



Aviation Investigation Final Report

Location:	Decatur, Texas	Accident Number:	CEN14LA296
Date & Time:	June 17, 2014, 15:00 Local	Registration:	N536T
Aircraft:	Bell 206B	Aircraft Damage:	Substantial
Defining Event:	Abnormal runway contact	Injuries:	2 Minor
Flight Conducted Under:	Part 91: General aviation - Instructional		

Analysis

The pilot-rated student and flight instructor were conducting a helicopter proficiency flight. After about 2 hours of flight and completing a series of maneuvers, which included straight-in and 180-degree autorotations, the instructor began to demonstrate another 180-degree autorotation. The instructor reported that, when the helicopter was at 200 ft at the start of the approach, the rotor speed was in the mid to low section of the green band. At the beginning of the flare, he tried to roll in full throttle, but he felt resistance, and he didn't get the power restored in time. He then attempted to level the helicopter to avoid a tail strike. The pilot receiving instruction reported that the instructor was at the controls and that, when the helicopter was at 100 ft, he noticed that the rotor speed was at a minimum and that the rate of closure was slow. He thought they were going to be short, so he called for power and reached for the throttle to confirm it was fully on. The helicopter landed hard and slid to a stop just off the runway. Examination of the helicopter and throttle system did not reveal any abnormalities.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be:

The flight instructor's improper recovery from a practice autorotation, which resulted in a hard landing.

Findings

Personnel issues

Incorrect action performance - Instructor/check pilot

Factual Information

History of Flight

Landing-flare/touchdown	Simulated/training event
Landing-flare/touchdown	Abnormal runway contact (Defining event)
Landing-flare/touchdown	Tailstrike

On June 17, 2014, about 1500 central daylight time, a Bell 206B helicopter, N536T, made a hard landing at the Decatur Municipal Airport (KLUD), Decatur, Texas. The flight instructor and pilot rated student received minor injuries, and the helicopter was substantially damaged. The helicopter was registered to MBM Aviation Consultants, Inc., and operated by the Federal Aviation Administration (FAA) under the provisions of 14 Code of Federal Regulations Part 91 as a training flight. Visual meteorological conditions prevailed for the flight, which operated without a flight plan. The flight originated from the Fort Worth Alliance airport (KAFW), Fort Worth, Texas.

The flight was planned as part of the agency's quarterly proficiency program for inspectors. The contract flight instructor, who was initially scheduled to fly, was not available to perform the flight. An FAA flight instructor was then scheduled, and flew in the morning with another FAA employee. The accident flight was the student's first flight with the FAA instructor, and the instructor's second flight of the day. The afternoon flight had a similar flight profile as the morning's flight and was estimated to last about 2.5 hours.

The instructor and pilot rated student reported that they were about 2 hours into the proficiency flight, and had completed a series of maneuvers, which included straight-in and 180-degree auto rotations. To complete the flight objectives before proceeding back to KAFW, the instructor planned to demonstrate another 180-degree auto rotation. The instructor reported, the rotor speed was in the mid to low section of the green band, at 200 feet at the start of the approach. At the beginning of the flare, he tried to roll in full throttle, but felt resistance, and he didn't get the power restored in time. He then elected to level the helicopter, so the tail wouldn't hit first and roll the helicopter over. The helicopter touched down on the asphalt 100 feet short of the fix distance markers on runway 17.

The pilot rated student, reported that on the last 180-degree auto rotation, the instructor was at the controls. At 100 feet on the approach, he noticed that the rotor speed was at a minimum and the rate of closure was slow. He felt they were going to be short, so he called for power and reached for the throttle to confirm it was full on.

Another helicopter, which was in the airport traffic pattern, made a radio call to determine the position of the accident helicopter; the radio call, was not answered. They then noticed the helicopter on the ground, upright, just east of runway 17. The main rotor blades were not turning, the tail boom was missing just aft of the horizontal stabilizer and that there was a debris path, beginning about 400 feet before the 1,000 foot fixed distance markers.

The NTSB, FAA, and technical representatives from the engine and airframe manufacturers responded to the accident site. Examination of the runway revealed a scar consistent with the tail boom impacting the runway first. The helicopter came to rest upright, partially off the runway, approximately 207 feet, from the first impact point. Numerous marks, consistent with the helicopter's landing skids were noted between the first scar and the helicopter. The helicopter was sitting on its landing skids, but leaning to the left. The tail boom had separated just aft of the stabilizer, the tail rotor gear box was torn from the tail boom. The transmission was tilted aft and had broken free of the driveshaft. Both main rotor blades had impact damage, consistent with striking the tail boom and horizontal stabilizer. The NTSB investigator demonstrated free movement of the throttle while the corresponding pointer movement at the FCU (Fuel Control Unit) was witnessed by the engine technical representative.

