



# Aviation Investigation Final Report

<b>Location:</b>	Tulsa, Oklahoma	<b>Accident Number:</b>	CEN13LA155
<b>Date &amp; Time:</b>	February 6, 2013, 17:50 Local	<b>Registration:</b>	N276RC
<b>Aircraft:</b>	ROBINSON HELICOPTER COMPANY R44 II	<b>Aircraft Damage:</b>	Substantial
<b>Defining Event:</b>	Aircraft servicing event	<b>Injuries:</b>	1 None
<b>Flight Conducted Under:</b>	Part 91: General aviation		

## Analysis

After fuel servicing, the line technician did not remove the rubber fueling mat from the fuselage. The pilot did not observe the mat on the fuselage before taking off, most likely due to his inadequate preflight inspection of the helicopter. While climbing through 150 feet above ground level, the fueling mat departed the fuselage and impacted the tail rotor, which resulted in the fracture of both tail rotor blades and a loss of tail rotor control. The pilot executed an autorotation landing and landed without further incident.

## Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The line technician’s failure to remove the refueling mat from the helicopter fuselage following servicing, which resulted in the mat striking the tail rotor in flight, and the pilot’s inadequate preflight inspection.

## Findings

<b>Personnel issues</b>	Preflight inspection - Pilot
<b>Aircraft</b>	Tail rotor blade - Damaged/degraded
<b>Personnel issues</b>	Forgotten action/omission - Ground crew

## Factual Information

### History of Flight

<b>Prior to flight</b>	Aircraft servicing event (Defining event)
<b>Initial climb</b>	Sys/Comp malf/fail (non-power)
<b>Initial climb</b>	Loss of control in flight
<b>Autorotation</b>	Off-field or emergency landing

On February 6, 2013, about 1750 central standard time, a Robinson R44 II helicopter, N276RC, executed an autorotation landing after a fueling mat struck the tail rotor at the Tulsa International Airport (TUL), Tulsa, Oklahoma. The commercial pilot was not injured. The tail rotor blades received substantial damage. The airplane was registered to and operated by Crumpton Aviation LLC under the provisions of 14 Code of Federal Regulations Part 91 as a business flight. Night visual meteorological conditions prevailed for the flight and no flight plan was filed. The flight was originating at the time of the accident and was destined for Richard Lloyd Jones Jr. Airport (KRVS), Tulsa, Oklahoma.

After fuel servicing by fixed base operator personnel, the pilot lifted off from the ramp area and began a turn to the southwest. Climbing through 150 feet above ground level, the pilot reported a loud bang followed by loss of tail rotor effectiveness. The pilot executed an autorotation landing on a concrete ramp at the airport.

During examination of the accident site, two fractured tail rotor blades and a damaged fueling mat were found on a path between the initial liftoff point of the helicopter and its landing location. Examination of the tail rotor blades indicated that damage was consistent with contact by the fueling mat.

## Pilot Information

<b>Certificate:</b>	Commercial; Flight instructor	<b>Age:</b>	40, Male
<b>Airplane Rating(s):</b>	None	<b>Seat Occupied:</b>	Right
<b>Other Aircraft Rating(s):</b>	Helicopter	<b>Restraint Used:</b>	
<b>Instrument Rating(s):</b>	Helicopter	<b>Second Pilot Present:</b>	No
<b>Instructor Rating(s):</b>	Instrument helicopter	<b>Toxicology Performed:</b>	No
<b>Medical Certification:</b>	Class 2 Without waivers/limitations	<b>Last FAA Medical Exam:</b>	July 28, 2012
<b>Occupational Pilot:</b>	Yes	<b>Last Flight Review or Equivalent:</b>	October 3, 2012
<b>Flight Time:</b>	1255 hours (Total, all aircraft), 966 hours (Total, this make and model), 1118 hours (Pilot In Command, all aircraft), 243 hours (Last 90 days, all aircraft), 46 hours (Last 30 days, all aircraft), 3 hours (Last 24 hours, all aircraft)		

