Aviation Investigation Final Report

Location:	West Branch, Michigan	**Accident Number:**	CHI03LA183
Date & Time:	June 15, 2003, 13:38 Local	**Registration:**	N5695D
Aircraft:	Enstrom 280C	**Aircraft Damage:**	Substantial
Defining Event:		**Injuries:**	1 Serious, 1 None
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

The helicopter impacted water during an autorotation following a loss of engine power. The pilot reported he lost engine power during initial climb and the helicopter landed upright about 75 feet off the shore in about 2-1/2 feet of water. An inspection of the helicopter confirmed flight control continuity. Both fuel tanks contained 25 gallons of fuel and the engine contained 8 quarts of oil. The main and tail rotors showed drivetrain continuity. A large hole was found in the crankcase, near the number one engine cylinder, and the number one connecting rod was protruding from the hole. Examination of the broken connecting rod cap revealed fracture features that were consistent with a fatigue-type failure. Additionally, the material encompassing the fatigue initiation point was galled along with several other areas of the bearing interface.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The loss of engine power due to the fatigue failure of the connecting rod cap. A related factor was the unsuitable terrain the pilot encountered.

Findings

Occurrence #1: LOSS OF ENGINE POWER
Phase of Operation: TAKEOFF - INITIAL CLIMB

Findings
1. (C) ENGINE ASSEMBLY,CONNECTING ROD - FAILURE
2. (C) ENGINE ASSEMBLY,CONNECTING ROD - FATIGUE

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

Findings
3. AUTOROTATION - PERFORMED - PILOT IN COMMAND

Occurrence #3: IN FLIGHT COLLISION WITH TERRAIN/WATER
Phase of Operation: DESCENT - EMERGENCY

Findings
4. UNSUITABLE TERRAIN OR TAKEOFF/LANDING/TAXI AREA - ENCOUNTERED - PILOT IN COMMAND
5. (F) TERRAIN CONDITION - WATER

Factual Information

On June 15, 2003, at 1338 eastern daylight time, an Enstrom 280C, N5695D, owned and piloted by a commercial pilot, sustained substantial damage when it impacted water following a loss of engine power near West Branch, Michigan. Visual meteorological conditions prevailed at the time of the accident. The pilot reported serious injuries and his passenger reported no injuries. The 14 CFR Part 91 personal flight was not operating on a flight plan. The flight departed from a private helipad near West Branch, Michigan, at 1320 with an intended destination of Selkirk, Michigan.

The pilot reported he did not notice any anomalies with the engine gauges while in hover shortly after liftoff. The pilot noted he was in a climbing departure when he heard noises over his headset. The pilot stated he did not have enough engine power to continue flight, so he began an autorotation. The pilot reported he steered right during the autorotation and landed upright about 75 feet off the shore in about 2-1/2 feet of water.

A Federal Aviation Administration (FAA) airworthiness inspector conducted the on-scene inspection of the helicopter. The inspection of the helicopter confirmed flight control continuity. Both fuel tanks contained 25 gallons of fuel and the engine contained 8 quarts of oil. The main and tail rotors showed drivetrain continuity. A large hole was found in the crankcase, near the number one engine cylinder, and the number one connecting rod was protruding from the hole. Examination of the broken connecting rod cap revealed fracture features that were consistent with a fatigue-type failure. Additionally, the material encompassing the fatigue initiation point was galled along with several other areas of the bearing interface.

Pilot Information

Certificate:	Commercial	**Age:**	52,Male
Airplane Rating(s):	Single-engine land; Multi-engine land	**Seat Occupied:**	Left
Other Aircraft Rating(s):	Helicopter	**Restraint Used:**	
Instrument Rating(s):	Airplane	**Second Pilot Present:**	No
Instructor Rating(s):	None	**Toxicology Performed:**	No
Medical Certification:	Class 3 Valid Medical--w/ waivers/lim	**Last FAA Medical Exam:**	January 28, 2002
Occupational Pilot:	Yes	**Last Flight Review or Equivalent:**	January 29, 2003
Flight Time:	1311 hours (Total, all aircraft), 194 hours (Total, this make and model), 23 hours (Last 90 days, all aircraft), 11 hours (Last 30 days, all aircraft), 5 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Enstrom	**Registration:**	N5695D
Model/Series:	280C	**Aircraft Category:**	Helicopter
Year of Manufacture:		**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	1210
Landing Gear Type:	Skid	**Seats:**	3
Date/Type of Last Inspection:	May 19, 2003 Annual	**Certified Max Gross Wt.:**	2350 lbs
Time Since Last Inspection:	12.1 Hrs	**Engines:**	1 Reciprocating
Airframe Total Time:	768.7 Hrs at time of accident	**Engine Manufacturer:**	Lycoming
ELT:	Installed, not activated	**Engine Model/Series:**	HIO-360 SER
Registered Owner:	On file	**Rated Power:**	205 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:	HTL,1150 ft msl	**Distance from Accident Site:**	22 Nautical Miles
Observation Time:	14:55 Local	**Direction from Accident Site:**	270°
Lowest Cloud Condition:	Clear	**Visibility**	10 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	6 knots /	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	0°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	30.14 inches Hg	**Temperature/Dew Point:**	25°C / 9°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	West Branch, MI (PVT)	**Type of Flight Plan Filed:**	None
Destination:	Selkirk, MI (1MI7)	**Type of Clearance:**	None
Departure Time:	13:20 Local	**Type of Airspace:**	Class G

Wreckage and Impact Information

Crew Injuries:	1 Serious	**Aircraft Damage:**	Substantial
Passenger Injuries:	1 None	**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	1 Serious, 1 None	**Latitude, Longitude:**	44.294723,-84.17028

Administrative Information

Investigator In Charge (IIC):	Fox, Andrew
Additional Participating Persons:	John Miller; FAA- Grand Rapids FSDO; Grand Rapids, MI
Original Publish Date:	July 29, 2004
Last Revision Date:	
Investigation Class:	Class
Note:	
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=57311