* EMPLOYEE BULLETIN

No. 75-38 November 25, 1975

UTTAS 001 ACCIDENT SEQUENCE ESTABLISHED-
AIRCRAFT REPAIRABLE

The sequence of events in UTTAS aircraft 001 accident have been clearly established. During buildup maneuvers toward the 85 knot autorotative pull-out point of the structural demonstration an RPM overshoot to approximately 125% of normal RPM was encountered. During the RPM overshoot the most forward section of the tail rotor drive shafting (between the main transmission and the intermediate transmission) contacted a work step in the aft transmission compartment. The contact with this step tore the first section of shaft causing it to fail and eliminating the drive torque to the tailrotor. This, of course, resulted in the loss of directional control. Due to the low airspeed and low altitude existing following this occurrence, it was impossible to get the aircraft into a forward flight speed regime where adequate vertical tail effectiveness would provide directional control of the aircraft. The aircraft came down into a patch of dense oak woods.

Accident Investigation Board

The U. S. Army has established an official military accident investigation board headed by Colonel Dennis Boyle to investigate the accident. The Company is cooperating fully with the Board. Any official public releases will be made by the Army Board.

UTTAS aircraft 002 and 003 have been cleared by the Army to resume their flight test program. Also, the Army's Pilot Evaluation Program is proceeding as planned, operating with autorotative RPM restrictions which will avoid the recurrence of the 001 problem.

- more -

001 Repairable

On Saturday, November 22, a CH-47 Chinook piloted by A. J. Hutto and Al Santa Maria airlifted the UTTAS aircraft from the crash site to the company's facility at the Calverton, Long Island test center. Today, 001 is being brought back to Center 3 at Boeing Center.

Since shortly after the accident took place, a team from Boeing Vertol has been "on the scene" determining the extent of damage to the aircraft.

The main fuselage structure is essentially undamaged. The tail rotor has four blades still attached to the straps in proper connection to the tail rotor hub and shaft even though the tail boom broke loose from the aircraft. Based upon detailed examinations of the damaged aircraft, the company is recommending to the U. S. Army that 001 be repaired and returned to flight status.

Impact on Program

We are reviewing the impact of the accident on our schedule for delivery of aircraft for the Government Competitive Test. A delay of approximately one month is currently indicated based on developing and qualifying an adequate fix for the tail rotor shaft and then completing the aircraft Structural Demonstration program.

Crashworthiness Demonstrated

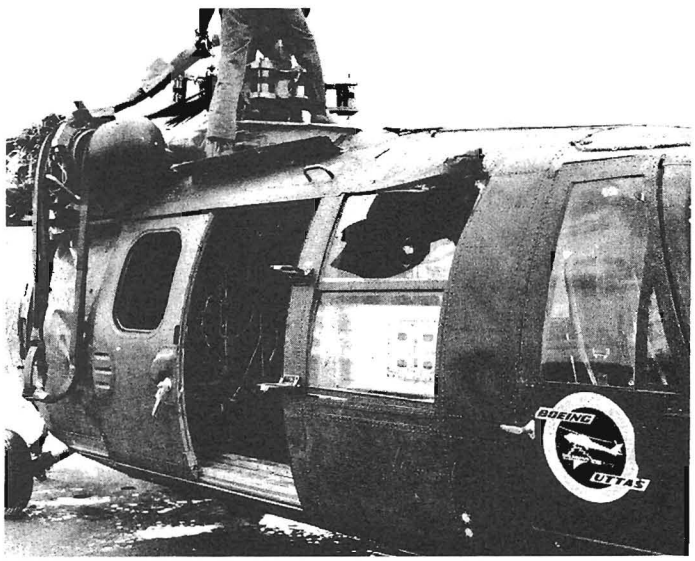
Just as every dark cloud has its bright lining, this accident was a spectacular demonstration of the crashworthiness of the YUH-61 design. Both of our pilots, Frank Duke and Ron Mecklin, were uninjured and there was no fire.

During entry into the woods the main rotor blades and tail rotor blades contacted a number of oak trees ranging in diameter from 6" to 15". The transmission is firmly in place in the aircraft structure with no evidence of any movement of the transmission and transmission mounting structure. For example, it was possible to open the hatch immediately aft of the transmission with no evidence that any structural deformation of the butt line beams on which the hatch tracks are mounted had taken place.

