Aviation Investigation Final Report

Location:	Twin Falls, Idaho	**Accident Number:**	WPR12LA219
Date & Time:	May 20, 2012, 09:00 Local	**Registration:**	N63VP
Aircraft:	Enstrom F28	**Aircraft Damage:**	Substantial
Defining Event:	Sys/Comp malf/fail (non-power)	**Injuries:**	1 None
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

The pilot reported that on a previous flight, he encountered an uncommanded roll, so he checked the three main rotor Lamiflex bearings prior to departure. He said one bearing showed no indication of a pending failure, the second showed some indication of approaching failure, and the third showed a minor indication that it was beginning to fail. From past experience, the pilot said that he believed that he still had several hours before the bearings would fail and that he could safely proceed with the flight. A few miles from the intended destination, a vibration started and became progressively worse to the point where the pilot was losing control of the helicopter. The pilot subsequently made what he described as a “controlled crash landing,” which resulted in substantial damage to the helicopter. A postaccident examination revealed that the No. 2 main rotor Lamiflex bearing failed, which resulted in the loss of control. A review of maintenance logbooks found that the helicopter was not in compliance with either its annual inspection requirement or with FAA Airworthiness Directive 94-17-15, which required repetitive inspections of the helicopter’s main rotor Lamiflex bearings.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The pilot's inability to maintain helicopter control during cruise flight due to the failure of the No. 2 main rotor Lamiflex bearing. Contributing to the accident was the pilot's decision to operate the helicopter with a known deficiency and the helicopter’s noncompliance with the mandatory scheduled inspection of the main rotor bearings.

Findings

Aircraft	(general) - Failure
Personnel issues	Aircraft control - Pilot
Aircraft	(general) - Not serviced/maintained
Aircraft	Directional control - Attain/maintain not possible

Factual Information

History of Flight

Enroute-cruise	Sys/Comp malf/fail (non-power) (Defining event)
Maneuvering	Loss of control in flight
Uncontrolled descent	Collision with terr/obj (non-CFIT)

On May 20, 2012, about 0900 mountain daylight time, an Enstrom F-28F helicopter, N63VP, sustained substantial damage following a reported control malfunction and precautionary landing near the Twin Falls Airport (TWF), Twin Falls, Idaho. The private pilot, who was the sole occupant and registered owner of the helicopter, was not injured. Visual meteorological conditions prevailed for the cross-country flight, which was being conducted in accordance with 14 Code of Federal Regulations Part 91, and a flight plan was not filed. The flight departed Elko, Nevada about 0615 Pacific daylight time, with TWF being its intended destination.

In a report submitted to the National Transportation Safety Board (NTSB) investigator-in-charge (IIC), the pilot reported that on a flight a few days prior to the accident flight he noticed that the helicopter wanted to roll left without enough trim to neutralize the roll. The pilot stated that his prior experience indicated that this condition was indicative of a possible failure of the main rotor Lamiflex bearing, which generally preceded the failure by about 15 hours. The pilot added that during the preflight prior to the accident flight, he pulled the plastic covers on the [main] rotor bearing[s] to inspect their condition. He reported that bearing 1 showed no indication of a pending bearing failure, bearing 2 showed some indication that it was approaching failure, and that bearing 3 showed just minor indications that it was beginning to fail. The pilot concluded that based on his previous experience the trip could be safely flown. The pilot further reported that as he was approaching his destination, about 10 to 15 miles [south] of TWF and immediately after contacting the TWF air traffic control tower, a slight vibration started, which became progressively worse and at a rapid rate. He then notified the tower controller that he was experiencing a rotor bearing failure and thought that he could make the airport. The pilot stated that the situation then worsened to the point where he was unable to maintain control of the helicopter, and with only partial control he was unsure if he could safely get it on the ground. Now experiencing low-rotor rpm, the pilot lowered collective to recover rotor speed and subsequently made what he described as a “controlled crash landing.” The helicopter impacted the ground hard and in a nose low attitude, which resulted in the aircraft coming to an abrupt stop in an upright position and tilted slightly to its left. The tail boom and tail rotor assembly had both separated and were located about 30 to 40 feet to the right of the helicopter.

A Federal Aviation Administration (FAA) aviation safety inspector examined the helicopter on site and reported that the #2 main rotor Lamiflex bearing had failed, which resulted in the uncontrollable condition of the helicopter and the subsequent forced landing. The inspector

further reported that not only was the helicopter not in compliance with its annual inspection requirement, but that it was also not in compliance with FAA Airworthiness Directive (AD) 94-17-15, which required initial and repetitive inspections for delamination of the main rotor feathering elastomeric Lamiflex bearing. The actions in the AD were intended to prevent failure of the Lamiflex bearing, abnormal vibrations in the airframe and flight control system, and subsequent loss of control of the helicopter.

Pilot Information

Certificate:	Private	**Age:**	63,Male
Airplane Rating(s):	Single-engine land; Multi-engine land	**Seat Occupied:**	Left
Other Aircraft Rating(s):	Helicopter	**Restraint Used:**	
Instrument Rating(s):	Helicopter	**Second Pilot Present:**	No
Instructor Rating(s):	None	**Toxicology Performed:**	No
Medical Certification:	Class 3 With waivers/limitations	**Last FAA Medical Exam:**	December 19, 2011
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	March 24, 2012
Flight Time:	6394 hours (Total, all aircraft), 757 hours (Total, this make and model), 6142 hours (Pilot In Command, all aircraft), 0 hours (Last 90 days, all aircraft), 11 hours (Last 30 days, all aircraft), 2 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Enstrom	**Registration:**	N63VP
Model/Series:	F28 F	**Aircraft Category:**	Helicopter
Year of Manufacture:		**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	812
Landing Gear Type:	Skid	**Seats:**	3
Date/Type of Last Inspection:	August 4, 2010 Annual	**Certified Max Gross Wt.:**	2600 lbs
Time Since Last Inspection:	130 Hrs	**Engines:**	1 Reciprocating
Airframe Total Time:	1593 Hrs at time of accident	**Engine Manufacturer:**	Lycoming
ELT:	Installed, activated, did not aid in locating accident	**Engine Model/Series:**	HIO-360
Registered Owner:	Michael W. Lattin	**Rated Power:**	225 Horsepower
Operator:	Michael W. Lattin	**Operating Certificate(s) Held:**	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	TWF,4154 ft msl	**Distance from Accident Site:**	10 Nautical Miles
Observation Time:	08:53 Local	**Direction from Accident Site:**	360°
Lowest Cloud Condition:	Unknown	**Visibility**	10 miles
Lowest Ceiling:	Broken / 11000 ft AGL	**Visibility (RVR):**	
Wind Speed/Gusts:	3 knots /	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	350°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	30.12 inches Hg	**Temperature/Dew Point:**	16°C / -1°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Elko, NV (EKO)	**Type of Flight Plan Filed:**	None
Destination:	Twin Falls, ID (TWF)	**Type of Clearance:**	None
Departure Time:	06:15 Local	**Type of Airspace:**	

Wreckage and Impact Information

Crew Injuries:	1 None	**Aircraft Damage:**	Substantial
Passenger Injuries:		**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	1 None	**Latitude, Longitude:**	42.483333,-114.483329

Administrative Information

Investigator In Charge (IIC):	Little, Thomas
Additional Participating Persons:	Craig Karel; Federal Aviation Administration; Boise, ID William E Taylor; Enstrom Helicopter Corporation; Menominee, MI
Original Publish Date:	May 9, 2013
Last Revision Date:	
Investigation Class:	Class
Note:	
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=83692