander on down. Show him/her paragraph 1-20, AR 95-1, and point out that maintenance test pilots will be *selected* and *designated*—and will be those possessing the highest degree of proficiency and the most experience in aircraft maintenance. Note, especially, that the regulation says *WILL*, not “should,” “can if you feel like it,” or anything else, just *WILL*.

■ Just what is the intent of paragraph 4-22, AR 95-1, as regards aircraft having more than one set of flight instruments installed? The regulation appears to authorize IMC flight if only one of each required instrument is installed or operational. But what happens when the functional instruments are divided between the pilot's and copilot's stations?

The purpose of installing two sets of flight instruments in some Army aircraft is twofold—to keep these instruments easily within the visual scan of the pilot actually flying the aircraft and to provide a degree of instrument redundancy. The purpose of paragraph 4-22, AR 95-1, on the other hand, is to prescribe the minimum equipment considered essential for IMC flight. Therefore, IMC flight with only one of any required flight instrument functioning when two are installed is authorized, but should not be considered acceptable as a routine operating procedure. Commonsense dictates that IMC flight should not be undertaken without a complete set of functional flight instruments in place at the pilot in command station. Questions concerning the applicability of paragraph 4-22 to multi-instrumented aircraft are being received with increasing frequency. As a consequence, the Directorate of Standardization is further evaluating this paragraph with the intent of more clearly defining the requirement.

STANDARDIZATION PHONE NUMBERS

We advertise 558-2603 as the 24-hour Flight Standardization Information Center number, which it is, but during duty hours that phone is usually manned by a sweet little ol' southern lady who complains that “ya'll jest git plum aggravated” when she can't answer your questions. Quite frankly, we would prefer that she didn't give out any technical advice, so here's some additional numbers to use during *duty hours*.

Director and Assistant	2603/3514	SIPs:	
Chief, Flight Standardization Division. . .	3504/6309	Utility	6309
STACOM Editor	3617/6487	Observation/Attack	6784
Chief, Collection Division.	5212	Cargo/Fixed Wing	6308
Chief, Analysis Division	2415		

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FORT RUCKER, ALABAMA 36362

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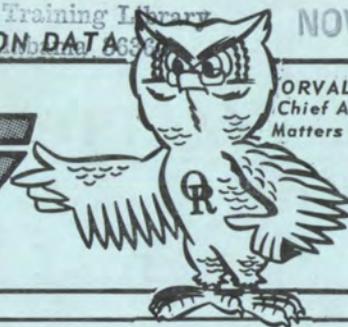


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FLIGHT FAX



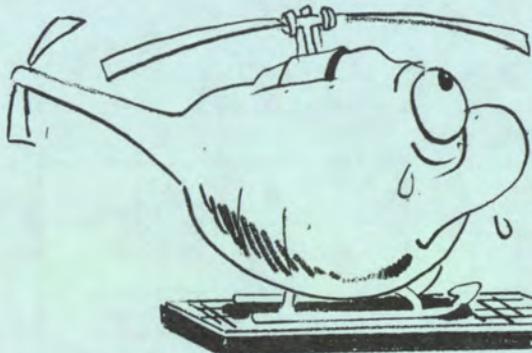
ORVAL RIGHT
Chief Advisor on
Matters of Aviation

A USAAVS PUBLICATION

VOL. 4, NO. 5 ■ 5 NOV 1975

mishaps for the period of 17-23 OCTOBER 1975

Aircraft Weight and Balance



The following clarification was provided by USAAVSCOM concerning the status of aircraft transmission oil when weighing your aircraft.

The basic weight of an aircraft is defined as that weight which includes trapped and unusable fuel and oil, and all fixed equipment. However, because there are no provisions in the chart E data in the dash 10 for transmission oil (unlike engine oil), it should be included in the basic weight of the aircraft. If not included, the weight of the transmission oil will not be computed in the gross weight obtained from DD

Form 365F, Weight and Balance Clearance Form F. Including transmission oil as part of the basic weight may have been standard practice in the field, but until this time, there have been no definite instructions to resolve this problem.

A forthcoming change to TM 55-405-9, chapter 3, section II, paragraph 22e, will read as follows: "Service transmission to capacity. Fill reservoirs and/or tanks containing drinking and washing water, hydraulic anti-icing, and cooling fluids, etc., to capacity prior to weighing. Since these tanks and their contents are usually included as DD Form 365A, basic weight items, entries need not be made under column I of DD Form 365B."

For additional information regarding this matter contact USAAVSCOM, St. Louis, MO, Mr. Ruffner, AUTOVON 698-6183.

SAFETY-OF-FLIGHT MESSAGE

R221930Z Oct 75, subject: Safety-of-Flight Technical Message No. AH-1-75-13 for Flight Trainer Helicopter TH-1G Series, MWO 55-1520-221-30-56. Summary: The student pilot can accidentally fire weapons even if the instructor pilot's "pilot override" switch is on. Upon receipt of message, status of aircraft will be changed to a circled red X. Aircraft may be operated with limitation that the turret power d.c. circuit breaker (CB3) remain off until such time as the IP directs the student to turn it on. The switch shall be returned to the off position at the direction of the IP. Failure to accomplish within days stipulated will cause condition status symbol to be changed to a red X. TH-1G's with serial numbers 66-15249 through 67-15741 will be modified. Contact: Mr. Ron Redman, USAAVSCOM, phone 698-5467.

HOW ABOUT YOU?

Getting too few or too many copies of FLIGHTFAX? We have learned through our assistance visits that some units are. The only way we can correct this is to hear from you. Just call us or drop us a line if you want to change your distribution. It's as simple as that. Call AUTOVON 558-6385 or write Commander, USAAVS, ATTN: IGAR-PG, Ft. Rucker, AL 36362.

UTILITY/ATTACK

Fatalities: 0 ■ Accidents: 0
Injuries: 0 ■ Estimated Costs: \$24,406

BRANCH

■ CPT James M. Klina, Jr., Chief
SP6 Roland L. Allen, Jr.
558-4198

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

UH-1

2 INCIDENTS ■ Aircraft struck yucca plant during approach to pickup zone. Both main rotor blades were damaged. ■ Departing LZ, aircraft struck tree, damaging both main rotor blades.

2 FORCED LANDINGS ■ Engine failed during 20-foot hover check. Pilot autorotated with no damage to aircraft. ■ During termination of approach, aircraft yawed 30° to right. Pilot initiated hovering autorotation and aircraft landed 110° from runway heading. Tail rotor silent chain failed.

20 PRECAUTIONARY LANDINGS—following are selected briefs ■ Pilot heard loud bang during takeoff. Suspect compressor stall. ■ Hydraulic pressure light came on during takeoff. Caused by failure of hydraulic pressure switch. ■ Engine chip detector lights of two aircraft came on. One was caused by fuzz and the second by metal fragments. ■ Pilot noticed liquid on windshield and smoke emitting from battery vent. Aircraft was landed and battery disconnected. ■ During hover, pilot noticed engine oil temperature increasing. Aircraft was shut down and inspection revealed engine oil cooler fan had failed. ■ Left fuel boost pump failed during runup. ■ Master caution and transmission oil pressure segment lights came on and oil pressure gauge dropped to zero. Caused by failure of internal transmission oil filter gasket. ■ While in cruise flight (800 feet) at night with nine passengers and external auxiliary fuel system, aircraft yawed violently to left. Rpm decreased and pilot entered autorotation and switched to emergency governor. Pilot then rolled throttle on but did not get a response until he reached full on. Engine then oversped. Suspect fuel control malfunction. WELL DONE to CW3 Larry E. Puls, D Trp, 1st Sqd, 194th Cav, Waterloo, Iowa.

AH-1

3 INCIDENTS ■ Aircraft struck tree during confined area operation, damaging both main rotor blades. ■ Aircraft struck tree during NOE flight. Both main rotor blades were damaged. ■ Pilot inadvertently switched rain removal/heat/ECU switch to rain removal position for 15 seconds. Inspection revealed two holes in center section of canopy at base of asbestos heat deflector strip.

5 PRECAUTIONARY LANDINGS ■ Engine chip detector lights of two aircraft came on. Both were caused by fuzz. ■ Transmission oil bypass light came on. Caused by failure of bypass pressure switch. ■ Aircraft

LOSS OF RESOURCES FROM THIS WEEK'S MISHAPS

FATALITIES: 0
INJURIES: 0
AIRCRAFT LOSSES: 0
ESTIMATED COSTS: \$147,621

UNITED STATES ARMY AGENCY FOR AVIATION SAFETY
FORT RUCKER, ALABAMA 36362
Commander/Deputy Commander 558-3410/3819
For Assistance in Locating Proper Directorate 558-6510
Aircraft Accident Analysis and Investigation 558-3913/4202
Technical Research and Applications 558-6404/6410
Plans, Operations, and Education 558-4812/6510
Management Information System 558-4200/2920
Publications and 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.

developed severe vertical vibration during landing. Suspect main rotor feather bearing failure. ■ Egt gauge dropped to zero. Caused by loose wire. □

LOH/CARGO

Fatalities: 0 ■ Accidents: 1
Injuries: 0 ■ Estimated Costs: \$122,875

BRANCH

■ MAJ Robert P. Judson, Chief
SFC D. T. Farrar/SFC R. G. Farris
558-4202

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

OH-6

1 INCIDENT ■ Bird flew into and broke pilot's lower windshield during night flight. (ARNG)

1 PRECAUTIONARY LANDING ■ Main transmission chip detector light came on. Plug was cleaned and aircraft released. Upon return to home station, transmission was replaced as this was the third time the chip detector light had come on.

OH-58

1 ACCIDENT ■ During practice touchdown autorotation, aircraft hit tail skid first and bounced onto forward portion of skids. Fuselage and tail boom were damaged. Accident is under investigation.

2 INCIDENTS ■ Main rotor blade struck tree while aircraft was hovering during authorized, supervised NOE flight. Damage resulted to main rotor blade. ■ In translational lift, just after takeoff, torquing effect was experienced and N2 rpm dropped to 300. Pilot initiated autorotation and main rotor blades struck tree, damaging both blades. Cause of torquing and N2 drop was reported as unknown.

2 FORCED LANDINGS ■ In cruise flight at about 1,500 feet, pilot felt sharp yaw to right and heard snapping sound. Engine-out light and audio came on. Pilot autorotated to narrow strip of beach near surf. Preliminary inspection revealed that compressor disintegrated. ■ Low rotor rpm light and audio came on during cruise flight. Pilot lowered collective and N2 stabilized at 103%. N2 bled off again when power recovery was attempted. Pilot entered and completed autorotation to ground. Suspect malfunction of fuel control unit.

8 PRECAUTIONARY LANDINGS ■ Three main transmission chip detector light illuminations were reported. One was caused by electrical malfunction of fault annunciator panel, one by broken wire (ARNG), and one by internal short. ■ Engine chip detector lights of two aircraft came on. One was cleaned and aircraft released. The other was caused by malfunction of chip detector. (USAR) ■ Tail rotor chip detector light came on. Oil sample was taken, plug cleaned, and aircraft released. ■ Hydraulic pressure light illuminated. Caused by malfunction of pressure switch, P/N 206-076-365-1. (ARNG) ■ In straight and level flight, pilot felt bump, nose of aircraft dropped, and aircraft began to descend and veered left. Aircraft was landed. Cause unknown.