- more -

CH-47C Chinook, piloted by A. J. Hutto and Al Santa Maria, returns 001 UTTAS to Calverton flight test facility.

The following photographs taken at the Calverton test center on Saturday, November 22, show the structural integrity demonstrated by the rotor system and airframe structure.



Y FT

BOEING VERTOL DIVISION MISHAP REPORT

REPORT DATE		F. H. Duke
11/20/75		

GENERAL

A/C T/S	M/N	LOCATION	DATE	TIME
YUH-61A	Tab 001	Peconic River A/P Calverton, N.Y.	11/18/75	1400

DEPARTURE POINT	TIME	DESTINATION POINT	ETE
Peconic River A/P	1330	Local Flight	2 hours

MISSION	SLING / TOWING	ASSIGN TO	BASE
Test	☐ SLING ☐ TOWING	Boeing Vertol	Peconic River A/P Calverton, N.Y.

A/C TT	TIME THIS FLIGHT	HOURS SINCE PERIODIC	HOURS SINCE MINOR	TIME OF LAST
236:42	0:35			

GROSS WEIGHT AT TAKE-OFF	WEIGHT AT MISHAP	CENTER OF GRAVITY AT TAKE-OFF
15,920 lbs	15,400 lbs	☐ FORWARD X ft c.g. 15.3"A

DAMAGE CLASSIFICATION

ACCIDENT: ☐ LOSS OF A/C ☐ MINOR ☐ INCIDENT

LANDING: ☒ PRECAUTIONARY ☐ FORCED ☐ COMBAT DAMAGE

☐ DESTROYED ☐ MAJOR ☐ SUBSTANTIAL ☐ OVERHAUL ☐ MINOR ☐ LIMITED ☐ NOT REPAIRABLE ☒ NO DAMAGE ☐ OTHER

☐ FIRE ☐ EXPLOSION ☐ PRE-MISHAP ☐ AT MISHAP ☐ POST MISHAP

PHASE OF OPERATIONS

	OPERATION	✓	OPERATION	✓	OPERATION	✓	OPERATION	✓
1	PREP		8	REAR FLIGHT	15	LANDING RO	22	TOWING
2	ROTOR ENGAGE		9	SIDE FLIGHT	16	GO AROUND	23	SLING/HOIST HOOK-UP
3	TAXIING		10	CLIMB	17	ROTOR STOPPED	24	SLING/HOIST RELEASE
4	AT OR NEAR T.O. GROUND ROLL		11	DESCENT	18	ROTOR FOLD	25	GROUND SERVICE
5	T.O.		12	AUTOROTATION	19	LAND APPR RO	26	GROUND OPERATIONS
6	TRANSITION		13	FLARE	20	PARKED - GROUND	27	Level Flight x
7	T.O. AND FLT		14	TOUCHDOWN	21	PARKED - WATER	28	

PERSONNEL

NUMBER IN USE	NUMBER IN OPS	FATALITIES	INJURIES
2	2	CREW ____ PASS. ____	CREW ____ PASS. ____

NAME	CREW DUTY	INJURIES	TOTAL FLIGHT TIME	TIME THIS MODEL
F. H. Duke	Pilot	None		
J. R. Mecklin	Copilot	None		

PASSENGERS: None

CLEARANCE & RADIO DATA

☐ I.F.R. ☐ V.F.R. ☒ LOCAL ☐ OTHER ____

TIME OF LAST RADIO REPORT: to Peconic River & Chase Plane

TROUBLE REPORTED? ☒ YES ☐ NO

NATURE OF TROUBLE: No. 2 engine transmission oil pressure dropped to minimum in-flight limit. A/C landed at Mattituck A/P & reserviced, hover checked & returned to Peconic River

WEATHER

CEILING	TEMP. (F.)	DEW POINT	WIND DIRECTION	WIND VELOCITY
No factor	No factor	No factor	No factor	No factor

☐ FOG ☐ RAIN ☐ SNOW ☐ HAIL ☐ DUST ☐ THUNDERSTORMS ☐ LOW CLOUDS

TURBULENCE ☐ MODERATE ☐ SEVERE

☐ LIGHTENING ☒ OTHER Not Applicable

☒ OTHER Not Applicable

TERRAIN

ELEVATION: Not Applicable FT.

