



National Transportation Safety Board Aviation Accident Data Summary

Location:	Baldwin City, KS	Accident Number:	DEN07LA044
Date & Time:	01/03/2007, 1505 CST	Registration:	N113JD
Aircraft:	Marino Exec 162F-1995	Injuries:	1 Serious, 1 Minor
Flight Conducted Under:	Part 91: General Aviation - Personal		

Analysis

Approximately 15 minutes into the flight, the tail rotor failed, and the helicopter entered an uncommanded turn to the left. The pilot initiated an autorotation to an opening in a wooded area. The pilot flared the helicopter over the trees, and the helicopter settled into the trees. As the pilot increased the collective, the helicopter rolled to the left and came to rest inverted in the trees. Examination of the helicopter by the pilot and a mechanic revealed that the tail rotor drive system uses three belts interconnected via pulleys at various points in the tail boom, to drive the tail rotor. The intermediate tail rotor drive belt was shredded and destroyed. The forward and aft tail rotor drive belts were intact and undamaged. At the time of the accident, the tail rotor drive belts had accumulated approximately 80 hours. The tail rotor drive belts had a life limit of 250 hours. The reason for the failure of the tail rotor drive belt could not be determined.

Probable Cause

The National Transportation Safety Board determines the probable cause(s) of this accident to be: the failure of the tail rotor drive belt for undetermined reasons. A contributing factor was the lack of suitable terrain for the forced landing.

Findings

Occurrence #1: AIRFRAME/COMPONENT/SYSTEM FAILURE/MALFUNCTION
Phase of Operation: CRUISE - NORMAL

Findings

1. (C) ROTOR SYSTEM, TAIL ROTOR - FAILURE
2. (C) REASON FOR OCCURRENCE UNDETERMINED

Occurrence #2: LOSS OF CONTROL - IN FLIGHT
Phase of Operation: CRUISE

Findings

3. DIRECTIONAL CONTROL - NOT POSSIBLE

Occurrence #3: FORCED LANDING
Phase of Operation: DESCENT - EMERGENCY

Findings

4. AUTOROTATION - INITIATED - PILOT IN COMMAND
5. (F) TERRAIN CONDITION - NONE SUITABLE

Occurrence #4: IN FLIGHT COLLISION WITH OBJECT
Phase of Operation: DESCENT - EMERGENCY

Findings

6. OBJECT - TREE(S)

Pilot Information

Certificate:	Airline Transport; Flight Instructor; Commercial	Age:	45
Airplane Rating(s):	Multi-engine Land; Single-engine Land	Instrument Rating(s):	Airplane
Other Aircraft Rating(s):	Helicopter	Instructor Rating(s):	Airplane Single-engine
Flight Time:	13000 hours (Total, all aircraft), 12500 hours (Pilot In Command, all aircraft), 40 hours (Last 90 days, all aircraft), 7 hours (Last 30 days, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Manufacturer:	Marino	Registration:	N113JD
Model/Series:	Exec 162F-1995	Engines:	1 Reciprocating
Operator:	James L. Dohrman	Engine Manufacturer:	unknown
Air Carrier Operating Certificate:	None	Engine Model/Series:	
Flight Conducted Under:	Part 91: General Aviation - Personal		

Meteorological Information and Flight Plan

Observation Facility, Elevation:		Weather Information Source:	Pilot
Conditions at Accident Site:	Visual Conditions	Lowest Ceiling:	None
Condition of Light:	Day	Wind Speed/Gusts, Direction:	14 knots/ 20 knots, 220°
Temperature:	4° C	Visibility	10 Miles
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	OSAWATOMIE/PAOL, KS (K81)	Destination:	LAWRENCE, KS (LWC)

Wreckage and Impact Information

Crew Injuries:	1 Serious	Aircraft Damage:	Substantial
Passenger Injuries:	1 Minor	Aircraft Fire:	None
Ground Injuries:	N/A	Aircraft Explosion:	None

Administrative Information

Investigator In Charge (IIC): Aaron M Sauer

Adopted Date: 04/25/2007

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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