TH-55

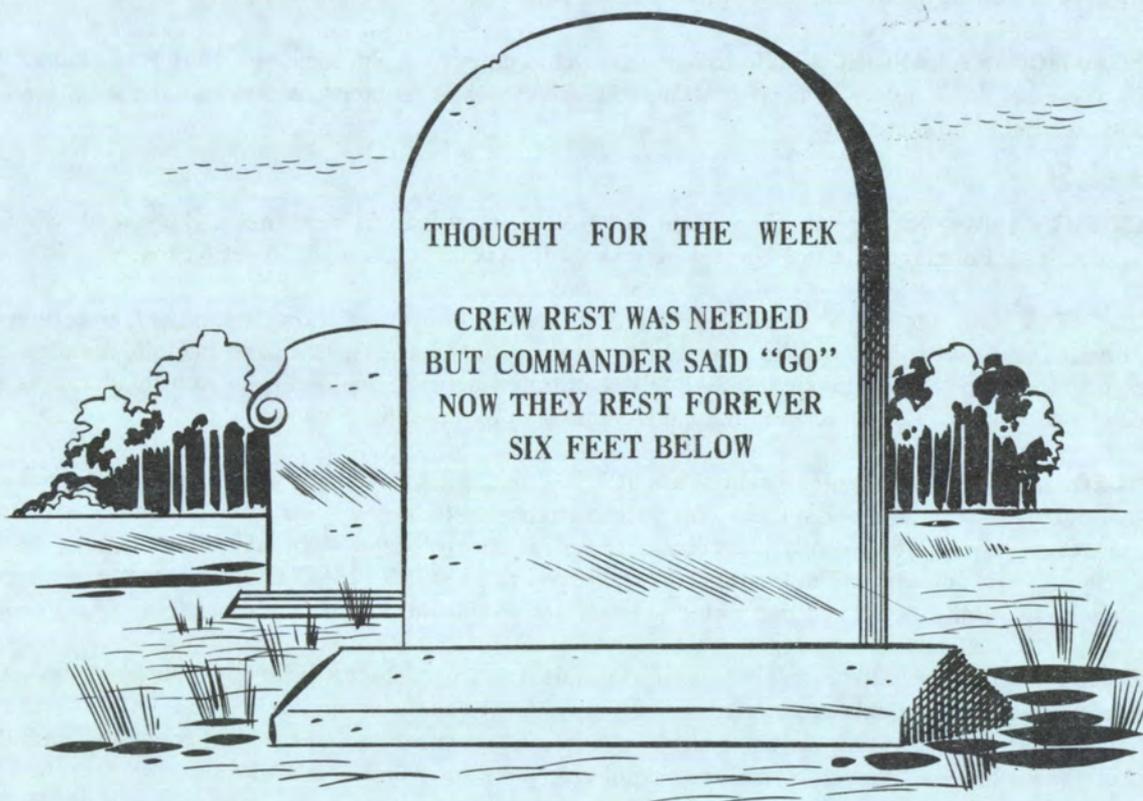
1 PRECAUTIONARY LANDING ■ Noise was heard from area of pulley assembly and frame of main rotor belt transmission during landing. Inspection revealed malfunction of upper forward bearing on frame.

CH-47

2 INCIDENTS ■ Aircraft was being positioned for loading when it struck load, causing sheet metal and structural damage directly below APU exhaust. ■ Aircraft encountered large flock of blackbirds during flight. Incident damage occurred to five rotor blades.

7 PRECAUTIONARY LANDINGS ■ No. 1 engine chip detector light came on. Caused by fuzz on plug. (USAR) ■ Fuel line to heater broke during flight. Pilot secured No. 1 engine and made single-engine

landing. ■ No. 2 engine fire warning light came on. Caused by failure of fire detector sensing element. ■ No. 1 engine lost power and stopped during flight. Caused by improperly connected fuel line quick disconnect unit at engine disconnect shelf. ■ Transmission low oil pressure and master caution light illuminated. Oil pressure dropped to 10 psi. Caused by failure of oil pressure transducer. ■ A sudden bleed band popping sound, accompanied by rise in egt on No. 2 engine, was heard during flight. No. 2 engine power was reduced, popping stopped and egt returned to normal. Power was returned to normal operating range with no abnormal indications. Inspection revealed foreign object damage to compressor section. ■ Slight high frequency vibration was noticed in "C" box area during flight. Inspection revealed oil filter cap was missing. As aircraft was returning to home station for replacement of filter cap, vibration became more pronounced. Cause unknown.



FIXED WING

BRANCH

Fatalities: 0 ■ Accidents: 0
Injuries: 0 ■ Estimated Costs: \$340

■ MAJ William G. Daly, Jr., Chief
SFC John M. Terrell
558-3901

One incident and fourteen precautionary landings were reported. Selected briefs follow.

T-42

1 INCIDENT ■ Complete electrical failure occurred. Pilot returned to home base and lowered gear manually. Gear lights and nose indicator gave safe indication. Shortly after touchdown, gear collapsed. Cause under investigation.

2 PRECAUTIONARY LANDINGS ■ On takeoff roll, No. 1 engine developed only 2400 rpm and engine ran rough. Takeoff was aborted. Two plugs were replaced in No. 1 cylinder. ■ Loud noise was heard from

No. 1 engine, followed by aircraft yaw and chip light illumination. Oil pressure stabilized at 30 psi and partial power was maintained through landing. Inspection revealed 2" x 4" hole in top of crank case caused by No. 3 piston rod separation from crank shaft.

OV-1

3 PRECAUTIONARY LANDINGS ■ After pilot lowered gear, in-transit light remained on for left main gear. Visual check indicated gear appeared down. Landing was uneventful. Wire from down-lock sensitivity switch was broken. ■ Oil pressure was lost in No. 1 engine. Landing was uneventful. Engine group indicator failed. ■ Power loss was noted on No. 1 engine with egt rise. No response resulted from power changes and engine was secured. An ILS was completed, single engine, in night instrument meteorological icing conditions. Engine had failed internally and is being evaluated by CCAD. (WELL DONE to CPT Donald W. Kerr, 73rd MI Co., for handling a potentially hazardous situation in a professional manner.)

U-21

2 PRECAUTIONARY LANDINGS ■ Voltage on No. 1 generator fluctuated between 0 and 26 volts shortly after takeoff and No. 2 generator registered 26.5 volts. No. 2 started losing voltage and at 23.5 volts all electrical equipment, except radios, were secured. After landing, No. 2 indicated 28 volts and No. 1 still fluctuated. Rivets which hold fuse holder in place on mounting block came loose. ■ Fuel flow dropped to zero, ITT and torque dropped to zero, and No. 1 generator-out light illuminated. Single-engine landing was made. Maintenance could not duplicate problem nor determine cause.

U-8

1 PRECAUTIONARY LANDING ■ Takeoff was aborted when No. 1 engine would only develop 3100 rpm. Prop governor idler gear needle bearings dislodged, causing restricted operation and flow of oil.

U-9

1 PRECAUTIONARY LANDING ■ Complete electrical failure occurred when nicad battery failed, causing thermal runaway. □

MAINTENANCE MISHAPS

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

One forced landing and three precautionary landings were reported.

UH-1

1 PRECAUTIONARY LANDING ■ Crew detected hydraulic odor, followed by hydraulic failure. Caused by hydraulic line chafing transmission oil line.

OH-58

1 FORCED LANDING ■ During deceleration in NOE flight, cyclic control jammed in three-fourths aft position. Caused by cannon plug from KY-23 control head jamming control linkage.

T-42

1 PRECAUTIONARY LANDING ■ Crew smelled electrical odor in flight. Electrical equipment was shut off and attempts to isolate problem began. During this isolation attempt, short circuit occurred, causing failure of flaps, gear, engine instruments, and all warning/caution lights except inverter. Electrical system was secured, gear extended manually, and landing completed. When pilot's intercom control head was last installed, heavy wire from bus bar was pinched between aircraft frame and control head, causing short in electrical system.

RU-21

1 PRECAUTIONARY LANDING ■ Takeoff was aborted at approximately 40 knots IAS due to inability to obtain full power on No. 1 engine. During taxi to hangar, pilot attempted to duplicate power setting by applying power with brakes locked, resulting in failure of right main gear carrier assembly and seizing of right main brake assembly. Brake assembly and wheel were replaced. Fuel control linkage was found to be binding against wiring harness clamp on engine mount.

CORRECTION

Reference FLIGHTFAX, Vol. 4, No. 3, dated 22 October 1975, item titled "Change to UH-1 PMS Cards," paragraph 2: Seq. No. 8.8.4 should be 6.6.4. □

DEPARTMENT OF THE ARMY
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AGENCY FOR AVIATION SAFETY
FORT RUCKER, ALABAMA 36362

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A USAAVS PUBLICATION

VOL. 4, NO. 6 ■ 12 NOVEMBER 1975

Librarianships for the period of 24-30 OCTOBER 1975

US Army
Fort Rucker, Alabama 36360

STILL TIME TO REGISTER FOR THE 1975 ANNUAL AVIATION MECHANIC SAFETY AWARDS

Although the Federal Aviation Administration (FAA) has started compiling entries for the 1975 Annual Aviation Mechanic Safety Awards, it is still not too late to register. Entries will be accepted through 31 December 1975.

The FAA established the program in 1963 to give recognition to the aviation mechanics making an outstanding contribution to air safety by maintenance practices. It is open to all active aviation mechanics including those in the Armed Forces.

Fifty awards are made for the general aviation mechanic—one for each state. If a winner is located in Puerto Rico or the Virgin Islands, additional awards are made.

From the general aviation state winners, one award is given in each of the 12 FAA regions. In addition to these, one award per FAA region is given to air carrier mechanics. From the regional winners, two national awards are presented—one air carrier mechanic and one general aviation mechanic.

Three classifications for the selection of winners are considered:

- For the suggestion of a design or improvement to an aircraft or powerplant or any of its components that led to or resulted in increased reliability and/or safety in aviation.

- For the suggestion or development of a maintenance and/or inspection procedure that contributed significantly to safety in aviation.

- For the constant demonstration of high level professionalism and excellence in the performance of his duties as an aviation mechanic that led to or resulted in increased reliability and/or safety in aviation.

Entries for or from aviation mechanics in the Armed Forces must also be applicable to civil aviation use.

The official entry form is FAA Form 1210-1, "Entry for Aviation Mechanic Safety Award," reproduced on page 11.

Winners of a state award receive a permanently mounted FAA certificate inscribed with the Department of Transportation seal and citation signed by the FAA administrator.

Regional winners receive a permanently mounted metal plaque engraved with the agency seal and citation signed by the FAA administrator and appropriate regional director.

National award winners receive a cast medallion created for the agency and mounted in an exhibition frame.

All winners are offered a tuition-free resident or correspondence type maintenance training course of their choice originating at the FAA Academy in Oklahoma City, OK. Regional and national winners are enrolled in the Aviation Mechanics Club and are ensured a suitable certificate and associated lapel pin.

State winners in 1975 will receive awards on 5 March 1976 and regional winners on 30 March 1976. National winners will be presented awards on dates scheduled by FAA headquarters, generally during the first six months of the calendar year.

USAAVS encourages unit commanders to nominate Army aviation maintenance personnel for this coveted award. Undoubtedly, many military and civilian personnel have made outstanding contributions in the field of aviation safety. Let's nominate those personnel *now*.

SIGNIFICANT INFORMATION PERTAINING TO THE PENDING REVISION OF AR 385-40

Publication of the revised regulation is not anticipated in the immediate future. The following information is provided to resolve the conflicts between the definitions and requirements contained in AR 95-5 (1 July 1975) and AR 385-40 (Aug 1972), and may be implemented by aviation unit commanders as of 1 November 1975.

Definitions:

a. *Army Aircraft Accident*—Damage to one or more Army aircraft in the Army inventory which occurs between the time the engine(s) is (are) started for the purpose of commencing authorized flight (scheduled flight by a rated crew), until the time the aircraft comes to rest with all engines and propellers or rotors stopped, and the brakes set or wheel chocks in place.

b. *Army Aircraft Accident Rates*—Army aircraft accidents will be included in the mishap experience of the unit which has the aircraft on its property record (i.e., DA Forms 3328, 2062, or 3122, at the time the mishap occurs). Mishaps which occur during ferry flights will be included in the experience of the gaining organization.

c. *Army Aircraft Mishap*—The term mishap will be an all-inclusive term in reference to all previously defined Army aircraft accident classifications found in par. 2-9b, AR 385-40, and paragraphs a, d, and e listed here under *definitions*.

d. *Human Factors Mishap*—This mishap is an additional classification in which a psychological, physiological, or pathological condition exists affecting a crewmember to the extent that his duties have to be assumed by another crewmember, or the mission has to be delayed, diverted, or aborted.

e. *Cargo and Personnel Handling Equipment Mishap*—This mishap causes injury/death to ground personnel or property damage due to a failure/malfunction or intentional/unintentional jettisoning of a cargo hook or rescue hoist system to include

all related equipment, i.e., cargo net, sling, penetrator.

f. *Preliminary Report of Aircraft Mishap, CS016-11 (Min)*—The Preliminary Report of Aircraft Mishap replaces the Crash Facts Message. The distribution of this report follows:

(1) For major or minor aircraft accidents and missing or abandoned aircraft notify:

(a) Commanders or supervisors directly responsible for the operation, activity, equipment, or persons concerned.

(b) CSA WASH DC //DACS-ZA//.

(c) HQDA WASH DC //DAIG-SM// (The Inspector General and Auditor General).

(d) CDR USAAAVS FT RUCKER, AL.

