



Aviation Investigation Final Report

Location:	Hortense, Georgia	Accident Number:	ATL02LA067
Date & Time:	March 28, 2002, 10:00 Local	Registration:	N49525
Aircraft:	Aerospatiale AS315B	Aircraft Damage:	Substantial
Defining Event:		Injuries:	1 Minor
Flight Conducted Under:	Part 137: Agricultural		

Analysis

According to the pilot, he was 100 feet in the air, at 40 knots, when he heard a bang in the tail section of the helicopter and thought he felt something break loose on the helicopter. There was an immediate loss of power to the main rotor system. The pilot attempted to flare the helicopter as it went into the trees. The helicopter impacted trees at approximately 30 knots, sustaining substantial damage. Examination of the helicopter revealed that the short shaft connecting the engine to the main gear box separated just aft of the connecting flange. Examination of the mounting hardware revealed that the connecting bolts had not been safety wired at the time of the accident. Examination of the helicopters maintenance records and an interview with the helicopter mechanic found that the helicopter had undergone a 400 hour inspection about two days prior to the accident or 10 hours of operation. The mechanic confirmed that he had removed and reinstalled the short shaft prior to the accident but could not recall if he had safety wired the connecting bolts as called for in the helicopters maintenance manual.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: Failure of the engine to main transmission drive shaft due to improper installation by company maintenance personnel. A factor were the trees.

Findings

Occurrence #1: AIRFRAME/COMPONENT/SYSTEM FAILURE/MALFUNCTION

Phase of Operation: MANEUVERING - AERIAL APPLICATION

Findings

1. (C) ROTOR DRIVE SYSTEM,ENGINE TO TRANSMISSION DRIVE - FAILURE,TOTAL
2. (C) MAINTENANCE,INSTALLATION - IMPROPER - COMPANY MAINTENANCE PERSONNEL

Occurrence #2: IN FLIGHT COLLISION WITH OBJECT

Phase of Operation: DESCENT - EMERGENCY

Findings

3. (F) OBJECT - TREE(S)

Factual Information

On March 28, 2002, at 1000 eastern standard time, an Aerospatiale Helicopter AS315B, N49525, collided with the ground shortly after takeoff, from Hortense, Georgia. The helicopter was registered to Roberts Aircraft Company, and operated by the commercial pilot for Southern States Cooperative Incorporated under the provisions of Title 14 CFR Part 137, and visual flight rules. Visual meteorological conditions prevailed and no flight plan was filed for the local agricultural application flight. The commercial pilot received minor injuries and the helicopter sustained substantial damage. The flight was originating from Hortense, Georgia, at the time of the accident.

According to the pilot, he was 100 feet in the air, at 40 knots, when he heard a bang in the tail section of the helicopter and thought he felt something break loose on the helicopter. There was an immediate loss of power to the main rotor system. The pilot attempted to flare the helicopter as it went into the trees. The helicopter impacted trees at approximately 30 knots, sustaining substantial damage.

Examination of the helicopter revealed severe impact damage, including crushed skids, twisting of the tail boom, and rotor blade damage resulting from impact with trees and ground. The tail rotor drive shaft was attached although bent. The engine mount structure was crushed downward, moving the engine out of alignment with the main rotor gearbox. The short shaft connecting the engine to the main gear box was damaged and the driveshaft separated just aft of the connecting flange. Examination of the mounting hardware revealed that connecting bolts had not been safety wired at the time of the accident.

Examination of the helicopters maintenance records and an interview with the helicopter mechanic found that the helicopter had undergone a 400 hour inspection about two days prior to the accident or 10 hours of operation. The mechanic confirmed that he had removed and reinstalled the short shaft prior to the accident but could not recall if he had safety wired the connecting bolts as called for in the helicopters maintenance manual.

