

Brief of Accident

Adopted 04/28/2005

SEA04TA158
File No. 17636 08/11/2004 Leavenworth, WA Aircraft Reg No. N205XP Time (Local): 10:25 PDT

Make/Model:	Bell / 205A1	Fatal	1	Serious	0	Minor/None	0
Engine Make/Model:	Lycoming / T-53-L-17A	Crew	1	0	0	0	
Aircraft Damage:	Destroyed	Pass	0	0	0	0	
Number of Engines:	1						
Operating Certificate(s):	None						
Type of Flight Operation:	Public Use						
Reg. Flight Conducted Under:	Part 133: Rotorcraft Ext. Load						

Last Depart. Point:	Leavenworth, WA	Condition of Light:	Day
Destination:	Same as Accident/Incident Location	Weather Info Src:	Witness
Airport Proximity:	Off Airport/Airstrip	Basic Weather:	Visual Conditions
		Lowest Ceiling:	
		Visibility:	10.00 SM
		Wind Dir/Speed:	Calm
		Temperature (°C):	32
		Precip/Obscuration:	

Pilot-in-Command	Age: 55	Flight Time (Hours)
Certificate(s)/Rating(s)		Total All Aircraft: 22650
Flight Instructor; Commercial; Multi-engine Land; Single-engine Land; Single-engine Sea; Helicopter		Last 90 Days: 110
Instrument Ratings		Total Make/Model: Unk/Nr
Airplane; Helicopter		Total Instrument Time: Unk/Nr

The helicopter was operating under contract to the United States Forest Service (USFS). The purpose of the external load flight was to deliver equipment to a crew of smoke jumpers fighting a fire in heavily wooded, mountainous terrain. The jumpers estimated the trees in the area were a maximum of 120 feet tall, and therefore, they requested a 150 foot long line be used for the equipment drop. The helicopter was dispatched with a tandem load on a 160 foot long line. The smoke jumpers placed a marker on a sand bar in a stream bed. There was a tall dead tree (snag) located on a cut bank overlooking the sand bar. As the helicopter approached the area, one of the smoke jumpers communicated by radio with the pilot that if he did not like the marked site, he could choose his own spot. The pilot replied that he would give the marked spot a try. The radio operator did not mention the snag to the pilot. The pilot successfully placed both loads on the marker. Another smoke jumper disconnected both loads and then reconnected one of the loads meant to be dropped at another location. As the helicopter began its departure, the pilot who was sitting in the left seat, slowly turned the helicopter's nose to the left and its tail to the right. This maneuver allowed the helicopter's tail rotor to contact the snag. The helicopter began to spin and then fell to the ground. Investigation revealed that the snag was located 36 feet from the marker and was about 173 feet tall. The rotor diameter of the helicopter was 48 feet. Following the accident, the USFS issued an Aviation Safety Alert on the subject of "Clearance From Obstacles During External Load Operations." One of the recommendations in the alert stated the following: "In areas of sloping terrain or with obstacles rising to one or more sides of the cargo pickup/delivery area, or dip site, pilot should maintain aircraft clearance from all obstacles in accordance with the landing area safety circle requirements for the type aircraft. The safety circle is generally recognized as 1 1/2 times the rotor diameter."

Brief of Accident (Continued)

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Occurrence #1: IN FLIGHT COLLISION WITH OBJECT
Phase of Operation: HOVER - OUT OF GROUND EFFECT

Findings

1. OBJECT - TREE(S)
 2. (C) CLEARANCE - NOT MAINTAINED - PILOT IN COMMAND
 3. ROTOR SYSTEM, TAIL ROTOR - BLADE STRIKE
 4. (F) COMMUNICATIONS - INADEQUATE - GROUND PERSONNEL
 5. (F) INFORMATION - INCORRECT - GROUND PERSONNEL
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Occurrence #2: LOSS OF CONTROL - IN FLIGHT
Phase of Operation: HOVER - OUT OF GROUND EFFECT

Findings

6. AIRCRAFT CONTROL - NOT POSSIBLE - PILOT IN COMMAND
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Occurrence #3: IN FLIGHT COLLISION WITH TERRAIN/WATER
Phase of Operation: DESCENT - UNCONTROLLED

Findings

7. TERRAIN CONDITION - GROUND

Findings Legend: (C) = Cause, (F) = Factor

The National Transportation Safety Board determines the probable cause(s) of this accident as follows.

The pilot's failure to maintain clearance from the snag while hovering out of ground effect during an external load operation. Factors were the smoke jumper's misjudgment of the tree heights in the area, which resulted in the use of too short a long line, and their failure to communicate with the pilot about the tall snag.