(e) HQDA WASH DC //DAMO-ODA//.

(f) HQDA WASH DC //DAMA-WSA//.

(g) As appropriate, commander of major oversea command, U.S. Army Forces Command, U.S. Army Training and Doctrine Command, U.S. Army Air Defense Command, U.S. Army Security Agency, U.S. Army Communications Command, U.S. Army Intelligence Agency, CONUSA Armies, U.S. Army Military District of Washington, Ballistic Missile Defense Systems Command, or heads of Army staff agencies.

(h) CDR AMC WASH DC //AMCSF-A//.

(i) CDR USAAVSCOM, STL MO.

(j) Nearest Federal Aviation Agency facility, when required by AR 95-30.

(k) DA (NGB) WASH DC //NGB-ZA//, when ARNG aircraft are involved. Information copies will be sent to CDR FORSCOM and CDR TRADOC and appropriate CDR of CONUSA numbered Army.

(l) HQDA WASH DC //AFIP// (The Director Armed Forces Institute of Pathology) in cases of fatal accidents.

Continued on back page

<p style="text-align: center;">LOSS OF RESOURCES FROM THIS WEEK'S MISHAPS</p> <p>FATALITIES: 0</p> <p>INJURIES: 0</p> <p>AIRCRAFT LOSSES: 0</p> <p>ESTIMATED COSTS: \$17,122</p>	<p style="text-align: center;">UNITED STATES ARMY AGENCY FOR AVIATION SAFETY FORT RUCKER, ALABAMA 36362</p> <p style="text-align: right;">AUTOYON</p> <p>Commander/Deputy Commander 558-3410/3819</p> <p>For Assistance in Locating Proper Directorate 558-6510</p> <p>Aircraft Accident Analysis and Investigation 558-3913/4202</p> <p>Technical Research and Applications 558-6404/6410</p> <p>Plans, Operations, and Education 558-4812/6510</p> <p>Management Information System 558-4200/2920</p> <p>Publications and Graphics Division 558-6385/4218</p> <p>USAR Representative 558-6510/4714</p> <p>After-duty tape recording of incoming calls to be returned following day (hours: 1615 to 0730) 558-6510</p> <p style="text-align: right;">Commercial: 255-XXXX</p>
<p>Prepared from information compiled by the Directorate for Aircraft Accident Analysis & Investigation Lieutenant Colonel Curtis M. Sanders, Director</p> <p>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.</p>	

UTILITY/ATTACK

Fatalities: 0 ■ Accidents: 0
Injuries: 0 ■ Estimated Costs: \$14,270

BRANCH

■ CPT James M. Klina, Jr., Chief
SP6 Roland L. Allen, Jr.
558-4198

Three incidents and twenty-four precautionary landings were reported.

UH-1

20 PRECAUTIONARY LANDINGS—following are selected briefs ■ Fire warning light came on. Inspection revealed loose cannon plug. ■ Tail rotor chip detector light came on. Inspection revealed internal failure of 90° gearbox. ■ Left fuel boost caution light came on. Caused by failure of left fuel boost pump. ■ Hydraulic pressure light came on. Caused by failure of hydraulic pressure switch. ■ Engine chip detector lights of three aircraft came on. One was caused by loose wire, one cause was unknown, and engine was replaced on the third. ■ During landing at field site, pilot applied in excess of 56 psi of torque. Maintenance performed inspection for overtorque with no discrepancies.

AH-1

3 INCIDENTS ■ During range firing of grenade launcher, one round struck tree. Premature detonation caused shrapnel damage to left side of aircraft. ■ Aircraft struck tree during night NOE mission, damaging underside of fuselage. ■ Main rotor struck tree branch during NOE flight in rainshower. Both main rotor blades were damaged.

4 PRECAUTIONARY LANDINGS ■ Ten percent fuel light came on as aircraft hovered for takeoff. Aircraft was low on fuel. ■ Pilot detected smoke in cockpit. Battery had shorted out internally. ■ Bird struck canopy during night NOE. No damage. ■ In left turn with power applied, pilot noted torque reading of 65 psi for approximately 5 seconds. Aircraft landed and overtorque inspection was performed. □

LOH/CARGO

Fatalities: 0 ■ Accidents: 0
Injuries: 0 ■ Estimated Costs: \$2,192

BRANCH

■ MAJ Robert P. Judson, Chief
SFC D. T. Farrar/SFC R. G. Farris
558-4202

Two incidents and fourteen precautionary landings were reported.

OH-58

2 INCIDENTS ■ Aircraft was flying at contour flight level in support of field training exercise and overflew rock quarry. Charge was detonated in quarry and flying stones made small holes in bottom of fuselage and chin bubble and dented main rotor blade. ■ During authorized, unsupervised NOE flight, aircraft struck and severed three 3/8-inch high-tension wires. FM antenna on front top of fuselage was broken.

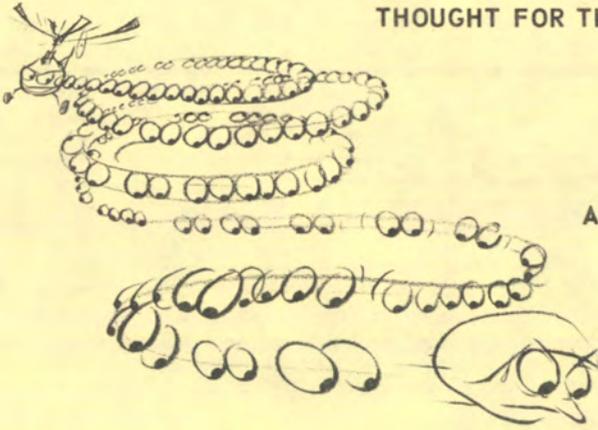
6 PRECAUTIONARY LANDINGS ■ Engine chip detector lights of two aircraft came on. One plug had carbon deposit and was cleaned. Oil sample was taken and aircraft released. The other had metal chunk and high metal content in oil sample. Cause unknown pending teardown analysis. ■ Two main transmission chip detector light illuminations were reported. Oil sample was taken on one and aircraft released. The other was caused by broken and shorted terminal lug. (USAR) ■ Tail rotor chip detector light came on. Plug was cleaned, oil sample taken, and aircraft released. ■ During authorized NOE flight, with haze and fog impairing vision, pilot took evasive action to avoid hitting powerlines. N2 bled to 82%, blue smoke and flame came from left exhaust, and TOT climbed to 900°. Aircraft was checked by maintenance personnel and cleared for one-time flight back to home station.

TH-55

4 PRECAUTIONARY LANDINGS ■ Two oil pressure gauges exceeded upper limits due to malfunction of pressure sending unit. ■ Unusual vibrations in fuselage during hover were caused by malfunction of main rotor blade damper assemblies. ■ When collective was applied during autorotation demonstration, popping noise was heard and antitorque pedals became ineffective. Inspection revealed retaining rivets on beam holding antitorque bellcrank assembly had torn loose.

CH-47

4 PRECAUTIONARY LANDINGS ■ No. 2 flight boost system pressure went to zero. Caused by pin hole in hydraulic line leading to pivoting actuator. ■ Pilot saw No. 1 and 2 SAS lights blinking, followed by illumination of No. 1 transformer rectifier and generator lights. Caused by a.c. generator failure. ■ APU hydraulic pump motor failed on engine start. Caused by internal failure of motor pump. ■ No. 2 engine would not advance to flight rpm. Caused by failure of flow divider and pump.



THOUGHT FOR THE WEEK

LOOK TO THE LEFT
LOOK TO THE RIGHT
KEEP YOUR HEAD ON A SWIVEL
AND THAT OTHER AIRCRAFT IN SIGHT

FIXED WING

Fatalities: 0 ■ Accidents: 0
Injuries: 0 ■ Estimated Costs: \$660

BRANCH

■ MAJ William G. Daly, Jr., Chief
SFC John M. Terrell
558-3901

Two incidents and two precautionary landings were reported.

U-21

1 INCIDENT ■ Top left inboard mission antenna separated from base shortly after takeoff. De-icer boot prevented total separation. Caused by fatigue from vibration. Eighty-one other antennas in unit were found to be similarly fatigued. EIR submitted.

U-3

1 INCIDENT ■ Aircraft was on short final when person on ground threw rock which imbedded in leading edge of right wing. (ARNG)

T-42

1 PRECAUTIONARY LANDING ■ During descent for approach, differential of 1.5 inches manifold pressure developed between right and left engine and No. 1 developed slight vibration. En route to ramp area engine ran rough and vibration increased. Caused by materiel failure of No. 5 cylinder intake rocker shaft boss (P/N 539742).

U-8

1 PRECAUTIONARY LANDING ■ Smoke and electrical odor were noticed in cockpit. All electrical equipment was shut down. Landing was uneventful. UHF blower motor failed. □

MAINTENANCE MISHAPS

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

One precautionary landing was reported.

UH-1

1 PRECAUTIONARY LANDING ■ Crew noted battery fluid on windshield. Inspection revealed voltage regulator was improperly adjusted.

MESSAGES RECEIVED

- Maintenance advisory, DTG 221330Z Oct 75, subject: CH-47 Rotor Head Assemblies; requires reduced maximum allowable operating time on specified serial numbered rotor heads.
- Maintenance advisory, DTG 291615Z Oct 75, on CH-47 (CWFS) provides instructions for recognizing crashworthy fuel cell inner wall activation.

WHERE IS YOUR CANNON PLUG?

Several OH-58 pilots have recently found cannon plugs jamming their flight controls. When a radio is removed from an aircraft, avionics personnel must ensure that the cannon plugs are properly secured. Commanders and ASO's, see that your avionics people get the word. □

AC NO: 60-2M

DATE: 2/6/75



ADVISORY CIRCULAR

DEPARTMENT OF TRANSPORTATION FEDERAL AVIATION ADMINISTRATION

SUBJECT: 1975 ANNUAL AVIATION MECHANIC SAFETY AWARDS PROGRAM

1. PURPOSE. This issuance provides the details of the Annual Aviation Mechanic Safety Awards Program. This program is a joint effort of the Federal Aviation Administration, the Flight Safety Foundation, and the aviation community.
 2. CANCELLATION. Advisory Circular 60-2L is canceled.
 3. BACKGROUND. The Federal Aviation Agency established this Aviation Mechanic Safety Awards Program in 1963 and major segments of the aviation industry have continually given their cooperative support. The program is established as an annual event.
 4. OBJECTIVE OF AWARDS. The Annual Aviation Mechanic Safety Awards give recognition to THE AVIATION MECHANICS MAKING THE OUTSTANDING CONTRIBUTIONS TO AIR SAFETY BY MAINTENANCE PRACTICES. This national effort enables the public to recognize the importance of the mechanic in aviation safety. It also serves to focus the aviation mechanic's attention on the vital safety role he plays in the practice of aviation maintenance.
 5. NUMBER OF AWARDS.
 - a. State Awards. Fifty awards are made on a State level, one in each of the United States for the general aviation winner. If a winner is located in Puerto Rico or the Virgin Islands, additional awards are made. State general aviation mechanic winners become competitively eligible for FAA regional general aviation awards. Air carrier mechanic awards are made on a regional basis only, due to the geographic locations of civil air carrier main bases. There are 12 regions within the FAA organization.
-

- b. Regional Awards. Twenty-four regional awards are made consisting of one air carrier and one general aviation award in each of the following 12 FAA regions: (1) Eastern, (2) Southern (includes Puerto Rico and the Virgin Islands), (3) Southwest, (4) Central, (5) Western, (6) Pacific (includes Asia, Guam, South Pacific), (7) Alaskan, (8) New England, (9) Great Lakes, (10) Northwest, (11) Rocky Mountain, and (12) Europe, Africa and Middle East Region. The regional winners are competitively eligible for the national awards.
- c. National Awards. Two national awards are made - one air carrier and one general aviation. The national award winners are selected from the regional winners.

6. DESCRIPTION OF AWARDS.

- a. State Awards. An FAA certificate inscribed with the Department of Transportation seal and citation, signed by the FAA Administrator, and permanently mounted.
- b. Regional Awards. A metal plaque engraved with the agency seal and citation, signed by the FAA Administrator and appropriate Regional Director, and permanently mounted.
- c. National Awards. A cast medallion, created for the agency, and mounted in a presentation and exhibition frame.
- d. Each year aviation industry organizations have contributed additional awards for the general aviation and air carrier national winners. Since these awards are decided on an annual basis and may differ each year, the industry awards will be announced during the **national award ceremonies**.
- e. All winners will be offered a resident or correspondence type (home study) maintenance training course of their choice originating at the FAA Academy in Oklahoma City free of tuition charge. The winner will be permitted to make his selection from a training course list available at each local FAA office. The list will contain dates and courses available (resident and home study) in both the general aviation and air carrier categories.
- f. In addition, each entrant submitting an ELIGIBLE entry, will be given a colorful 3-inch fabric patch with the award year woven on the patch illustrated below. The eligibility will be determined by the classifications established in item 9 of this circular and verified by an FAA inspector in the appropriate section of the official FAA Entry Form 1210-1.

