



Aviation Investigation Final Report

Location: Kalispell, Montana Accident Number: WPR12LA111

Date & Time: February 20, 2012, 10:30 Local Registration: N51727

Aircraft: Enstrom F28 Aircraft Damage: Substantial

Defining Event: Loss of engine power (total) **Injuries:** 2 None

Flight Conducted Under: Part 91: General aviation - Instructional

Analysis

The flight instructor reported that the helicopter experienced a loss of engine power after the student initiated a practice autorotation about 650 feet above ground level. The flight instructor then assumed control of the helicopter for an emergency landing. However, the helicopter touched down short of the runway, became airborne again, rotated 180 degrees to the left, and landed on the taxiway with the main rotor spinning down. During the postaccident examination, the engine started and ran with no evidence of preaccident mechanical malfunctions or failures that would have precluded normal operation. The cause of the reported loss of engine power could not be duplicated.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: A total loss of engine power for reasons that could not be determined because postaccident examination did not reveal any anomalies that would have precluded normal operation.

Findings

Not determined (general) - Unknown/Not determined

Factual Information

History of Flight

Autorotation Loss of engine power (total) (Defining event)

Emergency descent Off-field or emergency landing

Autorotation Hard landing

Landing-landing roll Loss of control on ground

On February 20, 2012, about 1030 mountain standard time, an Enstrom F-28C helicopter, N51727, was substantially damaged following a loss of engine power and impact with terrain at the Kalispell City Airport (S27), Kalispell, Montana. The certified flight instructor and pilot receiving instruction were not injured. Visual meteorological conditions prevailed for the local instructional flight, which was being operated in accordance with 14 Code of Federal Regulations (CFR) Part 91, and a flight plan was not filed. The flight departed S27 about 0940.

In a statement provided to the National Transportation Safety Board (NTSB) investigator-in-charge (IIC), the certified flight instructor reported that on the fourth practice autorotation of the morning, the student initiated a 180-degree autorotation from about 650 feet above ground level (agl). The instructor stated that at the 90-degree point he recognized that the engine had failed, at which time he took full control of the helicopter and initiated an [emergency descent]. After touching down at a speed of about 20 knots, the helicopter slid lightly forward before becoming airborne, then did a 180-degree rotation [to the left] and landed on the taxiway with the main rotor spinning down. The helicopter sustained substantial damage to the last 3 feet of the tail section, with the tail rotor having been severed by the main rotor blades.

On February 22, 2012, under the supervision of a Federal Aviation Administration (FAA) aviation safety inspector, the accident flight instructor started the engine with the aid of the fuel boost pump; the engine started immediately. Subsequently, the engine ran smoothly from idle to low power from about 1,300 to 2,000 rpm, with no discrepancies noted. The inspector concluded his inspection by noting that a review of the helicopter's maintenance records revealed no discrepancies in either the airframe or engine logbooks. The most recent annual inspection was performed on February 10, 2012. The inspector's examination failed to reveal any anomalies with the engine or airframe that would have precluded normal operation. The reason for the loss of engine power could not be determined.

At 1055, the automated weather observing system at GPI, which was located about 7 nautical miles northeast of the S27, reported wind 150 degrees at 9 knots, visibility 10 miles, scattered clouds at 2,400 feet, broken clouds at 2,800 feet, overcast clouds at 5,500 feet, temperature 32 degrees Fahrenheit (F), dew point 27 degrees F, and an altimeter setting of 29.87 inches of mercury.

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A review of the Carburetor Icing chart revealed that the temperature/dew point spread indicates "Serious icing at glide power" and "Icing at glide and cruise power."

Flight instructor Information

Certificate:	Commercial; Flight instructor	Age:	48,Male
Airplane Rating(s):	Single-engine land; Multi-engine land	Seat Occupied:	Right
Other Aircraft Rating(s):	Helicopter	Restraint Used:	
Instrument Rating(s):	Airplane; Helicopter	Second Pilot Present:	Yes
Instructor Rating(s):	Airplane single-engine; Helicopter	Toxicology Performed:	No
Medical Certification:	Class 2 Without waivers/limitations	Last FAA Medical Exam:	July 20, 2011
Occupational Pilot:	Yes	Last Flight Review or Equivalent:	June 28, 2011
Flight Time:	2900 hours (Total, all aircraft), 272 hours (Total, this make and model), 2760 hours (Pilot In Command, all aircraft), 140 hours (Last 90 days, all aircraft), 54 hours (Last 30 days, all aircraft), 1 hours (Last 24 hours, all aircraft)		

