



National Transportation Safety Board Aviation Accident Final Report

Location:	Monticello, UT	Accident Number:	DEN03LA020
Date & Time:	12/02/2002, 1125 MST	Registration:	N20840
Aircraft:	Aerospatiale AS-350BA	Aircraft Damage:	Substantial
Defining Event:		Injuries:	1 Minor
Flight Conducted Under:	Part 133: Rotorcraft Ext. Load		

Analysis

According to the pilot, he had moved approximately 80 bags of seismic sensor cable earlier that morning with no problems. At approximately 1120, the pilot stopped operations to change lines. He proceeded to pick up five bags and was en route to the drop off point. During the approach to the north, the pilot "noticed that the Nr (rotor rpm) was high at roughly 400 rpm as [he] turned to the west." As the pilot slowed down, he added collective to reduce the rotor speed. The rotor rpm began to slow, at which point the pilot lowered the collective and applied forward cyclic to maintain forward airspeed. The rotor speed continued to decrease and the "low rotor speed warning horn" sounded. The pilot lowered the collective and flared, at which point the bags contacted the ground. The pilot then "noticed that the Nr was low" at approximately 320 rpm. The pilot "zeroed the airspeed, pumped the collective once[,] trying to slow the rate of decent and pulled up on the collective," just before impacting the ground. The helicopter settled onto the load beneath it, and subsequently rolled over on its right side causing substantial damage. An examination of the helicopter revealed no anomalies.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: the pilot's failure to maintain rotor rpm. A related factor was the presence of an object in the path during the touchdown.

Findings

Occurrence #1: LOSS OF CONTROL - IN FLIGHT

Phase of Operation: APPROACH

Findings

1. (C) ROTOR RPM - NOT MAINTAINED - PILOT IN COMMAND

Occurrence #2: FORCED LANDING

Phase of Operation: EMERGENCY DESCENT/LANDING

Findings

2. AUTOROTATION - ATTEMPTED - PILOT IN COMMAND

Occurrence #3: ROLL OVER

Phase of Operation: DESCENT - UNCONTROLLED

Findings

3. (F) OBJECT - OTHER

Factual Information

On December 2, 2002, at approximately 1125 mountain standard time, an Aerospatiale AS-350BA, N20840, operated by Crew Concepts Inc., was substantially damaged following an autorotation and subsequent landing rollover 1 mile east of Monticello, Utah. The commercial pilot, the sole occupant on board, received minor injuries. The external load operation was being conducted under the provisions of Title 14 CFR Part 133. Visual meteorological conditions prevailed and no flight plan had been filed for the local geophysical flight that originated approximately 5 minutes prior to the accident.

According to the pilot, he had moved approximately 80 bags earlier that morning with no problems. The bags contained seismic sensor cables. At approximately 1120, the pilot stopped operations to change lines. He proceeded to pick up five bags and was en route to the drop off point. During the approach to the north, the pilot "noticed that the Nr [rotor rpm] was high at roughly 400 rpm as [he] turned to the west." As the forward speed slowed down, the pilot added collective to reduce the rotor speed. The rotor rpm began to slow but continued to decrease, at which point the pilot lowered the collective and applied forward cyclic to maintain forward airspeed. The rotor speed continued to decrease and the "low rotor speed warning horn" sounded. The pilot lowered the collective and flared, at which point the bags contacted the ground. The pilot then "noticed that the Nr was low" at approximately 320 rpm. Impact with the ground was unavoidable and the pilot "zeroed the airspeed, pumped the collective once[,] trying to slow the rate of decent and pulled up on the collective," just before impacting the ground.

The helicopter settled onto the load on the ground. Subsequently, the helicopter rolled over, coming to rest on its right side. The tail boom was severed, the engine and transmission were separated, and the main rotor blades and hub assembly were destroyed.

On March 6, 2003, the fuel control unit was examined at Turbomeca, Grand Prairie, Texas. No anomalies were reported. An examination of the helicopter's systems revealed no anomalies.

The calculated density altitude at the accident site was 7,443 feet. The helicopter's maximum substantiated pressure altitude is 16,000 feet.

Pilot Information

Certificate:	Commercial	Age:	41, Male
Airplane Rating(s):	Single-engine Land	Seat Occupied:	Right
Other Aircraft Rating(s):	Helicopter	Restraint Used:	Seatbelt
Instrument Rating(s):	None	Second Pilot Present:	No
Instructor Rating(s):	None	Toxicology Performed:	No
Medical Certification:	Class 2 Valid Medical--w/ waivers/lim.	Last FAA Medical Exam:	02/14/2002
Occupational Pilot:		Last Flight Review or Equivalent:	03/22/2002
Flight Time:	6790 hours (Total, all aircraft), 815 hours (Total, this make and model), 6590 hours (Pilot In Command, all aircraft), 59 hours (Last 90 days, all aircraft), 52 hours (Last 30 days, all aircraft), 6 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Aerospatiale	Registration:	N20840
Model/Series:	AS-350BA	Aircraft Category:	Helicopter
Year of Manufacture:		Amateur Built:	No
Airworthiness Certificate:	Normal	Serial Number:	1070
Landing Gear Type:	Skid	Seats:	1
Date/Type of Last Inspection:		Certified Max Gross Wt.:	4988 lbs
Time Since Last Inspection:		Engines:	1 Turbo Shaft
Airframe Total Time:		Engine Manufacturer:	Turbomeca
ELT:	Installed, activated, did not aid in locating accident	Engine Model/Series:	Aerial 1B
Registered Owner:	Copter Lease LLC Trustee	Rated Power:	681 hp
Operator:	CREW CONCEPTS INC	Operating Certificate(s) Held:	
Operator Does Business As:		Operator Designator Code:	FZOL

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual Conditions	Condition of Light:	Day
Observation Facility, Elevation:	BDG, 5865 ft msl	Distance from Accident Site:	24 Nautical Miles
Observation Time:	1045 MST	Direction from Accident Site:	210°
Lowest Cloud Condition:	Clear	Visibility	10 Miles
Lowest Ceiling:	None	Visibility (RVR):	
Wind Speed/Gusts:	4 knots /	Turbulence Type Forecast/Actual:	/
Wind Direction:	130°	Turbulence Severity Forecast/Actual:	/
Altimeter Setting:	30.19 inches Hg	Temperature/Dew Point:	8° C / -2° C
Precipitation and Obscuration:			
Departure Point:	Monticello, UT (NONE)	Type of Flight Plan Filed:	None
Destination:		Type of Clearance:	None
Departure Time:	1120 MST	Type of Airspace:	Class G

Wreckage and Impact Information

Crew Injuries:	1 Minor	Aircraft Damage:	Substantial
Passenger Injuries:	N/A	Aircraft Fire:	None
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	1 Minor	Latitude, Longitude:	37.937222, -109.327778

Administrative Information

Investigator In Charge (IIC):	James F Struhsaker	Report Date:	03/02/2004
Additional Participating Persons:	Lynn Higgins; FAA FSDO; Salt Lake City, UT		
Publish Date:			
Investigation Docket:	NTSB accident and incident dockets serve as permanent archival information for the NTSB's investigations. Dockets released prior to June 1, 2009 are publicly available from the NTSB's Record Management Division at pubinq@ntsb.gov , or at 800-877-6799. Dockets released after this date are available at http://dms.nts.gov/pubdms/ .		

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