Eligible entrant woven patch.
3" in diameter and balanced in
red, white and blue colors.



- g. The regional and national winners will be enrolled in the coveted Aviation Mechanic Club roster and will be issued a suitable certificate and associated lapel pin. This club has been organized since 1963 and is exclusively reserved for the regional and national winners of this awards program. It is possible that segments of the aviation community will consider additional awards during the present and future years. This is accomplished on an annual basis with the cooperation and consideration of industry organizations.
7. AWARD PRESENTATION. State and regional awards are presented in ceremonies scheduled by the agency regional offices at State capitols, FAA regional offices, or at other selected locations. National awards are presented in Washington, D.C. The agency does not pay travel or per diem costs for winners or their families. Travel arrangements to presentation sites are made by the agency in conjunction with the aviation industry.
8. AWARD CLASSIFICATIONS. These classifications for the selection of winners have been established.
- a. For the suggestion of a design or improvement to an aircraft or powerplant or any of its components that led to or resulted in increased reliability and/or safety in aviation.
- b. For the suggestion or development of a maintenance and/or inspection procedure that contributed significantly to safety in aviation.
- c. For the consistent demonstration of a high level of professionalism and excellence in the performance of his duties as an aviation mechanic that led to or resulted in increased reliability and/or safety in aviation.
9. ELIGIBILITY FOR CONSIDERATION.
- a. Eligible aviation mechanics may submit their own entry forms. In addition, supervisors or other knowledgeable personnel may submit an entry form for an eligible aviation mechanic. Entries should be made on FAA Form 1210-1, Entry for Aviation Mechanic Safety Award, (see Appendix 1, page 1), and submitted to the FAA district office having jurisdiction over the geographic area in which the mechanic is employed.
- b. Winners are selected without regard to race, creed, color, sex, or national origin.
- c. Aviation mechanics employed outside the continental limits of the United States who are foreign nationals employed by a U.S. company and who hold a valid FAA mechanic certificate are eligible. Aviation mechanics employed within the United States who do not hold an FAA mechanic certificate are eligible.

- d. Aviation mechanics actively engaged or employed by aircraft, power-plant, or accessory manufacturers as mechanics performing "flight line" aviation mechanic duties are eligible. (See definition, Aviation Mechanic, Item 9k.) Repairmen, holders of an inspection authorization (IAs), designated mechanic examiners, and parachute riggers are eligible. Avionics/electrical mechanics and technicians are also eligible.
- e. Aviation mechanics in the Armed Forces are eligible. Their entry should be one that could be applied to civil aviation use.
- f. Employees of the Federal Aviation Administration and the Flight Safety Foundation are NOT eligible.
- g. Safety improvements developed during the calendar year are eligible for the annual awards. The closing date for the awards will be December 31.
- h. Patented safety contributions by the originator are eligible.
- i. Qualified suggestions or developments, which previously have received awards from employers, are eligible.
- j. A contribution developed by the cooperative efforts of more than one person is judged accordingly. In this case, duplicate awards are granted. A team effort shall not exceed more than two (2) individuals.
- k. An entrant must be working as an active aviation mechanic. For the purpose of this program, the aviation mechanic is defined as an individual who is skilled in the methods, techniques, and practices necessary for the performance of maintenance, inspection, or alteration of aircraft as a whole or any of the major aircraft subdivisions, such as engines, propellers, airframes, and appliances. He uses such skills either as the artisan who works with his hands or directly supervises others who work with their hands. This eliminates the professional engineer or the "mechanic" specifically employed, for example, as an airport janitorial service employee or in similar associated positions, which in certain job descriptions could be titled a "mechanic." The eligible aviation mechanic is not required to hold a valid FAA mechanic certificate in order to participate. (In the case of foreign nationals see Item 9c.)

10. SCREENING AND SELECTION OF ENTRIES.

- a. Screening and selection of entries for State and regional awards are made by evaluator groups composed of aviation mechanics, FAA personnel, and civil/military aviation personnel possessing the technical qualifications required to evaluate and judge the entrant's contribution. Group members are selected from within the geographic

boundaries of the particular FAA region. Final screening and selection for the national awards are made by a committee composed of nationally prominent aviation people and FAA personnel. This national committee is established and administered by the Flight Safety Foundation.

- b. The screening and selecting committees thoroughly review all entry forms to assure that the entrant's "outstanding contribution" is within the categories specified under "Award Classifications" (see item 8). This initial review eliminates entrants not within the specified classifications. No further review is required. The remaining entries are then audited and verified by FAA inspectors prior to final consideration and selection.
- c. In order to qualify, the contribution must be original and significant.
- d. The contribution should have relatively broad application to the aviation field.
- e. In general, the contribution should be important to civil aviation, or, if it is military development, it should be one that could be applied to civil aviation.
- f. The contribution should be clearly attributable to the entrant.
- g. The interest of an entrant in aviation safety by maintenance practices is a guiding criterion; i.e., his imagination and initiative in working beyond the requirements of his job to direct his efforts to aviation safety.
- h. An entrant not selected for an award may apply for reconsideration by a letter of request within 7 days after the winner is announced. This letter is to be directed to the appropriate FAA regional office and originated by the person submitting the entry form in question.
- i. The official entry form is enclosed in Appendix 1, page 1, of this circular. Additional copies of FAA Form 1210-1 may be obtained from the local FAA office, or a reasonable facsimile made by the entrant.
- j. Persons desiring details of a winner's contribution should communicate directly with that person for details. The names of the winners and the details of their developments are usually published in trade journals.

11. SCHEDULE OF EVENTS.

- a. July: FAA offices will start to compile and collate entry forms submitted for the calendar year. (Entries will be accepted through December 31.)
- b. State winners will be selected and the Washington headquarters advised by January 30, (of the following year) and awards will be presented on or after March 5 (of the following year).
- c. Regional winners will be selected and the Washington headquarters advised by February 15, and awards will be presented on or after March 30.
- d. Regional offices will schedule the State and regional award events to suit each office within the established schedule.
- e. National winners will be selected in March, and awards will be presented on dates scheduled by headquarters, generally during the first six months of the calendar year.

FAA REGIONAL OFFICES

FAA
New England Regional Office
12 New England Executive Park
Burlington, MA 01803
Phone (617) 467-7244

FAA
Eastern Region
Federal Building
JFK International Airport
Jamaica, NY 11430
Phone (212) 995-3333

FAA
Southern Region
P. O. Box 20636
Atlanta, GA 30320
Phone (404) 526-7222

FAA
Southwest Region
P. O. Box 1689
Fort Worth, TX 76101
Phone (817) 624-4911

FAA
Great Lakes Regional Office
2300 East Devon
Des Plaines, IL 60018
Phone (312) 694-4500

FAA
Central Region
601 East 12th Street
Kansas City, MO 64106
Phone (816) 374-5626

FAA
Rocky Mountain Region
Park Hill Station
P. O. Box 7213
Denver, CO 80207
Phone (303) 837-3646

FAA
Northwest Region
FAA Building
9010 East Marginal Way South
King County Int'l Airport
(Boeing Field)
Seattle, WA 98108
Phone (206) 767-2780

FAA
Western Region
P. O. Box 92007
World Way Postal Center
Los Angeles, CA 90009
Phone (213) 536-6435

FAA
Alaska Region
632 6th Avenue
Anchorage, AK 95501
Phone (907) 265-4201

FAA
Europe, Africa & Middle East Region
% American Embassy
APO New York 09667
International address:

FAA
1 Place Madou, 1000
Brussels, Belgium
Phone 513 3830 Ex 300/301

FAA
Pacific Asia Region
P. O. Box 4009
Honolulu, HI 96813
Phone (808) 9550-401/452

Approval of Budget Bureau not required

DEPARTMENT OF TRANSPORTATION FEDERAL AVIATION ADMINISTRATION ENTRY FOR AVIATION MECHANIC SAFETY AWARD		INSTRUCTIONS: Use a separate form for each entry. Print or type entries. Submit to the nearest civil main- tenance facility or FAA office.	
1. NAME (If team effort, list names and addresses on reverse side)		2. FAA MECHANIC (A & P) CERTIFICATE NO. (If any)	
3. PRESENT MAILING ADDRESS			
4. PRESENT EMPLOYER	NAME	ADDRESS	
5. EMPLOYMENT LAST CALENDAR YEAR			
6. OUTSTANDING CONTRIBUTION MADE (Give brief but factual description. Drawings, photographs, or other representations may be included to assist the judging committee. REFERENCE: See FAA Advisory Circular, AC 60-2D for further details.)			
(If additional space is required, use the reverse side or attach additional sheets)			
7. CONTRIBUTION MADE	TO GENERAL AVIATION TO AIR CARRIER	DURING (Specify calendar year)	
ENTRY SUBMITTED BY: (If other than entrant)			
NAME		ADDRESS	
EMPLOYED BY (Name and address)		POSITION HELD	
DATE	SIGNATURE		
FOR FAA USE ONLY		FOR FLIGHT SAFETY FOUNDATION USE ONLY	
INSPECTOR'S COMMENTS			
VERIFIED BY (Inspector's signature)	OFFICE IDENT.		
RECOMMENDATION			
STATE AWARD	REGIONAL AWARD	GRAND NATIONAL AWARD	

FAA Form 1210-1 (8-73)

Continued from page 2

(m) DA (Army Reserve) WASH DC //DAAR-OT//, when USAR aircraft are involved.

(2) Incidents, forced landings, precautionary landings, and human factor mishaps will be reported to the individuals and agencies listed in (1) (a), (c), (d), (e), (f), (g), and (i) as appropriate. Cargo and personnel handling equipment (functional group 17) failure/malfunction will be reported to addresses listed above in (1) (a), (c), (d), (g), (h), and (i). Depending upon command relationship of commander or supervisor directly responsible for the operations activity, equipment, or persons involved in the mishap, individuals and agencies listed in f(1) (g) through (k) will be notified.
NOTE: (The Preliminary Report of Aircraft Mishap

need not be marked FOUO unless the initiating commander determines a requirement to protect some information contained in the report, i.e., a timely release of the names of the deceased, etc.).

g. Technical Report of U.S. Army Aircraft Accident—See par. 12-2, AR 95-5.

Effective 1 November 1975, precautionary landings resulting from illumination of chip detector lights (CDL) will no longer be reported by PRAM unless the component, i.e., gearbox, transmission, engine, etc., activating the chip detector light is replaced. Subsequently, EIR requirements will be met and paragraph 14 of the PRAM completed.

Final published changes may not be worded exactly as presented here, but intent and purposes will be the same.

DEPARTMENT OF THE ARMY
UNITED STATES ARMY
AGENCY FOR AVIATION SAFETY
FORT RUCKER, ALABAMA 36362

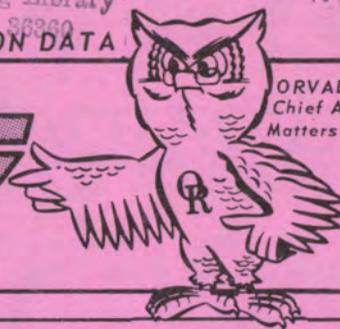
OFFICIAL BUSINESS



POSTAGE AND FEES PAID
DEPARTMENT OF THE ARMY
DOD-314



FLIGHT FAX



ORVAL RIGHT
Chief Advisor on
Matters of Aviation

A USAAVS PUBLICATION

VOL. 4, NO. 7 ■ 19 NOVEMBER 1975

mishaps for the period of 31 OCT-6 NOV 1975

FLOTATION LIFESAVING EQUIPMENT

The following message, 092144Z Oct 75, was received from Commander, TROSCOM, St. Louis, MO, and is reprinted for your information.

