Aviation Investigation Final Report

Location:	Scio, Oregon	**Accident Number:**	WPR22LA045
Date & Time:	November 22, 2021, 15:10 Local	**Registration:**	N102LD
Aircraft:	ELVIN JACK R JR ROTORWAY EXEC 162F	**Aircraft Damage:**	Substantial
Defining Event:	Flight control sys malf/fail	**Injuries:**	1 None
Flight Conducted Under:	Part 91: General aviation - Flight test		

Analysis

The pilot of the experimental helicopter reported that, he had performed maintenance on the tail rotor assembly. While checking the blade tracking and balance in a hover, a pitch change link retention bolt lost torque and separated from the tail rotor slide assembly, which resulted in the loss of control and subsequent rollover. The helicopter sustained substantial damage to the fuselage, tailboom, and main rotor system.

The pilot reported that there were no preaccident mechanical failures or malfunctions with the helicopter and that he failed to ensure the maintenance was performed correctly.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be:

The pilot's improper maintenance on the tail rotor assembly, which resulted in the loss of control and roll over.

Findings

Personnel issues	Installation - Owner/builder

Factual Information

History of Flight

Maneuvering-hover	Flight control sys malf/fail (Defining event)

Pilot Information

Certificate:	Private; Student	**Age:**	74,Male
Airplane Rating(s):	Single-engine land	**Seat Occupied:**	Left
Other Aircraft Rating(s):	Helicopter	**Restraint Used:**	4-point
Instrument Rating(s):	Airplane	**Second Pilot Present:**	
Instructor Rating(s):	None	**Toxicology Performed:**	
Medical Certification:	None None	**Last FAA Medical Exam:**	October 25, 2005
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	April 7, 2006
Flight Time:	1550 hours (Total, all aircraft), 350 hours (Total, this make and model), 1300 hours (Pilot In Command, all aircraft), 3 hours (Last 90 days, all aircraft), 3 hours (Last 30 days, all aircraft), 1 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	ELVIN JACK R JR	**Registration:**	N102LD
Model/Series:	ROTORWAY EXEC 162F	**Aircraft Category:**	Helicopter
Year of Manufacture:	2003	**Amateur Built:**	Yes
Airworthiness Certificate:	Experimental (Special)	**Serial Number:**	1001
Landing Gear Type:	Skid	**Seats:**	1
Date/Type of Last Inspection:	August 25, 2021 Condition	**Certified Max Gross Wt.:**	1600 lbs
Time Since Last Inspection:		**Engines:**	1 Reciprocating
Airframe Total Time:	360 Hrs	**Engine Manufacturer:**	AMA/EXPR
ELT:	Not installed	**Engine Model/Series:**	162F
Registered Owner:	On file	**Rated Power:**	150 Horsepower
Operator:	Jack R Elvin JR	**Operating Certificate(s) Held:**	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	KCVO,250 ft msl	**Distance from Accident Site:**	21 Nautical Miles
Observation Time:	14:56 Local	**Direction from Accident Site:**	247°
Lowest Cloud Condition:		**Visibility**	10 miles
Lowest Ceiling:	Overcast / 8000 ft AGL	**Visibility (RVR):**	
Wind Speed/Gusts:	3 knots /	**Turbulence Type Forecast/Actual:**	None / None
Wind Direction:	330°	**Turbulence Severity Forecast/Actual:**	N/A / N/A
Altimeter Setting:	30.08 inches Hg	**Temperature/Dew Point:**	9°C / 6°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Scio, OR	**Type of Flight Plan Filed:**	None
Destination:	Scio, OR	**Type of Clearance:**	None
Departure Time:		**Type of Airspace:**	Class G

Airport Information

Airport:	Jack's Heliport 25OR	**Runway Surface Type:**	
Airport Elevation:	340 ft msl	**Runway Surface Condition:**	Vegetation
Runway Used:		**IFR Approach:**	None
Runway Length/Width:		**VFR Approach/Landing:**	None

Wreckage and Impact Information

Crew Injuries:	1 None	**Aircraft Damage:**	Substantial
Passenger Injuries:		**Aircraft Fire:**	None
Ground Injuries:		**Aircraft Explosion:**	None
Total Injuries:	1 None	**Latitude, Longitude:**	44.638285,-122.82748(est)

Administrative Information

Investigator In Charge (IIC):	Salazar, Fabian
Additional Participating Persons:	Jason Lawver; Federal Aviation Administration; Portland, OR
Original Publish Date:	August 12, 2022
Last Revision Date:	
Investigation Class:	Class 4
Note:	The NTSB did not travel to the scene of this accident.
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=104300