An examination of the throttle system was conducted on June 19, 2014, by FAA maintenance inspectors. The inspection was conducted in accordance with Bell helicopter maintenance manual (BHT206 MM-1, chapter 76-00-00). No abnormalities were noted the throttle system and it met the manufacturer's instructions for continued airworthiness.

Flight instructor Information

Certificate:		Age:	57
Airplane Rating(s):	Single-engine land	Seat Occupied:	Left
Other Aircraft Rating(s):	Helicopter	Restraint Used:	4-point
Instrument Rating(s):	Helicopter	Second Pilot Present:	Yes
Instructor Rating(s):	Instrument helicopter	Toxicology Performed:	No
Medical Certification:	Class 2	Last FAA Medical Exam:	March 25, 2014
Occupational Pilot:	No	Last Flight Review or Equivalent:	June 1, 2013
Flight Time:	(Estimated) 10000 hours (Total, all aircraft)		

Pilot Information

Certificate:	Airline transport	Age:	47
Airplane Rating(s):	Single-engine land; Multi-engine land	Seat Occupied:	Right
Other Aircraft Rating(s):	Helicopter	Restraint Used:	4-point
Instrument Rating(s):	Airplane; Helicopter	Second Pilot Present:	Yes
Instructor Rating(s):	Airplane multi-engine; Airplane single-engine; Helicopter; Instrument airplane; Instrument helicopter	Toxicology Performed:	No
Medical Certification:	Class 2	Last FAA Medical Exam:	August 22, 2013
Occupational Pilot:	No	Last Flight Review or Equivalent:	
Flight Time:			

Aircraft and Owner/Operator Information

Aircraft Make:	Bell	Registration:	N536T
Model/Series:	206B	Aircraft Category:	Helicopter
Year of Manufacture:	1980	Amateur Built:	
Airworthiness Certificate:	Normal	Serial Number:	3195
Landing Gear Type:	N/A; High skid	Seats:	
Date/Type of Last Inspection:	Unknown	Certified Max Gross Wt.:	3201 lbs
Time Since Last Inspection:		Engines:	1 Turbo shaft
Airframe Total Time:		Engine Manufacturer:	ALLISON
ELT:		Engine Model/Series:	250-C20 SER
Registered Owner:	MBM AVIATION CONSULTANTS INC	Rated Power:	400 Horsepower
Operator:	Federal Aviation Administration	Operating Certificate(s) Held:	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	Condition of Light:	Day
Observation Facility, Elevation:	KLUD	Distance from Accident Site:	
Observation Time:	15:15 Local	Direction from Accident Site:	
Lowest Cloud Condition:	Clear	Visibility	10 miles
Lowest Ceiling:	None	Visibility (RVR):	
Wind Speed/Gusts:	14 knots / 20 knots	Turbulence Type Forecast/Actual:	/
Wind Direction:	160°	Turbulence Severity Forecast/Actual:	/
Altimeter Setting:	29.93 inches Hg	Temperature/Dew Point:	30°C / 19°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Fort Worth, TX (KAFW)	Type of Flight Plan Filed:	
Destination:	Fort Worth, TX (KAFW)	Type of Clearance:	None
Departure Time:		Type of Airspace:	

Airport Information

Airport:	Decatur Muncipal KLUD	Runway Surface Type:	Asphalt
Airport Elevation:	1041 ft msl	Runway Surface Condition:	Dry
Runway Used:	17	IFR Approach:	None
Runway Length/Width:	4000 ft / 60 ft	VFR Approach/Landing:	Simulated forced landing

Wreckage and Impact Information

Crew Injuries:	2 Minor	Aircraft Damage:	Substantial
Passenger Injuries:		Aircraft Fire:	None
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	2 Minor	Latitude, Longitude:	33.257778,-97.581108(est)

Administrative Information

Investigator In Charge (IIC):	Hatch, Craig
Additional Participating Persons:	Matt Rigsby; FAA AVP-100; Fort Worth, TX Michael Hermann; FAA Rotorcraft Directorate; Fort Worth, TX Mike Casey; FAA Flight Safety; Oklahoma City, OK Mark Stuntzner; Bell Helicopter; Hurst, TX Casey Lehman; Rolls-Royce Corporation; Indianapolis, IN Brent Covey; FAA FSDO; Irving, TX
Original Publish Date:	June 1, 2015
Last Revision Date:	
Investigation Class:	Class
Note:	The NTSB traveled to the scene of this accident.
Investigation Docket:	https://data.nts.gov/Docket?ProjectID=89462

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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](#).