## Aircraft and Owner/Operator Information

<b>Aircraft Make:</b>	ROBINSON HELICOPTER COMPANY	<b>Registration:</b>	N276RC
<b>Model/Series:</b>	R44 II	<b>Aircraft Category:</b>	Helicopter
<b>Year of Manufacture:</b>		<b>Amateur Built:</b>	
<b>Airworthiness Certificate:</b>	Normal	<b>Serial Number:</b>	11975
<b>Landing Gear Type:</b>	Skid	<b>Seats:</b>	4
<b>Date/Type of Last Inspection:</b>	January 14, 2013 100 hour	<b>Certified Max Gross Wt.:</b>	
<b>Time Since Last Inspection:</b>		<b>Engines:</b>	1 Reciprocating
<b>Airframe Total Time:</b>	2036 Hrs at time of accident	<b>Engine Manufacturer:</b>	LYCOMING
<b>ELT:</b>	Installed, activated, did not aid in locating accident	<b>Engine Model/Series:</b>	IO-540-AE1A5
<b>Registered Owner:</b>	CRUMPTON AVIATION LLC	<b>Rated Power:</b>	260 Horsepower
<b>Operator:</b>	CRUMPTON AVIATION LLC	<b>Operating Certificate(s) Held:</b>	None

## Meteorological Information and Flight Plan

<b>Conditions at Accident Site:</b>	Visual (VMC)	<b>Condition of Light:</b>	Night
<b>Observation Facility, Elevation:</b>	KTUL,677 ft msl	<b>Distance from Accident Site:</b>	0 Nautical Miles
<b>Observation Time:</b>	17:53 Local	<b>Direction from Accident Site:</b>	360°
<b>Lowest Cloud Condition:</b>	Scattered / 3700 ft AGL	<b>Visibility</b>	10 miles
<b>Lowest Ceiling:</b>	None	<b>Visibility (RVR):</b>	
<b>Wind Speed/Gusts:</b>	15 knots / 20 knots	<b>Turbulence Type Forecast/Actual:</b>	/
<b>Wind Direction:</b>	160°	<b>Turbulence Severity Forecast/Actual:</b>	/
<b>Altimeter Setting:</b>	29.87 inches Hg	<b>Temperature/Dew Point:</b>	17°C / 6°C
<b>Precipitation and Obscuration:</b>	No Obscuration; No Precipitation		
<b>Departure Point:</b>	Tulsa, OK (KTUL)	<b>Type of Flight Plan Filed:</b>	None
<b>Destination:</b>	Tulsa, OK (KRVS)	<b>Type of Clearance:</b>	VFR
<b>Departure Time:</b>	17:50 Local	<b>Type of Airspace:</b>	

## Airport Information

<b>Airport:</b>	Tulsa International Airport KTUL	<b>Runway Surface Type:</b>	
<b>Airport Elevation:</b>	677 ft msl	<b>Runway Surface Condition:</b>	
<b>Runway Used:</b>		<b>IFR Approach:</b>	None
<b>Runway Length/Width:</b>		<b>VFR Approach/Landing:</b>	Forced landing

## Wreckage and Impact Information

<b>Crew Injuries:</b>	1 None	<b>Aircraft Damage:</b>	Substantial
<b>Passenger Injuries:</b>		<b>Aircraft Fire:</b>	None
<b>Ground Injuries:</b>	N/A	<b>Aircraft Explosion:</b>	None
<b>Total Injuries:</b>	1 None	<b>Latitude, Longitude:</b>	36.198333,-95.888053(est)

## Administrative Information

<b>Investigator In Charge (IIC):</b>	Folkerts, Michael
<b>Additional Participating Persons:</b>	Dan Donnelly; Federal Aviation Administration; Oklahoma City, OK
<b>Original Publish Date:</b>	December 11, 2013
<b>Last Revision Date:</b>	
<b>Investigation Class:</b>	<a href="#">Class</a>
<b>Note:</b>	
<b>Investigation Docket:</b>	<a href="https://data.nts.gov/Docket?ProjectID=86185">https://data.nts.gov/Docket?ProjectID=86185</a>

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