



National Transportation Safety Board Aviation Accident Data Summary

Location:	AGUA CALIENTE, CA	Accident Number:	LAX91LA090
Date & Time:	02/01/1991, 1230 PST	Registration:	N17S
Aircraft:	RIDDELL LANCAIR 235	Injuries:	2 Serious
Flight Conducted Under:	Part 91: General Aviation - Personal		

Analysis

THE AIRCRAFT WAS ON CLIMB OUT WHEN A LOUD BANG WAS HEARD, FOLLOWED BY AN ENGINE OVERSPEED THEN ENGINE STOPPAGE. AFTER THE FORCED LANDING, THE PILOTS FOUND THAT BOTH WOODEN PROPELLER BLADES HAD SEPARATED FROM THE STEEL HUB ASSEMBLY. THE PROPELLER HUB WAS REMOVED FROM THE ENGINE AND SENT TO THE MANUFACTURER FOR FUNCTIONAL ANALYSIS AND DISASSEMBLY UNDER THE SUPERVISION OF FAA INSPECTORS. THE MANUFACTURER STATED THAT ALL INTERNAL COMPONENTS WERE FUNCTIONAL, HOWEVER, THE CAM ADJUSTMENT FOR THE HIGH AND LOW PITCH STOP SETTINGS HAD BEEN ALTERED FROM THE FACTORY SETTINGS. THE BLADE BUTT ENDS RETAINED IN THE HUB WERE REMOVED AND SUBMITTED TO THE FOREST PRODUCTS LABORATORY OF THE US DEPARTMENT OF AGRICULTURE FOR ANALYSIS. ACCORDING TO THE LABORATORY THE WOODEN BLADES FRACTURED AND SEPARATED DUE TO A HYDROLYSIS INTERACTION BETWEEN THE WOOD AND THE ADHESIVE CAUSED BY EXCESS MOISTURE AND HEAT. THE HYDROLYSIS IS A CHEMICAL DECOMPOSITION PROCESS OF THE WOOD AND GLUE RELATIONSHIP.

Probable Cause

The National Transportation Safety Board determines the probable cause(s) of this accident to be: THE FAILURE OF THE PROPELLER BLADES DUE TO A WEAKENING OF THE WOOD STRUCTURE DUE TO ACID HYDROLYSIS. A FACTOR IN THE ACCIDENT WAS THE INADEQUATE MAINTENANCE OF THE PROPELLER ASSEMBLY BY ALLOWING EXPOSURE TO EXCESSIVE MOISTURE AND HEAT.

Findings

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

Findings

1. (C) PROPELLER SYSTEM/ACCESSORIES, BLADE - DELAMINATION
2. (C) PROPELLER SYSTEM/ACCESSORIES, BLADE - FAILURE, TOTAL
3. (F) MAINTENANCE, SERVICE OF AIRCRAFT/EQUIPMENT - INADEQUATE - OTHER MAINTENANCE PERSONNEL

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

Pilot Information

Certificate:	Airline Transport	Age:	47
Airplane Rating(s):	Multi-engine Land; Single-engine Land	Instrument Rating(s):	Airplane
Other Aircraft Rating(s):	None	Instructor Rating(s):	
Flight Time:	1500 hours (Total, all aircraft), 400 hours (Total, this make and model), 4500 hours (Pilot In Command, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	RIDDELL	Registration:	N175
Model/Series:	LANCAIR 235 LANCAIR 23	Engines:	1 Reciprocating
Operator:	KENNETH E. PARKS	Engine Manufacturer:	LYCOMING
Operating Certificate(s) Held:	None	Engine Model/Series:	O-320
Flight Conducted Under:	Part 91: General Aviation - Personal		

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual Conditions	Condition of Light:	Day
Observation Facility, Elevation:	, 0 ft msl	Weather Information Source:	Pilot
Lowest Ceiling:	None / 0 ft agl	Wind Speed/Gusts, Direction:	15 knots / , 90°
Temperature:		Visibility	10 Miles
Precipitation and Obscuration:			
Departure Point:	SAN DIEGO, CA (MYF)	Destination:	

Wreckage and Impact Information

Crew Injuries:	2 Serious	Aircraft Damage:	Substantial
Passenger Injuries:	N/A	Aircraft Fire:	None
Ground Injuries:	N/A	Aircraft Explosion:	None
Latitude, Longitude:			

Administrative Information

Investigator In Charge (IIC):	George E Petterson	Adopted Date:	03/31/1993
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 pubin@ntsb.gov , or at 800-877-6799. Dockets released after this date are available at http://dms.nts.gov/pubdms/ .		

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