Aviation Investigation Final Report

Location:	Taylorsville, Kentucky	**Accident Number:**	ATL07LA088
Date & Time:	June 11, 2007, 10:30 Local	**Registration:**	N93GP
Aircraft:	Enstrom 280FX	**Aircraft Damage:**	Substantial
Defining Event:		**Injuries:**	1 None
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

The airline transport pilot reported that about 150 feet agl, during climb after takeoff, the helicopter's engine began running very rough and was losing power. An autorotation landing was made, and during the ensuing hard landing, the main rotor blades separated the tail boom. Postaccident examination of the airframe fuel system showed large amounts of water and bio-organic contamination in the fuel system. Examination of the engine and accessories showed no evidence of mechanical failure or malfunction.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The pilot's improper prefight inspection of the helicopter.

Findings

Occurrence #1: LOSS OF ENGINE POWER(TOTAL) - NONMECHANICAL
Phase of Operation: TAKEOFF - INITIAL CLIMB

Findings
1. FLUID,FUEL - CONTAMINATION
2. (C) AIRCRAFT PREFLIGHT - IMPROPER - PILOT IN COMMAND
3. AUTOROTATION - INITIATED - PILOT IN COMMAND

Occurrence #2: FORCED LANDING

Phase of Operation: EMERGENCY DESCENT/LANDING

Occurrence #3: HARD LANDING
Phase of Operation: LANDING - FLARE/TOUCHDOWN

Findings
4. TERRAIN CONDITION - GROUND

Factual Information

On June 11, 2007, about 1030 central daylight time, a Enstrom 280FX helicopter, N93GP, registered to and operated by the pilot, collided with the ground following loss of engine power, shortly after takeoff from a private residence in Taylorsville, Kentucky. The pilot was not injured and the helicopter sustained substantial damage. The flight was operated as a personal flight under the provisions of 14 Code of Federal Regulations (CFR) Part 91. Visual meteorological conditions prevailed, and no flight plan was filed.

According to the pilot, he was departing his residence destined for Samuels Field (BRY), Bardstown, Kentucky. At about 150 feet above ground level the engine began running very rough and was losing power. He lowered the collective and entered an autorotation. While steering straight ahead toward a clearing he began increasing collective. After contacting the ground the helicopter turned clockwise about 150 degrees. The main rotor blades contacted and separated the tail boom. The pilot shut down the helicopter systems and exited.

Examination of the helicopter by a Federal Aviation Administration (FAA) Inspector, and a representative from Enstrom Helicopter Corporation revealed that the airframe damage was consistent with a hard landing. The main rotor separated the tailcone aft of the horizontal stabilizers and the left side landing gear was collapsed. One main rotor blade was bent horizontally along the length of the blade and the skins were buckled the entire length of the blade. One main rotor blade was bent down vertically approximately two feet from the root end. The third main rotor blade showed little or no evidence of strike damage.

After recovery from the accident site, while the helicopter sat on a trailer, the engine was examined. Continuity of the engine assembly was confirmed and each cylinder produced compression when the engine was rotated. Each magneto fired normally when rotated by hand and a check of the fuel nozzles and the turbocharger found no anomalies.

Following the above examination the helicopter was shipped to Enstrom for repair. The landing gear assembly was removed from the helicopter and the fuselage was mounted on a manufacturing dolly that positions the fuselage in a level attitude. On July 12, 2007, the engine induction and turbocharger systems were reassembled to test run the engine. During the draining of the fuel strainer and tank sumps prior to the engine run, large amounts of what appeared to be water and bio-organic contamination was found in the fuel samples. Subsequent samples drained from the fuel strainer and tank sumps totaling 2.54 liters showed that approximately 0.53 liters were of the water/scum contamination. Due to the position of the helicopter on the trailer during the initial investigation, the contamination found would not have been evident.

Pilot Information

Certificate:	Airline transport; Flight instructor	**Age:**	31,Male
Airplane Rating(s):	Single-engine land; Multi-engine land	**Seat Occupied:**	Left
Other Aircraft Rating(s):		**Restraint Used:**	
Instrument Rating(s):	Airplane	**Second Pilot Present:**	No
Instructor Rating(s):		**Toxicology Performed:**	No
Medical Certification:	Class 2 Without waivers/limitations	**Last FAA Medical Exam:**	April 1, 2007
Occupational Pilot:	Yes	**Last Flight Review or Equivalent:**	December 1, 2006
Flight Time:	6590 hours (Total, all aircraft), 76 hours (Total, this make and model), 6450 hours (Pilot In Command, all aircraft), 114 hours (Last 90 days, all aircraft), 10 hours (Last 30 days, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Enstrom	**Registration:**	N93GP
Model/Series:	280FX	**Aircraft Category:**	Helicopter
Year of Manufacture:		**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	2117
Landing Gear Type:	Skid	**Seats:**	3
Date/Type of Last Inspection:	November 1, 2006 Annual	**Certified Max Gross Wt.:**	2600 lbs
Time Since Last Inspection:	74 Hrs	**Engines:**	1 Reciprocating
Airframe Total Time:	146.7 Hrs at time of accident	**Engine Manufacturer:**	Lycoming
ELT:	Installed, activated, did not aid in locating accident	**Engine Model/Series:**	HIO-360-F1AD
Registered Owner:	Shawn E. Honaker	**Rated Power:**	225 Horsepower
Operator:		**Operating Certificate(s) Held:**	None
Operator Does Business As:	Honaker Aviation, Inc.	**Operator Designator Code:**	

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	SDF,501 ft msl	**Distance from Accident Site:**	
Observation Time:	09:56 Local	**Direction from Accident Site:**	
Lowest Cloud Condition:	Scattered / 10000 ft AGL	**Visibility**	10 miles
Lowest Ceiling:	Broken / 12000 ft AGL	**Visibility (RVR):**	
Wind Speed/Gusts:	3 knots /	**Turbulence Type Forecast/Actual:**	/
Wind Direction:		**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	30.1 inches Hg	**Temperature/Dew Point:**	22°C / 11°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Taylorsville, KY (NONE)	**Type of Flight Plan Filed:**	None
Destination:	Bardstown, KY (BYR)	**Type of Clearance:**	None
Departure Time:	10:30 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:**	38.036388,-85.355552

Administrative Information

Investigator In Charge (IIC):	Wilson, Ralph
Additional Participating Persons:	John Cox; FAA/FSDO; Louisville, KY Douglas J Smith; Enstrom Helicopters; Menominee, MI
Original Publish Date:	September 26, 2008
Last Revision Date:	
Investigation Class:	Class
Note:	
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=65946

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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.