Subject: Flotation Lifesaving Equipment Used in Army Aircraft

A. USAF T.O. 14S-1-102 "USAF Flotation Equipment"

B. TM 55-1680-317-23 and Parts "Org & DS Maint Manual Including Repair Parts and Special Tools for Army Aircraft Survival Kits," 8 Aug 75

1. Ref A will be used in maintenance support of the following flotation equipment.

A. Life Raft, Infla, 1 Man, LRU-3/P, NSN 4220-00-726-0424.

B. Life Raft, Infla, 1 Man, LRU-4/P, NSN 4220-00-059-6061.

C. Life Raft, Infla, 4 Man, MA-1, NSN 4220-00-245-7753.

D. Life Raft, Infla, 6 Man, LRU-6/P, NSN 4220-00-869-2738.

E. Life Raft, Infla, 7 Man, LRU-1/P, NSN 4220-00-071-1889.

F. Life Raft, Infla, 20 Man, F-2B, NSN 4220-00-563-3567.

G. Life Preserver Underarm, LPU-2/P, NSN 4220-00-630-8714.

H. Life Preserver Underarm, LPU-10/P, NSN 4220-00-850-8655.

I. Life Raft, 7 Man, MK7, NSN 4220-00-245-7751. (See par. 3 below)

2. Ref B will be used in maintenance support of:
A. Life Raft, Infla, 1 Man, PK-2, MIL-L-8664.
B. Life Raft, Infla, 1 Man, LR-1, MIL-L-81542(AS).

3. Instructions contained in Ref A for Life Raft LRU-1/P, par. 1 (C) will suffice for life raft MK-7 item par. 1 (C). Differences in these life rafts are minor and do not require separate maintenance instructions.

4. Further information on subject equipment is as follows:

A. A TM number has been requested for Ref A. After the USAF T.O. has been authenticated for Army use, it will be available from the Adjutant General Publications Center, 1655 Woodson Road, St. Louis, MO 63114. You will be advised when authenticated TM is available.

B. Ref A is for interim use only and may be obtained from this command, ATTN: AMSTS-DRL.

C. Use of Ref A renders void the maintenance procedures contained in Ref B and TM 55-1500-204-25/1 for items listed in par. 1 above.

5. The assigned TM number to Ref A will be furnished when received.

6. If further clarification is desired, contact TROSCOM, ATTN: AMSTS-MMM-3, AUTOVON 693-2472.

From Supply Information Letter No. 5-75, 1 Oct 75, U.S. Army Support Activity, Philadelphia, PA.

PART III, ITEM 3: FLYER'S JACKETS (STSAP-AS)

Reference is made to SIL 2-75, Part III, Item 4. Army activities continue to requisition the replaced L2B Lightweight Jacket, NSN 8415-00-917-0597 (S)

in lieu of the standard Lightweight Jacket, NSN 8415-00-217-7201 (S). The Army's portion of residual assets of the L2B jacket has been exhausted. It is DA's decision that the Nomex type jacket be used by flying personnel. Army customers will be supplied only the new Lightweight Jacket, NSN 8415-00-217-7201 (S) for requisitions submitted to DPSC.

Continued on back page

UTILITY/ATTACK

Fatalities: 3 ■ Accidents: 2
Injuries: 0 ■ Estimated Costs: \$314,874

BRANCH

■ MAJ William C. Childree, Chief
SP6 Roland L. Allen, Jr.
558-4198

Two accidents, five incidents, and thirty-five precautionary landings were reported.

UH-1

1 ACCIDENT ■ In normal traffic pattern at about the base leg position, pilot reported "I'm going down." Witnesses stated that aircraft made turn and appeared to be in autorotation. Aircraft crashed in small open area and was consumed by postcrash fire. Investigation is in progress.

5 INCIDENTS ■ Turning base leg for landing at auxiliary field site, aircraft struck tree, breaking right chin bubble. ■ Gust of wind caused hovering aircraft to strike ground. Aircraft may have encountered mast bumping. ■ After aircraft was landed, ground guide with PRC-77 radio approached aircraft. Main rotor blade struck whip antenna, puncturing blade. *How long must we keep having these same problems?* ■ Aircraft was flying NOE when main rotor struck top of tree during right turn. ■ Right cargo door left aircraft and was struck by main rotor blade. Door was not properly secured.

27 PRECAUTIONARY LANDINGS—following are selected briefs ■ N2 rpm started to increase on takeoff. Pilot rolled throttle back to gain manual control and landed with power. (ARNG) ■ Postflight inspection revealed oil leaking from underside of aircraft. Source of leak was transmission quill assembly. ■ Fuel boost pump light activated on climbout. Caused by internal failure of electrically driven fuel boost pump. ■ Engine compressor stalled. Bleed band was improperly adjusted. ■ During approach to field site pilot lost visual contact with ground because of blowing snow. Engine was overtorqued during power application for go-around. ■ Pedals began vibrating violently and became very stiff. Pilot made running landing. Suspect tail rotor servo malfunction. ■ Crew noticed smoke coming from battery vent. Caused by internal failure of battery. ■ Crew noticed rpm warning light and yaw. Pilot began to pull pitch and roll off throttle. IP took control with engine at 6900 rpm, closed throttle, and autorotated to ground. Overspeed was caused by malfunction of high side stops on linear actuator. ■ Aircraft was landed because of insufficient fuel to complete mission. Fuel truck was dispatched to coordinates and refueled aircraft. Mission was completed.

AH-1

1 ACCIDENT ■ Aircraft was in straight and level flight at 3,000 feet agl when egt fluctuated between 540 and 560 degrees, followed immediately by generator failure light, inverter failure, SCAS disengagement, and complete engine failure. Pilot completed forced landing to open field. Local fire department extinguished fire in engine compartment. Suspect generator failure caused flying debris which severed fuel line.

8 PRECAUTIONARY LANDINGS—following are selected briefs ■ Sudden surge was noted in tail rotor pedals (three times). Pilot elected to land. Cause of problem not reported. ■ Master caution and engine oil bypass lights came on. Caused by inadequate preflight inspection. Oil level was low. ■ After takeoff, pilot made right turn and went into haze. Pilot became disoriented, applied aft cyclic, and increased collective. Aircraft began to lose main rotor rpm. Copilot noticed torque was approximately 60 pounds.

LOSS OF RESOURCES FROM THIS WEEK'S MISHAPS

FATALITIES: 3
INJURIES: 0
AIRCRAFT LOSSES: 1
ESTIMATED COSTS: \$328,190

UNITED STATES ARMY AGENCY FOR AVIATION SAFETY FORT RUCKER, ALABAMA 36362

Commander/Deputy Commander 558-3410/3819
For Assistance in Locating Proper Directorate 558-6510
Aircraft Accident Analysis and Investigation 558-3913/4202
Technical Research and Applications 558-6404/6410
Plans, Operations, and Education 558-4812/6510
Management Information System 558-4200/2920
Publications and 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.

Pilot regained control and landed. ■ Transmission oil pressure and bypass light came on. Inspection revealed oil loss was due to cracked elbow fitting on transmission oil return line.

WELCOME

USAAAVS welcomes Major William C. Childree, Armor, to the staff of the Directorate for Aircraft Accident Analysis and Investigation. He assumed his duties as Chief, Utility/Attack Branch, on 29 Oct 75. Major Childree has extensive flying experience, with more than 4,000 hours in fixed and rotary wing aircraft. Prior aviation assignments include 1/17th Cav, 7th/1st Cav, USAAVNS, and 18th Aviation Company. His last assignment was tactical advisor to the Imperial Iranian Army Aviation 1st Dir Support Group. □

LOH/CARGO

Fatalities: 0 ■ Accidents: 1
Injuries: 0 ■ Estimated Costs: \$12,216

BRANCH

■ MAJ Robert P. Judson, Chief
SFC D. T. Farrar/SFC R. G. Farris
558-4202

One accident, two incidents, one forced landing, and fifteen precautionary landings were reported.

OH-6

1 PRECAUTIONARY LANDING ■ TOT rose from 640° to 690° during flight. Investigation revealed that tube assembly, P/N 6871234, was broken.

OH-58

1 INCIDENT ■ Aircraft struck three wires during approach to confined area. A flight recon of the area failed to disclose the wires. Area was in the shade.

7 PRECAUTIONARY LANDINGS ■ Engine chip detector light came on. Oil sample was taken, oil changed, and aircraft released. ■ Hydraulic pressure light came on. Caused by malfunction of pressure switch. ■ Main transmission oil hot light came on during approach. Maintenance test flight could not duplicate condition. ■ Aircraft was trailing vapors after takeoff. Fuel nozzle was not safetied after installation. ■ Binding cyclic occurred during takeoff. Maintenance found cyclic stiff, but within tolerance. Aircraft was released. ■ Engine oil bypass light came on. Caused by failure of free wheeling unit seal. ■ Unusual noise came from rotor blades during takeoff. Piece of cellophane was found on leading edge of one rotor blade. Cellophane was removed and aircraft released.

TH-55

1 ACCIDENT ■ Aircraft started rapid, uncontrolled right turn. Student pilot quickly lowered collective. Hard landing resulted in bent fore and aft cross beam and stabilizer assembly, landing gear struts, and engine basket frame. Solo student had removed retaining pins from antitorque pedals for pedal adjustment and failed to replace pins. Left pedal came off during hovering flight.

1 INCIDENT ■ Engine popped and sputtered and tachometer needles were splitting during cruise flight. Student pilot entered autorotation. Engine surged. Student reapplied power, engine ran rough and quit. During resulting autorotation, aircraft struck fence. Left strut assembly was bent and lower forward fairing broken.

1 FORCED LANDING ■ Engine roughness was severe enough to produce needle split. Autorotation was entered, engine continued to run, and power was reapplied. Engine again ran rough. Maintenance inspection failed to duplicate problem and aircraft was released. The following day, engine roughness again occurred and resulted in an incident (see TH-55 incident above).

3 PRECAUTIONARY LANDINGS ■ Two cyclic trim motors malfunctioned during flight. One longitudinal motor became inoperative after cyclic trim moved to forward position. The other was a lateral motor malfunction after cyclic trim moved to full left position. ■ Excessive engine rpm drop was noted during magneto check. Caused by malfunction of left magneto.

CH-47

3 PRECAUTIONARY LANDINGS ■ Smoke appeared in cockpit, transmission oil gauge went to maximum, and transmission oil light illuminated during flight. Caused by electrical short of rotary oil temperature selector switch. ■ Pilot aborted start due to thrust brake malfunction in flight controls. Caused by failure of thrust break switch assembly. ■ Aft speed trim actuator stuck in extended position during flight. Cause not reported.

CH-54

1 PRECAUTIONARY LANDING ■ Rotor brake caution light came on during flight. Caused by electrical short due to moisture. □

FIXED WING

Fatalities: 0 ■ Accidents: 0
Injuries: 0 ■ Estimated Costs: \$1,100

BRANCH

■ MAJ William G. Daly, Jr., Chief
SFC John M. Terrell
558-3901

Two incidents and eleven precautionary landings were reported.

U-21

1 INCIDENT ■ During night flight at 2,500 feet, bird struck vicinity of radar dome, cracking dome and making 8"x11" dent in sheet metal.

1 PRECAUTIONARY LANDING ■ No. 1 engine chip detector light illuminated during test flight after 25-hour oil sample program. Landing was completed with engine at zero thrust. Large metal particles were found on magnetic plug. Teardown analysis is underway to determine cause.

T-42

1 INCIDENT ■ Right windshield was damaged from bird strike during night flight at 5,500 feet.

1 PRECAUTIONARY LANDING ■ Complete electrical failure occurred during flight of 10 minutes. Gear was lowered manually. Weak battery was replaced and condition could not be duplicated. *Make certain both alternator switches are "ON" when electrical system seems to have failed.*

U-8

5 PRECAUTIONARY LANDINGS ■ Pilot noticed rpm fluctuation, power loss, and cylinder head temperature decrease. Landing was uneventful. Plugs were fouled on No. 2 engine, No. 5 cylinder. ■ After gear was lowered, left main light did not come on. Landing was uneventful after tower flyby and six recycling attempts. Terminal was broken from sensitive switch. ■ Right main gear indicator light did not illuminate. After recycling with negative results, gear was lowered manually. Down-lock switch was out of adjustment. ■ No. 1 engine chip detector light came on. During return for landing, engine rpm began deteriorating and was secured. Single-engine landing was successful. Suspect failure of No. 3 cylinder, No. 1 engine. ■ Crew detected electrical burning odor. Interphone quit and commo radios became very weak. Intercom dynamotor failed internally.