Pilot Information

Certificate:	Commercial	Age:	43, Male
Airplane Rating(s):	Single-engine land	Seat Occupied:	Right
Other Aircraft Rating(s):	Helicopter	Restraint Used:	
Instrument Rating(s):	Helicopter	Second Pilot Present:	No
Instructor Rating(s):	None	Toxicology Performed:	No
Medical Certification:	Class 2 Valid Medical-w/ waivers/lim	Last FAA Medical Exam:	March 22, 2002
Occupational Pilot:	Yes	Last Flight Review or Equivalent:	July 3, 2000
Flight Time:	9850 hours (Total, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Aerospatiale	Registration:	N49525
Model/Series:	AS315B	Aircraft Category:	Helicopter
Year of Manufacture:		Amateur Built:	
Airworthiness Certificate:	Restricted (Special)	Serial Number:	2492
Landing Gear Type:	Skid	Seats:	2
Date/Type of Last Inspection:	March 26, 2002 100 hour	Certified Max Gross Wt.:	4300 lbs
Time Since Last Inspection:	9.6 Hrs	Engines:	1 Turbo shaft
Airframe Total Time:	13445.5 Hrs	Engine Manufacturer:	Turbomeca
ELT:	Not installed	Engine Model/Series:	Artouste IIIB
Registered Owner:	Roberts Aircraft Company	Rated Power:	858 Horsepower
Operator:	Southern States Cooperative Inc.	Operating Certificate(s) Held:	
Operator Does Business As:		Operator Designator Code:	Z1SG

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	Condition of Light:	Day
Observation Facility, Elevation:	BQK	Distance from Accident Site:	
Observation Time:	09:58 Local	Direction from Accident Site:	
Lowest Cloud Condition:	Clear	Visibility	10 miles
Lowest Ceiling:	Broken / 1600 ft AGL	Visibility (RVR):	
Wind Speed/Gusts:	8 knots /	Turbulence Type Forecast/Actual:	/
Wind Direction:	90°	Turbulence Severity Forecast/Actual:	/
Altimeter Setting:	30.11 inches Hg	Temperature/Dew Point:	22°C / 17°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Hortense, GA	Type of Flight Plan Filed:	None
Destination:		Type of Clearance:	None
Departure Time:		Type of Airspace:	Unknown

Wreckage and Impact Information

Crew Injuries:	1 Minor	Aircraft Damage:	Substantial
Passenger Injuries:		Aircraft Fire:	None
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	1 Minor	Latitude, Longitude:	31.350555,-81.818054

Administrative Information

Investigator In Charge (IIC): Wilson, Butch

Additional Participating Persons:

Original Publish Date: February 25, 2003

Last Revision Date:

Investigation Class: [Class](#)

Note:

Investigation Docket: <https://data.nts.gov/Docket?ProjectID=54413>

The National Transportation Safety Board (NTSB) is an independent federal agency charged by Congress with investigating every civil aviation accident in the United States and significant events in other modes of transportation—railroad, transit, highway, marine, pipeline, and commercial space. We determine the probable causes of the accidents and events we investigate, and issue safety recommendations aimed at preventing future occurrences. In addition, we conduct transportation safety research studies and offer information and other assistance to family members and survivors for each accident or event we investigate. We also serve as the appellate authority for enforcement actions involving aviation and mariner certificates issued by the Federal Aviation Administration (FAA) and US Coast Guard, and we adjudicate appeals of civil penalty actions taken by the FAA.

The NTSB does not assign fault or blame for an accident or incident; rather, as specified by NTSB regulation, “accident/incident investigations are fact-finding proceedings with no formal issues and no adverse parties ... and are not conducted for the purpose of determining the rights or liabilities of any person” (Title 49 *Code of Federal Regulations* section 831.4). Assignment of fault or legal liability is not relevant to the NTSB’s statutory mission to improve transportation safety by investigating accidents and incidents and issuing safety recommendations. In addition, statutory language prohibits the admission into evidence or use of any part of an NTSB report related to an accident in a civil action for damages resulting from a matter mentioned in the report (Title 49 *United States Code* section 1154(b)). A factual report that may be admissible under 49 *United States Code* section 1154(b) is available [here](#).