



Aviation Investigation Final Report

Location:	HILO, Hawaii	Accident Number:	LAX01LA016
Date & Time:	October 13, 2000, 08:45 Local	Registration:	N532BH
Aircraft:	Aerospatiale AS350-BH	Aircraft Damage:	Substantial
Defining Event:		Injuries:	2 None
Flight Conducted Under:	Part 91: General aviation - Instructional		

Analysis

The tail boom of the helicopter bent downward during landing following a practice hovering autorotation. The pilot reported that the accident occurred following their third hovering autorotation landing. He said that the touchdown was acceptable and would have met check ride criteria. About 2 seconds after touchdown there was "an obvious component failure" felt throughout the airframe, accompanied by severe vibrations and "audible and physical indications" of failure. After exiting the aircraft, the pilot expected to find a problem in the main rotor head and was surprised to find the tail boom bent downward at the midpoint. A postaccident examination of the helicopter revealed that the tail boom was fabricated from skins of thickness 0.025 inches, as opposed to a skin thickness of 0.032 inches identified in the structural repair manual. The helicopter records showed that the tail boom was originally installed on the (new) helicopter at the factory and had acquired 14,053 hours in service.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: Inadequate maintenance by the helicopter manufacturer during manufacture, which installed skins of inadequate thickness on the tail boom. A factor in the accident was the failure of the manufacturer's quality control system to detect the inadequate thickness.

Findings

Occurrence #1: AIRFRAME/COMPONENT/SYSTEM FAILURE/MALFUNCTION
Phase of Operation: LANDING

Findings

1. FUSELAGE,SKIN - IMPROPER
2. MISC ROTORCRAFT,TAIL BOOM - BENT
3. MISC ROTORCRAFT,TAIL BOOM - BUCKLED
4. (C) MAINTENANCE - IMPROPER - MANUFACTURER
5. MATERIAL INADEQUATE,IMPROPER - MANUFACTURER
6. (F) INADEQUATE QUALITY CONTROL - MANUFACTURER

Factual Information

On October 13, 2000, at 0845 hours Hawaiian standard time, an Aerospatiale AS350-BH, N532BH, was substantially damaged when the tail boom was bent downward during landing following a practice hovering autorotation at Hilo International Airport, Hilo, Hawaii. The commercial certificated flight instructor and the airline transport certificated pilot being instructed were not injured. Visual meteorological conditions prevailed for the local area training flight, operated by Blue Hawaiian Helicopters under 14 CFR Part 91. The flight departed from Hilo at 0825, and no flight plan was filed.

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Pilot Information

Certificate:	Commercial; Flight instructor	Age:	45, Male
Airplane Rating(s):	Single-engine land; Multi-engine land	Seat Occupied:	Left
Other Aircraft Rating(s):	Helicopter	Restraint Used:	
Instrument Rating(s):	Airplane	Second Pilot Present:	Yes
Instructor Rating(s):	Airplane multi-engine; Airplane single-engine; Instrument airplane	Toxicology Performed:	No
Medical Certification:	Class 2 Valid Medical--no waivers/lim.	Last FAA Medical Exam:	November 18, 1999
Occupational Pilot:	Yes	Last Flight Review or Equivalent:	
Flight Time:	16295 hours (Total, all aircraft), 7116 hours (Total, this make and model), 154 hours (Last 90 days, all aircraft), 43 hours (Last 30 days, all aircraft), 1 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Aerospatiale	Registration:	N532BH
Model/Series:	AS350-BH AS350-BH	Aircraft Category:	Helicopter
Year of Manufacture:		Amateur Built:	
Airworthiness Certificate:	Normal	Serial Number:	2494
Landing Gear Type:	Skid	Seats:	6
Date/Type of Last Inspection:	September 18, 2000 100 hour	Certified Max Gross Wt.:	4630 lbs
Time Since Last Inspection:	68 Hrs	Engines:	1 Turbo shaft
Airframe Total Time:	14053 Hrs	Engine Manufacturer:	Turbomeca
ELT:	Installed, activated, did not aid in locating accident	Engine Model/Series:	ARRIEL 1B
Registered Owner:	HELICOPTER CONSULTANTS OF MAUI	Rated Power:	641 Horsepower
Operator:	BLUE HAWAIIAN HELICOPTERS	Operating Certificate(s) Held:	On-demand air taxi (135)
Operator Does Business As:		Operator Designator Code:	HCMA

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	Condition of Light:	Day
Observation Facility, Elevation:	HTO ,38 ft msl	Distance from Accident Site:	1 Nautical Miles
Observation Time:	08:53 Local	Direction from Accident Site:	60°
Lowest Cloud Condition:	Scattered / 1400 ft AGL	Visibility	6 miles
Lowest Ceiling:	Broken / 3200 ft AGL	Visibility (RVR):	
Wind Speed/Gusts:	/	Turbulence Type Forecast/Actual:	/
Wind Direction:	0°	Turbulence Severity Forecast/Actual:	/
Altimeter Setting:	30 inches Hg	Temperature/Dew Point:	75°C / 72°C
Precipitation and Obscuration:	N/A - None - Rain		
Departure Point:	, HI (ITO)	Type of Flight Plan Filed:	None
Destination:		Type of Clearance:	VFR
Departure Time:	08:25 Local	Type of Airspace:	Class D

Airport Information

Airport:	HILO INTERNATIONAL ITO	Runway Surface Type:	Grass/turf
Airport Elevation:	38 ft msl	Runway Surface Condition:	Dry
Runway Used:	0	IFR Approach:	None
Runway Length/Width:		VFR Approach/Landing:	Simulated forced landing

Wreckage and Impact Information

Crew Injuries:	2 None	Aircraft Damage:	Substantial
Passenger Injuries:		Aircraft Fire:	None
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	2 None	Latitude, Longitude:	19.689311,-155.08052(est)

Administrative Information

Investigator In Charge (IIC):	Parker, Richard
Additional Participating Persons:	ROBERT S CHRISTIANSEN; HONOLULU , HI
Original Publish Date:	July 15, 2002
Last Revision Date:	
Investigation Class:	Class
Note:	The NTSB traveled to the scene of this accident.
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=50492

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](#).