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.

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)		

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:**	

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

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:	Class
Note:	
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=82928