Student pilot Information

Certificate:	Private	Age:	50,Male
Airplane Rating(s):	Single-engine land	Seat Occupied:	Left
Other Aircraft Rating(s):	None	Restraint Used:	
Instrument Rating(s):	None	Second Pilot Present:	Yes
Instructor Rating(s):	None	Toxicology Performed:	No
Medical Certification:	Class 2 Without waivers/limitations	Last FAA Medical Exam:	December 19, 2011
Occupational Pilot:	No	Last Flight Review or Equivalent:	June 19, 2010
Flight Time:	650 hours (Total, all aircraft), 55 hours (Total, this make and model), 590 hours (Pilot In Command, all aircraft), 5 hours (Last 90 days, all aircraft), 5 hours (Last 30 days, all aircraft), 2 hours (Last 24 hours, all aircraft)		

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Aircraft and Owner/Operator Information

Aircraft Make:	Enstrom	Registration:	N51727
Model/Series:	F28 C	Aircraft Category:	Helicopter
Year of Manufacture:		Amateur Built:	
Airworthiness Certificate:	Normal	Serial Number:	393
Landing Gear Type:	Skid	Seats:	3
Date/Type of Last Inspection:	February 10, 2012 Annual	Certified Max Gross Wt.:	2200 lbs
Time Since Last Inspection:	5 Hrs	Engines:	1 Reciprocating
Airframe Total Time:	1483 Hrs as of last inspection	Engine Manufacturer:	Lycoming
ELT:	Installed, not activated	Engine Model/Series:	HIO-360
Registered Owner:	On file	Rated Power:	215 Horsepower
Operator:	On file	Operating Certificate(s) Held:	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	Condition of Light:	Day
Observation Facility, Elevation:	GPI,2977 ft msl	Distance from Accident Site:	8 Nautical Miles
Observation Time:	10:55 Local	Direction from Accident Site:	360°
Lowest Cloud Condition:	Scattered / 2400 ft AGL	Visibility	10 miles
Lowest Ceiling:	Broken / 2800 ft AGL	Visibility (RVR):	
Wind Speed/Gusts:	9 knots /	Turbulence Type Forecast/Actual:	/
Wind Direction:	150°	Turbulence Severity Forecast/Actual:	/
Altimeter Setting:	29.87 inches Hg	Temperature/Dew Point:	0°C / -3°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Kalispell, MT (S27)	Type of Flight Plan Filed:	None
Destination:	Kalispell, MT (S27)	Type of Clearance:	None
Departure Time:	09:40 Local	Type of Airspace:	

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Airport Information

Airport:	Kalispell City Airport S27	Runway Surface Type:	Asphalt
Airport Elevation:		Runway Surface Condition:	Dry
Runway Used:	13	IFR Approach:	None
Runway Length/Width:	3600 ft / 60 ft	VFR Approach/Landing:	Forced landing;Simulated forced landing

Wreckage and Impact Information

Crew Injuries:	2 None	Aircraft Damage:	Substantial
Passenger Injuries:		Aircraft Fire:	None
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	2 None	Latitude, Longitude:	48.310554,-114.256111

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Administrative Information

Investigator In Charge (IIC):	Little, Thomas	
Additional Participating Persons:	Dean Allport; Federal Aviation Administration; Helena, MT	
Original Publish Date:	February 14, 2013	
Last Revision Date:		
Investigation Class:	<u>Class</u>	
Note:		
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=82928	

The National Transportation Safety Board (NTSB) is an independent federal agency charged by Congress with investigating every civil aviation accident in the United States and significant events in other modes of transportation—railroad, transit, highway, marine, pipeline, and commercial space. We determine the probable causes of the accidents and events we investigate, and issue safety recommendations aimed at preventing future occurrences. In addition, we conduct transportation safety research studies and offer information and other assistance to family members and survivors for each accident or event we investigate. We also serve as the appellate authority for enforcement actions involving aviation and mariner certificates issued by the Federal Aviation Administration (FAA) and US Coast Guard, and we adjudicate appeals of civil penalty actions taken by the FAA.

The NTSB does not assign fault or blame for an accident or incident; rather, as specified by NTSB regulation, "accident/incident investigations are fact-finding proceedings with no formal issues and no adverse parties ... and are not conducted for the purpose of determining the rights or liabilities of any person" (Title 49 Code of Federal Regulations section 831.4). Assignment of fault or legal liability is not relevant to the NTSB's statutory mission to improve transportation safety by investigating accidents and incidents and issuing safety recommendations. In addition, statutory language prohibits the admission into evidence or use of any part of an NTSB report related to an accident in a civil action for damages resulting from a matter mentioned in the report (Title 49 United States Code section 1154(b)). A factual report that may be admissible under 49 United States Code section 1154(b) is available here.

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