☐ LEVEL ☐ ROLLING ☐ MOUNTAINS ☐ WOODED ☐ WATER ☐ DESERT ☒ OTHER Not Applicable

REMARKS

BOEING
VERTOL DIVISION

MISHAP REPORT

REPORT DATE: 8/2/76

FROM: A. J. Hutto

GENERAL

MODEL	S/N	LOCATION	DATE	TIME
179	N179BV/101	Salem, N.J.	7/30/76	12:10

DEPARTURE POINT	TIME	DESTINATION POINT	E.T.A.
Vilmington	11:31	Wilmington	12:30

MISSION: IRIS Development Flight — ☐ SLING ☐ TOWING

ASSIGN TO: Boeing Vertol

BASE: Wilmington

A/C T.T.	TIME THIS FLIGHT	HOURS SINCE PERIODIC	HOURS SINCE MINOR	TIME OF LAST O/H
232 hours	:42	-	-	-

GROSS WEIGHT AT TAKE-OFF	WEIGHT AT MISHAP	CENTER OF GRAVITY AT TAKE-OFF
14,500	14,200	☐ FOREWARD ☐ AFT Mid.

DAMAGE CLASSIFICATION

ACCIDENT: ☐ MAJOR ☐ MINOR — ☐ INCIDENT

LANDING: ☒ PRECAUTIONERY ☐ FORCED — ☐ COMBAT DAMAGE

☐ STRIKE-ALPHA ☐ MAJOR SUBSTANTIAL — ☐ OVERHAUL ☐ MINOR ☐ LIMITED — ☐ NON-RECOVERABLE ☐ NO DAMAGE ☐ OTHER

☐ FIRE ☐ EXPLOSION — ☐ PRE-MISHAP ☐ AT MISHAP ☐ POST MISHAP

PHASE OF OPERATIONS

	OPERATION	✓		OPERATION	✓		OPERATION	✓		OPERATION	✓
1	START		8	REAR FLIGHT		15	LANDING ROLL		22	TOWING	
2	ROTOR ENGAGE		9	SIDE FLIGHT		16	GO AROUND		23	SLING/HOIST HOOK-UP	
3	TAXIING		10	CLIMB		17	ROTOR SHUTDOWN		24	SLING/HOIST RELEASE	
4	LIFT OFF T.O. - GROUND ROLL		11	DESCENT		18	ROTOR FOLD		25	GROUND SERVICE	
5	HOVER		12	AUTOROTATION		19	LAND APPROACH		26	GROUND OPERATIONS	
6	TRANSITION		13	FLARE		20	PARKED - GROUND		27	Cruise	
7	FORWARD FLIGHT		14	TOUCHDOWN		21	PARKED - WATER		28		

PERSONNEL

NUMBER ABOARD	NUMBER IN CREW	FATALITIES: CREW	FATALITIES: PASS.	INJURIES: CREW	INJURIES: PASS.
2	2	None		None	

NAME	CREW DUTY	INJURY	TOTAL FLIGHT TIME	TIME THIS MODEL
A. J. Hutto	Copilot			
A. Meihofer	Pilot			

PASSENGERS: None

DETERMINATION & RADIO DATA

☐ I.F.R. ☒ V.F.R. ☒ LOCAL ☐ OTHER

TIME OF LAST RADIO REPORT: -

TROUBLE REPORTED? ☒ YES ☐ NO

NATURE OF TROUBLE

Developed leak in #2 hydraulic boost system. Low quantity caution light was followed by loss of oil pressure and loss of #2 SAS.

WEATHER

CEILING	TEMP. (F.)	DEW POINT	WIND DIRECTION	WIND VELOCITY
No factor	27°C	-	NW at 10	10 knots

☐ FOG ☐ ICING ☐ OTHER — ☐ HAIL ☐ DUST — ☐ THUNDERSTORMS ☐ LOW CLOUDS

TURBULENCE: ☐ MODERATE ☐ SEVERE — ☐ LIGHTENING ☐ OTHER

TERRAIN

ELEVATION: _____ FT.

☐ LEVEL ☐ ROLLING ☐ MOUNTAINS ☐ WOODED ☐ WATER ☐ DESERT ☐ OTHER

REMARKS

Aircraft landed at Salem Airport. Determined leak to be tail rotor control actuator. Isolated the #2 boost lines to the tail rotor and re-serviced the system and returned to Wilmington.