OV-1

4 PRECAUTIONARY LANDINGS ■ No. 1 engine chip detector light came on and N1 and N2 dropped to zero. Engine was secured and single-engine landing was made. Caused by failure of No. 2 bearing. ■ Gear did not fully retract. Pilot recycled gear and indications were normal. Timer sequence check valve failed. ■ No. 1 engine chip detector light illuminated and hydraulic pressure was lost on No. 1 gauge. Replaced western gearbox. ■ During takeoff, technical observer saw sparks by left foot and announced he had a "short." Takeoff was continued. At about 600 feet, crew smelled smoke. As aircraft entered IMC, No. 2 engine chip detector light, No. 2 generator light, and No. 3 inverter light illuminated. Pilot secured engine and single-engine landing was uneventful. IR system wire bundle shorted in the vicinity of technical observer's foot, causing smoke. Normal fuzz caused chip detector light. Severe out-of-parallel condition caused generator outage. No. 3 inverter light came on because No. 2 generator was out. *An aborted takeoff might have prevented all these problems.*

ATTENTION USERS OF 100 OCTANE FUEL

A message from AVSCOM dated 4 November 1975 makes the following statement with reference to the new commercial low lead Avgas grade 100/130.

"1. The Army will standardize on grade 100/130 Avgas as Army standard fuel for piston engine aircraft.

"2. Commercial suppliers are currently producing a low lead Avgas grade 100/130, which is blue in color. This fuel meets the requirements of MIL-G-5572E, except color, and is acceptable for Army use. TB 55-9150-200-25 will be revised to indicate this blue Avgas as primary fuel for all Army piston engine aircraft.

"3. During transition from grade 115/145 (purple) and grade 100/130 (green), some Army activities may receive various shades of blue Avgas. These mixed fuels may be used as grade 100/130 with no performance degradation."

Should any questions arise with reference to use of this fuel, contact USAAAVS, AUTOVON 558-3913/4202, for assistance. □

MAINTENANCE MISHAPS

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

Six precautionary landings were reported.

UH-1

3 PRECAUTIONARY LANDINGS ■ Two aircraft had compressor stalls during flight due to bleed bands being improperly adjusted. ■ Aircraft was run up in accordance with normal procedures for MOC to let maintenance personnel adjust rpm warning system. With aircraft running and rpm beeped to 6000, mechanic sitting in cockpit as technical observer told pilot to put rpm governor switch to "emer" position. Although the pilot questioned this procedure, the mechanic said this was necessary to complete the check. When governor was placed in "emer" position, overspeed occurred before rpm could be brought under control. Aircraft was shut down without further incident. *What happened to by-the-book maintenance?*

OH-58

1 PRECAUTIONARY LANDING ■ Left door came open in flight. Lower door locking pin was not installed properly.

T-42

1 PRECAUTIONARY LANDING ■ No. 2 fuel tank was leaking fuel. Fuel cap was previously written up as being hard to open. Adjustment that was made was too loose which caused fuel to siphon out of tank. Cap was readjusted.

U-8

1 PRECAUTIONARY LANDING ■ Upon reduction of rpm from 3200 to 2600, No. 1 engine rpm would not go below 2650, prop lever reduced to detent, and rpm remained at 2650. Pilot heard pop and engine rpm jumped to 3400. Pilot controlled engine with throttle and landed aircraft without further mishap. Jam nut (NSN 5310-00-208-7589, item 12, figure 231, TM 55-1510-201-34P-1) backed off, allowing rod end bearing (item 13) to separate from control cable (item 11). Suspect jam nut was improperly tightened.

MESSAGE RECEIVED

Maintenance Advisory Message for UH-1/AH-1 aircraft, 061831Z Nov 75: The UH-1/AH-1 aircraft use the same engine oil cooler turbine fan, P/N 204-060-448-3. There are two manufacturing sources of the fan. The fan bearings for the AH-1 aircraft are shown as having a 400-hour retirement life in TM 55-1520-221-21, chapter 3, Overhaul and Retirement Schedule. The next changes to the organizational maintenance manuals will show the bearings for the UH-1 aircraft also have a 400-hour retirement life. □



THOUGHT FOR THE WEEK

BROTHER COWBOY
LET'S REHEARSE
ALL TOGETHER
"GOOD MORNING, NURSE!"

Continued from front page

PART IV, ITEM 4: SURVIVAL KIT, VEST TYPE W/COMPONENTS (STSAP-AS)

Reference is made to SIL No. 3-75, Part IV, Item 5. DPSC was supplying subject item, NSN 8465-00-177-4819, w/o the Light Marker, Distress, SDU-5/E, NSN 6230-00-938-1778. The light marker is now available and is being included in all shipments of the assembled survival kits. Those activities who received the kits without the light marker should submit funded MILSTRIP requisitions for NSN 6230-00-938-1778 directly to Defense General Supply Center, routing identifier S9G. For additional information contact:

Commander
U.S. Army Support Activity, Philadelphia
ATTN: STSAP-C
2800 South 20th Street
Philadelphia, Pennsylvania 19101

RESTRICTION OF COPILOT'S VISION

USAAVS does not indorse the addition of any device or material which will restrict the vision of the copilot. Present methods to limit pilot vision

to the aircraft interior, such as shaped cardboards or metal cut to fit aircraft windscreens, navigation charts taped to windscreens, and/or glass cleaner applied and not removed, are considered a compromise of sound safety practices. A good instructor/examiner should be able to keep his student busy enough to keep him from peeking too much.

MK-13 MOD "O" SMOKE FLARE

We have learned that several flares have exploded upon ignition and one man has suffered severe burns as a result. Armaments Command (ARMCOM), Rock Island, IL, has been contacted about this problem. All units that have been issued flares under lot numbers 20-HK0367 and 31-HK0367, dated March 1967, should use extreme caution when igniting these flares. One unit has sent a malfunction report to ARMCOM. ARMCOM will analyze all such reports and take necessary action to correct the problem. For further information, contact Mr. A.B.C. Davis, Aviation Life Support Systems Manager, USAAVSCOM, P. O. Box 209, St. Louis, MO 63166, AUTOVON 698-3241/3291.

DEPARTMENT OF THE ARMY
UNITED STATES ARMY
AGENCY FOR AVIATION SAFETY
FORT RUCKER, ALABAMA 36362

OFFICIAL BUSINESS



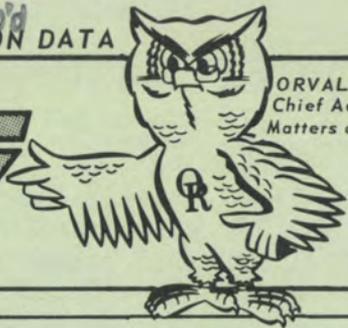
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DOD-314

JAN 13 Rec'd

ARMY AIRCRAFT MISHAP PREVENTION DATA



FLIGHT FAX



ORVAL RIGHT
Chief Advisor on
Matters of Aviation

A USAAVS PUBLICATION

VOL. 4, NO. 8 ■ 26 NOVEMBER 1975

mishaps for the period of 7-13 NOVEMBER 1975



Health Indication Test

The Health Indication Test (HIT) for gas turbine engines is a relatively simple method for accomplishing engine trend analysis in a field situation and prior to the aircraft being committed to flight. If the engine is in less than excellent condition when the base line is established, the HIT check will indicate only further deterioration. Therefore, every effort should be made to insure that the engine is in excellent operating condition when base line data is established.

The following should be considered as requirements for establishing any base line data regardless of engine operating hours.

- Check for bleed air leaks at the hot air valve, bleed band, combustion chamber drain valve.
- Clean compressor.
- Foreign object damage inspection.
- Jet Cal and inspection of the exhaust gas temperature monitoring system.

Other considerations for establishing a new base line are when maintenance to the engine affects the gas flow path or exhaust gas temperature monitoring system, such as cleaning the engine, eliminating air leaks, hot end inspections, fuel control change, egt harness, and/or indicator change, etc.

If the HIT, following such maintenance, indicates a shift in base line temperature of greater than plus or minus 10° in egt/θ, then a new base line should be established. When developing the new base line, insure that rpm and egt have stabilized. Three independent egt readings should be accomplished in the following manner: Insure that rpm and egt are stable with the aircraft facing into the wind. Increase N1 to proper value for the outside air temperature (OAT); record egt. Reduce N1 to minimum and allow to stabilize for 30 seconds; increase to proper OAT and record egt. Repeat and average the value of the three readings.

Continued on page 2

SAFETY- OF - FLIGHT MESSAGES

■ R171555Z Nov 75, subject: Safety-of-Flight One-Time Inspection of Tail Rotor Grip Assemblies Utilized on UH-1 Series Helicopters (TB 55-1500-206-20-24), UH-1-75-18. **Summary:** During the past 16 months, six grip assemblies, P/N 204-011-728-19, have been discovered with fatigue cracks in the retention thread area. Four of these grip assemblies failed in flight, resulting in loss of the tail rotor hub and blade assembly and 90° gearbox. The finite life for all UH-1 tail rotor grip assemblies, P/N 204-011-728-1/19, has therefore been reduced to 900 hours. **Contact:** Mr. Charles Bright, USAAVSCOM, AUTOVON 698-6516.

■ R172215Z Nov 75, subject: Safety-of-Flight Message No. U-21-75-3 (One-Time Inspection) for U-21A and U-21G, RU-21A, RU-21D, RU-21E, and RU-21H Aircraft Main Wheel Brake Assembly, TB 55-1510-209-20-22. **Summary:** During routine inspection of main wheel brake assembly, it was noted that 250° F. fiber insert self-locking nuts, P/N MS21083N4, NSN 5310-00-903-8282, were installed on the automatic adjust housing per TM 55-1510-209-20P. The manufacturer has replaced this nut with MS21042-2 (NSN 5310-00-807-1468), nut, self-locking, 450° F. Under hard braking, nuts used in this application will experience temperatures up to 350°. **Contact:** Mr. Bortz, USAAVSCOM, AUTOVON 698-3456.

Continued from front page

Inability to obtain three readings within plus or minus 5° C. is generally indicative of a faulty egt system if accurate N1 setting is accomplished. A variation of 20° or greater requires an entry on DA Form 2408-13. When the variation reaches 30° or more, the aircraft should be considered unsafe for flight.

When such a condition occurs, the HIT should be repeated. If the condition is still present, the troubleshooting steps in the applicable dash 20 technical manual for a condition of "high egt or TOT at steady state power" should be followed.

Experience has indicated that the large majority of egt increases can be ascribed to a dirty compressor, bleed air leaks, faulty egt or N1 sensing systems, and other minor maintenance problems rather than internal engine problems requiring removal and overhaul.

It is desirable that standard procedures be established and required equipment be obtained for such checks as the HIT program will initially result in an increase in this type of maintenance requirements.

A large change of temperature below base line usually indicates an egt system fault, engine maintenance, or an error in making the HIT. Erratic HIT variations greater than plus or minus 10° indicate an egt system fault or careless HIT settings and readings. A consistent low or high reading greater than 10° indicates improper setting of the base line and the base line egt's should be reestablished by the maintenance officer.

The HIT monitors only those portions of the engine exposed to or affected by the gas flow path. HIT supplements spectrographic oil analysis, engine vibration checks, topping checks, and other established engine maintenance procedures and is not intended to replace them.

The HIT is inherently safer than other monitoring systems of this type because it is accomplished on

the ground or at low hover and should the test indicate a condition unacceptable for flight, the operator is aware of it before the aircraft is committed to flight.

All data required to perform the HIT is carried onboard the aircraft. Therefore, the pilot can accomplish a HIT check before each takeoff, if he so desires. As with any system that relies on instrument readings to establish base line data, the base line is only as good as the person taking the readings. Meticulous care and accurate readings when establishing an aircraft in the HIT program will provide constant and precise knowledge of engine condition and timely indication of deterioration before an unsafe condition develops.

A complete explanation of HIT procedures can also be found in the engine technical manual for the aircraft.

For further information, call Environmental Factors/Fixed Wing Division, AUTOVON 558-3913/3901.

AIRCRAFT CAMOUFLAGE

DA message R 181637Z Nov 75, subject: Aircraft Camouflage, is printed here for your information.

1. Information has been received at this HQ that aircraft are being camouflaged with mud. Mud will induce corrosion, hide sheet metal cracks and loose rivets from inspections, ingest into the lubrication system causing undue wear, and increase the potential of FOD in the engine.

2. TB 746-93-2 provides instructions and procedures for the painting and marking of all Army aircraft, including the application of special purpose coatings and camouflage paint. Procedures other than those recognized in TB 746-93-2 are not authorized and will be terminated. Request for deviation or change will be supported by justification and forwarded to the U.S. Army Aviation Systems Command, ATTN: AMSAV-E, Box 209, St. Louis, MO 63166.

