



National Transportation Safety Board Aviation Accident Final Report

Location:	Ardmore, OK	Accident Number:	FTW02LA044
Date & Time:	12/01/2001, 1030 CST	Registration:	N5226
Aircraft:	Bell 47G	Aircraft Damage:	Substantial
Defining Event:		Injuries:	2 None

Flight Conducted Under: Part 91: General Aviation - Instructional

Analysis

The student pilot had completed three power recovery autorotations to the south, and the flight instructor was to demonstrate a "full touchdown autorotation" to end the training session. The flight instructor initiated the autorotation at 1,500 feet msl and 60 knots to the airport's mid-field median. After slowing to 40 knots, the instructor began a flare to reduce the airspeed to 15-20 knots. At 10 feet agl, he pulled collective to cushion the landing. The helicopter touched down on the soft grassy area and slid for approximately 10 feet before starting to nose over. "The tail of the helicopter pitched upward into the blades, severing it." The helicopter rotated left approximately 270 degrees before coming to rest upright. The flight instructor stated that "weather had saturated the ground and caused the sod to be soft on the usual landing area. It was not visible from the helicopter."

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: the flight instructor's selection of an unsuitable area for practicing a full touchdown autorotation, which resulted in a nose over. A contributing factor was the soft ground.

Findings

Occurrence #1: ON GROUND/WATER ENCOUNTER WITH TERRAIN/WATER

Phase of Operation: LANDING - ROLL

Findings

1. EMERGENCY PROCEDURE - SIMULATED - PILOT IN COMMAND(CFI)
2. (C) UNSUITABLE TERRAIN OR TAKEOFF/LANDING/TAXI AREA - SELECTED - PILOT IN COMMAND(CFI)
3. (F) TERRAIN CONDITION - SOFT

Occurrence #2: NOSE OVER

Phase of Operation: LANDING - ROLL

Findings

4. MISC ROTORCRAFT,MAIN ROTOR/TAIL BOOM CONTACT

Factual Information

On December 1, 2001, at 1030 central standard time, a Bell 47G helicopter, N5226, was substantially damaged during a practice autorotational landing at the Ardmore Downtown Executive Airport near Ardmore, Oklahoma. The helicopter was registered to a private individual and operated by Versatile Helicopters, Inc., dba Versatile Aviation of Ardmore, Oklahoma. The flight instructor and the private pilot rated student were not injured. Visual meteorological conditions prevailed, and a flight plan was not filed for the 14 Code of Federal Regulations Part 91 instructional flight. The local flight originated from the Ardmore Downtown Executive Airport, approximately one hour prior to the accident.

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Flight Instructor Information

Certificate:	Flight Instructor; Commercial; Private	Age:	33, 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:	Yes
Instructor Rating(s):	Helicopter	Toxicology Performed:	No
Medical Certification:	Class 3 Valid Medical--no waivers/lim.	Last FAA Medical Exam:	04/26/2001
Occupational Pilot:		Last Flight Review or Equivalent:	08/21/2001
Flight Time:	450 hours (Total, all aircraft)		

Student Pilot Information

Certificate:	Commercial	Age:	24, Male
Airplane Rating(s):	Single-engine Land	Seat Occupied:	Left
Other Aircraft Rating(s):	Helicopter	Restraint Used:	Seatbelt
Instrument Rating(s):	Airplane	Second Pilot Present:	Yes
Instructor Rating(s):	None	Toxicology Performed:	No
Medical Certification:	Class 2 Valid Medical--w/ waivers/lim.	Last FAA Medical Exam:	08/14/2000
Occupational Pilot:		Last Flight Review or Equivalent:	09/26/2000
Flight Time:			

Aircraft and Owner/Operator Information

Aircraft Make:	Bell	Registration:	N5226
Model/Series:	47G	Aircraft Category:	Helicopter
Year of Manufacture:		Amateur Built:	No
Airworthiness Certificate:	Normal	Serial Number:	37
Landing Gear Type:	Skid	Seats:	2
Date/Type of Last Inspection:	100 Hour	Certified Max Gross Wt.:	2350 lbs
Time Since Last Inspection:	18 Hours	Engines:	1 Reciprocating
Airframe Total Time:	15438 Hours	Engine Manufacturer:	Franklin
ELT:	Not installed	Engine Model/Series:	6A-355-B1
Registered Owner:	Versatile Helicopters, Inc.	Rated Power:	180 hp
Operator:	Versatile Helicopters, Inc.	Operating Certificate(s) Held:	None
Operator Does Business As:	Versatile Aviation	Operator Designator Code:	HFZS

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual Conditions	Condition of Light:	Day
Observation Facility, Elevation:	1F0, 844 ft msl	Distance from Accident Site:	0 Nautical Miles
Observation Time:	1029 CST	Direction from Accident Site:	0°
Lowest Cloud Condition:	Clear	Visibility	10 Miles
Lowest Ceiling:	None	Visibility (RVR):	
Wind Speed/Gusts:	Calm /	Turbulence Type Forecast/Actual:	/
Wind Direction:		Turbulence Severity Forecast/Actual:	/
Altimeter Setting:	30.21 inches Hg	Temperature/Dew Point:	11 °C / 6 °C
Precipitation and Obscuration:			
Departure Point:	Ardmore, OK (1F0)	Type of Flight Plan Filed:	None
Destination:		Type of Clearance:	None
Departure Time:	0930 CST	Type of Airspace:	Class E

Airport Information

Airport:	Ardmore Downtown Executive (1F0)	Runway Surface Type:	Grass/turf
Airport Elevation:	844 ft	Runway Surface Condition:	Soft
Runway Used:		IFR Approach:	None
Runway Length/Width:		VFR Approach/Landing:	Full Stop; Traffic Pattern

Wreckage and Impact Information

Crew Injuries:	2 None	Aircraft Damage:	Substantial
Passenger Injuries:	N/A	Aircraft Fire:	None
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	2 None	Latitude, Longitude:	34.146111, -97.122500

Administrative Information

Investigator In Charge (IIC):	Douglas D Wigington	Report Date:	01/16/2003
Additional Participating Persons:	Michael A Kout; FAA FSDO; Oklahoma City, OK		
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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The Independent Safety Board Act, as codified at 49 U.S.C. Section 1154(b), precludes the admission into evidence or use of any part of an NTSB report related to an incident or accident in a civil action for damages resulting from a matter mentioned in the report. A factual report that may be admissible under 49 U.S.C. § 1154(b) is available [here](#).