



# National Transportation Safety Board Aviation Accident Factual Report

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<b>Location:</b>	Baldwin City, KS	<b>Accident Number:</b>	DEN07LA044
<b>Date &amp; Time:</b>	01/03/2007, 1505 CST	<b>Registration:</b>	N113JD
<b>Aircraft:</b>	Marino Exec 162F-1995	<b>Aircraft Damage:</b>	Substantial
<b>Defining Event:</b>		<b>Injuries:</b>	1 Serious, 1 Minor

**Flight Conducted Under:** Part 91: General Aviation - Personal

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On January 3, 2007, at 1505 central standard time, a Marino Exec 162F-1995 single-engine homebuilt helicopter, N113JD, sustained substantial damage when it impacted trees and terrain during a forced landing following a loss of control near Baldwin City, Kansas. The airline transport pilot sustained serious injuries and the passenger sustained minor injuries. The helicopter was registered to and operated by the pilot. Visual meteorological conditions prevailed, and a flight plan was not filed for the Title 14 Code of Federal Regulations Part 91 personal flight. The local flight departed Paola, Kansas, approximately 1500, and was en route to Lawrence, Kansas.

According to the pilot, 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. The fuselage and tail boom sustained substantial damage and the main rotor blades were destroyed.

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.

## Pilot Information

<b>Certificate:</b>	Airline Transport; Flight Instructor; Commercial	<b>Age:</b>	45, Male
<b>Airplane Rating(s):</b>	Multi-engine Land; Single-engine Land	<b>Seat Occupied:</b>	Left
<b>Other Aircraft Rating(s):</b>	Helicopter	<b>Restraint Used:</b>	Seatbelt, Shoulder harness
<b>Instrument Rating(s):</b>	Airplane	<b>Second Pilot Present:</b>	No
<b>Instructor Rating(s):</b>	Airplane Single-engine	<b>Toxicology Performed:</b>	No
<b>Medical Certification:</b>	Class 1 With Waivers/Limitations	<b>Last FAA Medical Exam:</b>	12/01/2006
<b>Occupational Pilot:</b>		<b>Last Flight Review or Equivalent:</b>	11/01/2006
<b>Flight Time:</b>	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

<b>Aircraft Make:</b>	Marino	<b>Registration:</b>	N113JD
<b>Model/Series:</b>	Exec 162F-1995	<b>Aircraft Category:</b>	Helicopter
<b>Year of Manufacture:</b>		<b>Amateur Built:</b>	Yes
<b>Airworthiness Certificate:</b>	Experimental	<b>Serial Number:</b>	6107
<b>Landing Gear Type:</b>	Skid	<b>Seats:</b>	2
<b>Date/Type of Last Inspection:</b>	12/01/2006, 100 Hour	<b>Certified Max Gross Wt.:</b>	1500 lbs
<b>Time Since Last Inspection:</b>		<b>Engines:</b>	1 Reciprocating
<b>Airframe Total Time:</b>	455 Hours as of last inspection	<b>Engine Manufacturer:</b>	unknown
<b>ELT:</b>	Not installed	<b>Engine Model/Series:</b>	
<b>Registered Owner:</b>	James L. Dohrman	<b>Rated Power:</b>	
<b>Operator:</b>	James L. Dohrman	<b>Operating Certificate(s) Held:</b>	None

## Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual Conditions	Condition of Light:	Day
Observation Facility, Elevation:		Distance from Accident Site:	
Observation Time:		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:	220°	Turbulence Severity Forecast/Actual:	/
Altimeter Setting:		Temperature/Dew Point:	4° C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	OSAWATOMIE/PAOL, KS (K81)	Type of Flight Plan Filed:	None
Destination:	LAWRENCE, KS (LWC)	Type of Clearance:	None
Departure Time:	1500 CST	Type of Airspace:	

## 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
Total Injuries:	1 Serious, 1 Minor	Latitude, Longitude:	38.837500, -95.181944

## Administrative Information

Investigator In Charge (IIC):	Aaron M Sauer
Additional Participating Persons:	Bobby Warren; Federal Aviation Administration; Wichita, KS
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 <a href="mailto:pubinq@ntsb.gov">pubinq@ntsb.gov</a> , or at 800-877-6799. Dockets released after this date are available at <a href="http://dms.nts.gov/pubdms/">http://dms.nts.gov/pubdms/</a> .