LOSS OF RESOURCES FROM THIS WEEK'S MISHAPS

FATALITIES: 0
INJURIES: 7
AIRCRAFT LOSSES: 1
ESTIMATED COSTS: \$278,489

UNITED STATES ARMY AGENCY FOR AVIATION SAFETY
FORT RUCKER, ALABAMA 36362
Commander/Deputy Commander 558-3410/3819
For Assistance in Locating Proper Directorate 558-6510
Aircraft Accident Analysis and Investigation 558-3913/4202
Technical Research and Applications 558-6404/6410
Plans, Operations, and Education 558-4812/6510
Management Information System 558-4200/2920
Publications and 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

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UTILITY/ATTACK

Fatalities: 0 ■ Accidents: 1
Injuries: 5 ■ Estimated Costs: \$64,264

BRANCH

■ MAJ William C. Childree, Chief
SP6 Roland L. Allen, Jr.
558-4198

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

UH-1

1 ACCIDENT ■ Aircraft performing night approach to lighted helipad at stagefield, crashed short of helipad. Investigation is in progress.

1 FORCED LANDING ■ During termination of normal approach to 3-foot hover, aircraft began uncontrolled spin to right. Pilot made hovering autorotation with no damage. Inspection revealed silent chain had separated. An unsolicited WELL DONE to CW2 Ronald E. Busby, TRADOC Flt Det, Fort Monroe, VA.

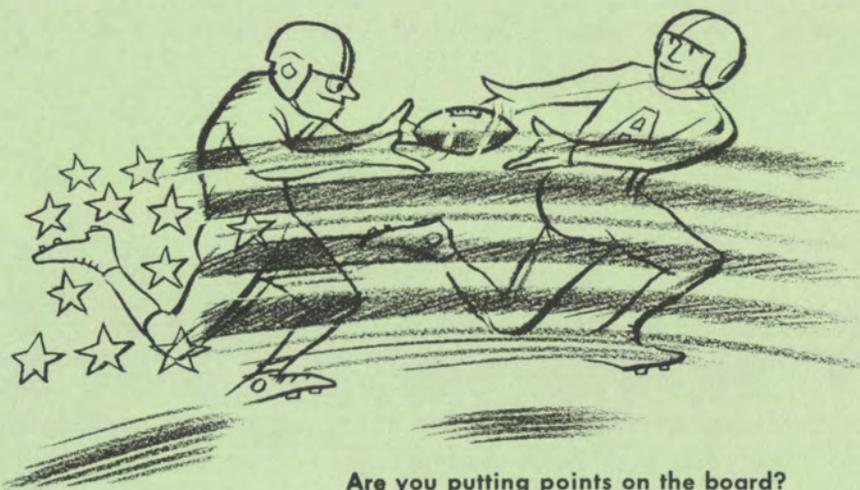
23 PRECAUTIONARY LANDINGS—following are selected briefs ■ Pilot noticed battery fluid being discharged on windshield. Caused by internal failure of battery. ■ Hydraulic pressure light came on. Condition could not be duplicated. ■ During cruise flight, rpm would drop 200 when torque was increased above 25 psi. Inspection revealed improper adjustment of inlet guide vanes. ■ Right fuel boost pump failed in flight. ■ IP made power recovery during autorotation. When power was applied 57 pounds of torque was pulled, resulting in overtorque. ■ Transmission hot light came on. Inspection revealed failure of thermo switch. ■ Pilot noticed feedback in cyclic, followed by loud squeak. Caused by internal failure of irreversible valve.

AH-1

1 INCIDENT ■ In cruise flight at 130 knots, pilot felt what he thought was light turbulence. Postflight inspection revealed tail rotor drive shaft cover had split due to metal fatigue.

2 PRECAUTIONARY LANDINGS ■ Transmission oil pressure dropped to 30 psi. Inspection revealed crack in fitting at oil cooler. ■ Aircraft yawed abruptly and did not respond to pedal input. SCAS was disengaged and aircraft landed. Inspection revealed moisture in SCAS control card. □

SUPERVISION + SAFETY = A WINNING TEAM



LOH/CARGO

Fatalities: 0 ■ Accidents: 1
Injuries: 2 ■ Estimated Costs: \$205,715

BRANCH

■ MAJ Robert P. Judson, Chief
SFC D. T. Farrar/SFC R. G. Farris
558-4202

One accident, two incidents, one forced landing, and twelve precautionary landings were reported.

OH-58

1 ACCIDENT ■ During simulated anti-torque maneuver, aircraft touched down and again became airborne. Main rotor blade severed tail boom. Aircraft touched down again and main rotor and transmission separated. Accident is under investigation.

1 INCIDENT ■ Aircraft was in cruise flight at 30 feet when it struck large bird. One main rotor pitch change link and trailing edge of left horizontal stabilizer were bent.

1 FORCED LANDING ■ During hover, N2 dropped to 95% due to malfunction of power turbine governor.

8 PRECAUTIONARY LANDINGS ■ Engine chip detector lights of two aircraft came on. One was caused by deterioration of main bearing, P/N 687-420-1, and the other by worn stabilizer bearing race and scored turbine shaft. ■ Three hydraulic pressure light illuminations were reported. One was caused by short due to moisture, one by failure of right lateral servo seal, and the third by malfunction of O-ring and packing retainer. ■ Fluctuating N2, TOT, and torque pressure was caused by loose metal tube assembly between governor and fuel control. ■ Surge in N1, N2, and torque occurred in flight but could not be duplicated by maintenance. Aircraft was released. (USAR) ■ Main transmission low oil pressure light came on. Caused by malfunction of pressure switch.

TH-55

1 PRECAUTIONARY LANDING ■ Rough running engine was caused by malfunction of left magneto.

CH-47

1 INCIDENT ■ Blade strike occurred during night flight in marginal weather when pilot maneuvered aircraft abruptly to keep from flying into flight of UH-1's.

3 PRECAUTIONARY LANDINGS ■ No. 1 engine low oil light came on. Caused by improperly secured oil filter cap. (ARNG) ■ No. 2 generator emitted sparks and smoke during flight. Caused by internal failure of generator. ■ Fuel leak was detected at aft end of internal fuel tank during flight. Cause unknown. Tank changed. □

THOUGHT FOR THE WEEK



FLEW TOO LONG
PILOT FATIGUED
WHAT A LOT OF MONEY
HIS WIDOW RECEIVED

FIXED WING

BRANCH

Fatalities: 0 ■ Accidents: 0
Injuries: 0 ■ Estimated Costs: \$3,500

■ MAJ William G. Daly, Jr., Chief
SFC John M. Terrell
558-3901

One incident, one forced landing, and thirteen precautionary landings were reported. Selected briefs follow.

OV-1

1 INCIDENT ■ Daily inspection revealed outboard trailing edge of left flap bent, inboard trailing edge of inboard aileron bent, left flap buckled at leading edge, and attaching point of left spoiler actuator torn loose. Suspect flap milking (see dash 10 caution) or system out of rig.

1 FORCED LANDING ■ No. 1 engine failed on takeoff roll. Takeoff was aborted. Cause under investigation.

4 PRECAUTIONARY LANDINGS ■ Engine chip detector light illuminated shortly after takeoff. Magnetic plug was worn and replaced. ■ Pilot detected smoke odor and No. 2 generator light came on. Inspection revealed wire shorted from oscillograph to No. 2 voltage regulator. ■ Right main gear showed unsafe condition. Gear was blown down and safe landing completed. Sensitive down-lock switch was replaced. ■ No. 1 engine chip detector light came on. Suspect contamination from western gearbox failure on 31 October. Engine replaced.

U-8

2 PRECAUTIONARY LANDINGS ■ Right main gear indicated unsafe during test flight. After recycling, left main gear still indicated unsafe. Manual extension gave safe condition and landing was successful. Weak landing gear motor assembly was replaced. ■ Left main gear indicated unsafe after gear extension. After two recyclings, gear indicated safe and landing was uneventful. Replaced faulty left main indicator.

T-42

2 PRECAUTIONARY LANDINGS ■ Ten minutes after takeoff, battery charge light came on. No. 1 volt-meter reading was maximum and No. 2 was just off peg. Radios became weak. Aircraft returned for landing. Replaced No. 2 alternator and voltage regulator. ■ Aircraft flew through flock of doves on takeoff. Inspection revealed no damage. Remains of several doves were lodged in right engine cowling.

U-21

1 PRECAUTIONARY LANDING ■ Slight fluctuation of torque pressure and fuel flow was noted. This condition continued to deteriorate and pilot elected to land at nearest airfield. Torque pressure dropped very low on final approach and engine was secured. Maintenance changed main fuel control. □

MAINTENANCE MISHAPS

Fatalities: 0 ■ Accidents: 0
Injuries: 0 ■ Estimated Costs: \$5,010

Two incidents and three precautionary landings were reported.

AH-1

1 INCIDENT ■ Cracks were found in outer skin of tail rotor drive shaft cover during preflight inspection. Screwdriver had been left in tail rotor drive shaft area.

CH-47

1 PRECAUTIONARY LANDING ■ Hydraulic fluid odor was noted and leak detected in AGB area during flight. Caused by leaking utility hydraulic pump. Nonmetallic washer was left out during pump installation.

U-8

1 INCIDENT ■ Landing gear selector handle was placed in up position after takeoff. Gear handle stayed red, indicating gear had not fully retracted. Pilot placed gear selector handle in down position, resulting in safe indication. Landing was made without further incident. Unauthorized bolt used to jack up aircraft was left in gear torque knee attaching assembly. When gear was retracted, bolt head caught on gear well door.

2 PRECAUTIONARY LANDINGS ■ Fuel starvation occurred on left engine and engine fuel selector was placed in crossfeed position. Landing was made. Right engine fuel selector valve control cable was rigged incorrectly, allowing fuel from left main tank to crossfeed into right auxiliary fuel tank. *Unit stated that TM 55-1510-201-20 fails to provide instruction for rigging fuel selector valve control cable. Informal coordination with AVSCOM and a review of TM 55-1510-201-20 procedures by this Agency indicates that fuel selector valve control cable rigging procedures in par. 5-103 are adequate with the following exception: A forthcoming change to TM 55-1510-201-20 will delete the parenthetical phrase, "viewed from the aft side," from par. 5-103b(5).* ■ No. 1 engine oil pressure fell to 35 psi after takeoff. During touchdown, No. 1 engine quit. Pressure regulator was disassembled, cleaned, and reinstalled. PMP had been completed 18 hours before.

EIR CONTROL NUMBERS ON PRAM'S

Reference TM 38-750, par. 3-16c (3), page 3-31, a routine EIR must be submitted in those cases where a flight abort resulted from a materiel failure or malfunction, but the submission of an emergency EIR is not warranted. The routine EIR must reference the PRAM and identify the cause of the flight abort. □

DEPARTMENT OF THE ARMY
UNITED STATES ARMY
AGENCY FOR AVIATION SAFETY
FORT RUCKER, ALABAMA 36362

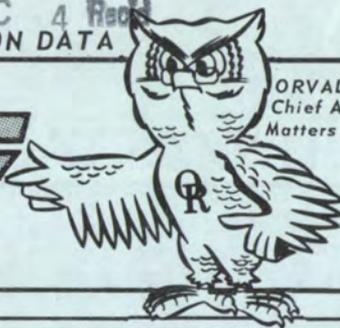
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FLIGHT FAX



ORVAL RIGHT
Chief Advisor on
Matters of Aviation

A USAAAVS PUBLICATION

VOL. 4, NO. 9 ■ 3 DECEMBER 1975

mishaps for the period of 14-20 NOVEMBER 1975

PUT IT M-I-L-D-ly

MAYDAY!

Going Down

US Army Aviation Training Library
Fort Rucker, Alabama 36360

Mayday! Going down! These chilling words are dreaded by all those who fly, and all too often they are the only words transmitted by the crew of an aircraft in trouble. The poignant thing about this abbreviated call for help is that it tells the listeners only two things—someone is in trouble and he's losing altitude. This isn't much to go on.

Occasionally, the aircraft's I.D. is given, but rarely the geographical location. An indication of the trouble is almost never given. At low altitudes, there may not be time to get this all off, but at higher altitudes you can tell the whole story. You can talk all the way down, giving vital information to those monitoring your call.

