



# National Transportation Safety Board Aviation Accident Final Report

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<b>Location:</b>	RIVERSIDE, CA	<b>Accident Number:</b>	LAX92LA034
<b>Date &amp; Time:</b>	11/01/1991, 1643 PST	<b>Registration:</b>	N549SM
<b>Aircraft:</b>	ROBINSON R-22B	<b>Aircraft Damage:</b>	Substantial
<b>Defining Event:</b>		<b>Injuries:</b>	1 None

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

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## Analysis

THE SOLO STUDENT WAS PRACTICING TAKEOFFS AND LANDINGS. WHILE DOWNWIND THE STUDENT SAID THE ENGINE RPM INDICATOR SUDDENLY PEGGED AT THE TOP OF THE GAUGE AND THE ROTOR RPM BEGAN RAPIDLY DECREASING. THE STUDENT INITIATED AN AUTO ROTATION. THE HELICOPTER LANDED HARD AND ROLLED OVER. EXAMINATION OF THE HELICOPTER BY FAA INSPECTORS REVEALED THAT THE FORWARD DRIVE BELT WAS SPLIT LONGITUDINALLY AND DISPLACED FROM THE TRANSMISSION PULLEY. THE AFT DRIVE BELT WAS FOUND OFF THE ENGINE AND TRANSMISSION PULLEYS. NO OTHER SYSTEM ABNORMALITIES WERE NOTED.

## Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: THE FAILURE OF THE ENGINE TO TRANSMISSION DRIVE BELT AND THE PILOTS FAILURE TO CORRECTLY JUDGE OF THE LANDING FLARE DURING THE SUBSEQUENT AUTOROTATION.

## Findings

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Occurrence #1: AIRFRAME/COMPONENT/SYSTEM FAILURE/MALFUNCTION  
Phase of Operation: APPROACH - VFR PATTERN - DOWNWIND

### Findings

1. (C) ROTOR DRIVE SYSTEM,MAIN ROTOR DRIVE BELT - FAILURE,TOTAL

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Occurrence #2: FORCED LANDING  
Phase of Operation: DESCENT - EMERGENCY

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Occurrence #3: HARD LANDING  
Phase of Operation: LANDING - FLARE/TOUCHDOWN

### Findings

2. (C) FLARE - MISJUDGED - PILOT IN COMMAND  
3. LACK OF TOTAL EXPERIENCE - PILOT IN COMMAND

## Factual Information

### Pilot Information

<b>Certificate:</b>	Student	<b>Age:</b>	25, Male
<b>Airplane Rating(s):</b>	None	<b>Seat Occupied:</b>	Right
<b>Other Aircraft Rating(s):</b>	None	<b>Restraint Used:</b>	Seatbelt, Shoulder harness
<b>Instrument Rating(s):</b>	None	<b>Second Pilot Present:</b>	No
<b>Instructor Rating(s):</b>	None	<b>Toxicology Performed:</b>	No
<b>Medical Certification:</b>	Class 2 Valid Medical--w/ waivers/lim.	<b>Last FAA Medical Exam:</b>	03/19/1991
<b>Occupational Pilot:</b>		<b>Last Flight Review or Equivalent:</b>	
<b>Flight Time:</b>	150 hours (Total, all aircraft), 63 hours (Total, this make and model), 19 hours (Pilot In Command, all aircraft), 83 hours (Last 90 days, all aircraft), 29 hours (Last 30 days, all aircraft), 1 hours (Last 24 hours, all aircraft)		

### Aircraft and Owner/Operator Information

<b>Aircraft Make:</b>	ROBINSON	<b>Registration:</b>	N549SM
<b>Model/Series:</b>	R-22B R-22B	<b>Aircraft Category:</b>	Helicopter
<b>Year of Manufacture:</b>		<b>Amateur Built:</b>	No
<b>Airworthiness Certificate:</b>	Normal	<b>Serial Number:</b>	1549
<b>Landing Gear Type:</b>	Skid	<b>Seats:</b>	2
<b>Date/Type of Last Inspection:</b>	10/17/1991, AAIP	<b>Certified Max Gross Wt.:</b>	1370 lbs
<b>Time Since Last Inspection:</b>	49 Hours	<b>Engines:</b>	1 Reciprocating
<b>Airframe Total Time:</b>	1299 Hours	<b>Engine Manufacturer:</b>	LYCOMING
<b>ELT:</b>	Not installed	<b>Engine Model/Series:</b>	O-320-B2C
<b>Registered Owner:</b>	C. L. MARLOW	<b>Rated Power:</b>	160 hp
<b>Operator:</b>	PARFLITE, INC.	<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:	, 0 ft msl	Distance from Accident Site:	0 Nautical Miles
Observation Time:	0000	Direction from Accident Site:	0°
Lowest Cloud Condition:	Partial Obscuration / 0 ft agl	Visibility	4 Miles
Lowest Ceiling:	None / 0 ft agl	Visibility (RVR):	0 ft
Wind Speed/Gusts:	8 knots /	Turbulence Type Forecast/Actual:	/
Wind Direction:	280°	Turbulence Severity Forecast/Actual:	/
Altimeter Setting:		Temperature/Dew Point:	
Precipitation and Obscuration:			
Departure Point:		Type of Flight Plan Filed:	None
Destination:		Type of Clearance:	VFR
Departure Time:	1630 PST	Type of Airspace:	Class D; Class E

## Wreckage and Impact Information

Crew Injuries:	1 None	Aircraft Damage:	Substantial
Passenger Injuries:	N/A	Aircraft Fire:	None
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	1 None	Latitude, Longitude:	

## Administrative Information

Investigator In Charge (IIC):	Jeff Rich	Report Date:	04/27/1993
Additional Participating Persons:	PAT PATTERN; RIVERSIDE, CA		
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 <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> .		

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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](#).