As aviators gain flying experience they may also gain confidence that they can handle nearly every situation. This confidence may lead to overconfidence and then complacency—the "it won't happen to me" attitude. When the real thing comes along, the shock of it may leave you mentally unprepared to cope with everything that has to be done—which includes a complete radio call.

Each part of your emergency radio transmission is vitally important: (1) The alert—Mayday given at least three times—is to get others off the air and listening to you. (2) The aircraft I.D. is necessary

in case you "turn up missing." And someone may have known what area you were flying in and pass the word along. (3) Your geographical location is needed so a speedy flight can be made to where you are. If you are injured, there is not a prettier sight than the "Angels of Mercy" on a very short final. (4) A description (even a brief one) of the nature of the trouble may be the one vital clue that helps the investigators determine the cause; if things don't turn out well for you, that is. Finding the cause is essential to prevent other accidents.

USAAAVS recommends that emergency radio procedures be included in every SOP, training manual, syllabus of instruction, etc. It is further recommended these procedures be required during every standardization and check ride, and on a regular recurring basis during dual student training. It takes self-discipline to practice something you may never need. But when the real thing occurs, your radio procedure will be as automatic as lowering the collective once you have it *firmly* implanted in your mind.

Prevention is the name of the game. Remember M-I-L-D—*Mayday, Identification, Location, Description*. To put it MILDly (no pun intended), you can contribute to aviation safety and accident prevention.

SPECIAL AWARD

CW2 HARRY N. CADDELL, 175th Aviation Company, Illesheim, Germany, received a special one-time certificate of recognition from the U.S. Army Agency for Aviation Safety (USAAAVS), Fort Rucker, AL, for making the 24,000th precautionary landing in an Army aircraft since 1 January 1967. The award was presented by Brigadier General Rufus C. Lazzell, Assistant Division Commander,



3d Combat Aviation Battalion.

Mr. Caddell was on an AH-1G training mission and was in level flight at 1,500 feet agl when the 90-degree gearbox chip detector light came on. He made a precautionary landing. When the aircraft was inspected, carbon particles were found on the chip detector plug. An oil sample revealed the need to replace the 90-degree gearbox.

This certificate of recognition was awarded by USAAAVS to emphasize the importance of making precautionary landings before situations deteriorate beyond the capabilities of pilots to prevent accidents or incidents.

UTILITY/ATTACK

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

BRANCH

■ MAJ William C. Childree, Chief
SP6 Roland L. Allen, Jr.
558-4198

Two incidents and nineteen precautionary landings were reported.

UH-1

2 INCIDENTS ■ On takeoff with two patients on board, pilot overtorqued aircraft while avoiding trees. During overtorque inspection of rotor blades, bonding separation was found and one blade was changed. ■ Pilot moved tail to right during high hover. Tail rotor struck small tree, damaging one tail rotor blade.

15 PRECAUTIONARY LANDINGS—following are selected briefs ■ Aircraft lost 400 rpm during hover and landed. Rpm was recovered when engine was beeped back up. Cause unknown. ■ Engine chip detector light came on during takeoff. Inspection revealed metal particles on plug. Engine was changed. ■ Hydraulic caution light came on. Caused by internal failure of collective irreversible valve. ■ Pilot encountered severe vertical vibration in flight. Inspection revealed failure of one drive link trunnion bearing. ■ Right fuel boost pump failed in flight. Pump was replaced. ■ Fire warning light came on. Caused by failure of fire warning control box. ■ Hydraulic caution light came on. Caused by failure of hydraulic pressure switch.

AH-1

4 PRECAUTIONARY LANDINGS ■ Engine oil temperature rose to 140° during flight. Caused by loose bleed air line on oil cooling-fan. ■ Oil bypass light came on. Replaced transmission oil bypass pressure switch. ■ Engine chip detector light came on. Inspection revealed internal failure of engine. ■ Engine developed compressor stall as XM-35 weapon system was being fired. Inspection revealed combination of oil seeping from input quill and soot from gun had caused unusually rapid accumulation of dirt in compressor. Aircraft had fired 5,000 rounds in one day at OGE hover. □

NOE TRAINING

A recent inquiry from a major command indicates there is some confusion as to the correct reference for NOE training guidance. FM 1-1 (Terrain Flying) supersedes TC 1-15.

LOH/CARGO

Fatalities: 0 ■ Accidents: 2
Injuries: 0 ■ Estimated Costs: \$44,000

BRANCH

■ MAJ Robert P. Judson, Chief
SFC D. T. Farrar/SFC R. G. Farris
558-4202

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

OH-58

2 ACCIDENTS ■ During takeoff from field site, main rotor blades struck 8-inch pine tree. Approximately two inches were knocked off each blade and sudden stoppage damage is suspected. Accident is under investigation. ■ Pilot said aircraft shuddered violently during final approach and he noticed rotor rpm at approximately 260. Aft portion of fuselage was damaged. Investigation is in progress.

LOSS OF RESOURCES FROM THIS WEEK'S MISHAPS

FATALITIES: 0
INJURIES: 0
AIRCRAFT LOSSES: 0
ESTIMATED COSTS: \$51,389

UNITED STATES ARMY AGENCY FOR AVIATION SAFETY
FORT RUCKER, ALABAMA 36362
Commander/Deputy Commander 558-3410/3819
For Assistance in Locating Proper Directorate 558-6510
Aircraft Accident Analysis and Investigation 558-3913/4202
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Prepared from information compiled by the Directorate for Aircraft Accident Analysis & Investigation
Lieutenant Colonel Curtis M. Sanders, Director

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1 INCIDENT ■ Left rear seat belt was left unfastened and hanging out of door during 1-hour flight, causing damage to fuselage.

4 PRECAUTIONARY LANDINGS ■ Fuel gauge indicated 300 pounds of fuel before takeoff. One hour and 10 minutes into flight, low fuel warning light came on. Crew failed to visually check fuel quantity. ■ Transmission chip detector light came on. Suspect excessive wear in transmission. ■ Hydraulic light came on. Caused by failure of pressure switch. ■ During pretakeoff HIT check, 30° overage was indicated. Heater mixing valve was stuck open.

TH-55

1 PRECAUTIONARY LANDING ■ Engine oil pressure reduced to zero during approach. Oil pressure sending unit failed.

CH-47

4 PRECAUTIONARY LANDINGS ■ Crew saw and smelled smoke coming from area of AGB. Caused by defective linear direction flow valve to hydraulic oil cooler assembly. ■ Aircraft made three precautionary landings when hydraulic lines became hot and fluid leaked at elbow fitting on utility pressure filter and pressure reducer. Cause undetermined. Utility hydraulic pump was replaced after the third precautionary landing and problem was eliminated. □

FIXED WING

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

BRANCH

■ MAJ William G. Daly, Jr., Chief
SFC John M. Terrell
558-3901

Seven precautionary landings were reported.

U-21

3 PRECAUTIONARY LANDINGS ■ No. 2 engine secondary idle stop light came on and props came out of synchronization. Rpm dropped 50 and stabilized. Test switch was cycled, warning light went out, and rpm returned to normal. Crew diverted for landing. During landing rollout, light illuminated again and test switch extinguished it. Electrical switch (50-329007-1) failed. ■ Rpm began to drop. Pilot cycled power lever to idle and back forward. Lever was also cycled in and out of feather. Rpm stabilized at 1400. Landing was made with power. Caused by materiel failure of No. 2 engine primary prop governor. ■ Pilot noted fluctuating fuel pressure followed by loss of N1 on No. 1 engine. Engine then failed and single-engine landing was successful. Similar incident occurred in October on this aircraft. Aircraft is now grounded pending results of investigation.

U-8

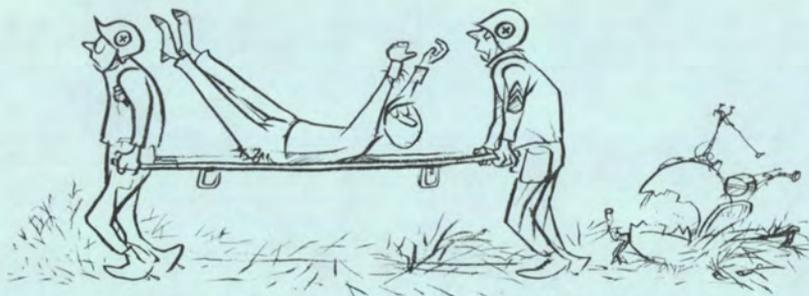
2 PRECAUTIONARY LANDINGS ■ Engine chip detector light illuminated on takeoff roll. Takeoff was aborted. Maintenance found large metal chips on magnetic plug. Engine failed internally. (ARNG) ■ Pitot heating system failed in flight, causing loss of instruments. Aircraft was landed without further difficulty. Pitot heating wires shorted. Pitot head was replaced and aircraft released for flight. (USAR)

C-7

1 PRECAUTIONARY LANDING ■ Crew noticed fuel leaking from right wheel well. Engine was secured and single-engine landing made. Heater hose assembly had failed.

C-47

1 PRECAUTIONARY LANDING ■ No. 2 engine chip detector light came on, oil temperature climbed to 130°, and oil pressure dropped to 50 psi. Caused by internal engine failure. □



THOUGHT FOR THE WEEK

THE PREFLIGHT WAS HURRIED
ONE THING WAS MISSED
THEY'D RELIED ON MEMORY
INSTEAD OF THE CHECKLIST

MAINTENANCE MISHAPS

Fatalities: 0 ■ Accidents: 0
Injuries: 0 ■ Estimated Costs: \$1,200

One incident and three precautionary landings were reported.

CH-47

2 PRECAUTIONARY LANDINGS ■ During power recovery No. 1 engine would not go above 69 percent N1. There was no materiel defect. Impedance of motion of N2 actuator arm was caused by improperly installed cotter key which made contact with lower engine cowling. ■ No. 2 engine oil low warning light came on and oil pressure dropped to zero. Caused by improperly installed O-ring on No. 2 engine oil filter.

U-3

1 INCIDENT ■ Nose gear jammed at 45° angle from down and locked position. Observation aircraft confirmed that main gears were safely locked in down position. Aircraft was landed on foamed runway. Underside of forward fuselage, nose gear doors, and right propeller were damaged. Maintenance had been performed in nose wheel area which required disconnection of nose wheel landing gear door push-pull rods. After maintenance was completed, nose wheel landing gear doors were not reconnected. Failure to connect doors resulted in binding of nose landing gear once it was retracted inside of nose wheel well. No entry had been made in logbook, and condition was not found on preflight (T.O. 1U-3A-1, pp 2-2, par. C2).

T-42

1 PRECAUTIONARY LANDING ■ Following takeoff, ground observer saw object fall from aircraft. Pilot made low pass for visual check of landing gear and landed without further mishap. Object which fell from left engine nacelle was a flashlight which was half destroyed by heat from engine manifold. One BA-30 battery remained in cowling and was recovered during postflight inspection. Flashlight was not visible to pilot during preflight. Suspect maintenance personnel left flashlight in nacelle during aircraft daily inspection.

UH-1 MAINTENANCE ADVISORY MESSAGE

Message from USAAVSCOM, St. Louis, MO, 181718Z Nov 75, subject: Maintenance Advisory Message for UH-1H Aircraft, (UH-1.75-19).

1. Purpose of message: To make users aware of an incorrect entry in the aircraft forms of a series of UH-1H aircraft delivered by Bell Helicopter Company and to provide information for a correcting entry.
2. Problem: BHC has advised that 244 aircraft, serial numbers indicated below, have entries on the DA Form 2410 indicating installation of a hydraulic servo cylinder assembly which is not the assembly actually installed. The affected aircraft are as follows: UH-1H S/N 72-21649

UH-1H S/N 72-21838 and subsequent.

When the aircraft were released by BHC to the user the DA Form 2410 reflected that the installed servo cylinder assembly was P/N 205-076-038-7, NSN 1650-00-183-4426. BHC has advised that the aircraft actually had received P/N 205-076-099-7, NSN 1650-00-148-9077.

3. Action required: Organizations having any of the indicated aircraft should check the DA Form 2410 against the servo cylinder assembly actually installed and correct the Form 2410 as necessary. The nameplate identifying the servo cylinder assembly is located on the rigid connecting link connecting the hydraulic servo cylinder to the swashplate. □

CLARIFICATION

The article entitled "Restriction of Copilot's Vision" in the 19 November 1975 FLIGHTFAX may have been misleading to some people. When we said "... any device or material which will restrict the vision of the copilot," we were referring to any type of covering on windows, doors, and windscreens which would limit the pilot's or copilot's vision to the interior of the aircraft.

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