



Aviation Investigation Final Report

Location:	Goshen, Indiana	Accident Number:	CEN10CA138
Date & Time:	March 4, 2010, 10:30 Local	Registration:	N327TB
Aircraft:	Enstrom 280FX	Aircraft Damage:	Substantial
Defining Event:	Fuel exhaustion	Injuries:	1 Serious, 1 Minor
Flight Conducted Under:	Part 91: General aviation - Flight test		

Analysis

The helicopter had undergone an annual inspection and was preflighted and flown by the pilot for a maintenance test flight. The pilot did not check the right fuel tank level during that preflight. On the following day, the pilot and another pilot seated in the right seat departed on another maintenance test flight without visually checking the fuel level in either fuel tank. They instead relied on fuel consumption calculations based upon previous flight time and fuel gauge indications. After about 42 minutes of flight time, the helicopter experienced a total loss of engine power while being piloted by the left-seat pilot. The right-seat pilot then took the controls and performed an autorotation but had to maneuver to change the touchdown point in order to avoid power lines. The helicopter then experienced a hard landing. Postaccident examination of the helicopter revealed that there was about one cup of fuel in the left fuel tank and no fuel in the right fuel tank. Postaccident inspection revealed that an electrical connector from the right fuel tank sending unit was found disconnected, which would have given a false "full" indication of fuel quantity.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The inadequate preflight inspection by both pilots, resulting in a loss of engine power due to fuel exhaustion. Contributing to the accident was the disconnected fuel tank sending unit.

Findings

Aircraft	Fuel - Inadequate inspection
Aircraft	Fuel - Fluid level
Personnel issues	Preflight inspection - Flight crew
Aircraft	Fuel sys wiring - Malfunction

Factual Information

History of Flight

Prior to flight	Aircraft inspection event
Maneuvering	Fuel exhaustion (Defining event)
Autorotation	Off-field or emergency landing

Pilot Information

Certificate:	Commercial; Flight instructor	Age:	28, Male
Airplane Rating(s):	None	Seat Occupied:	Left
Other Aircraft Rating(s):	Helicopter	Restraint Used:	
Instrument Rating(s):	None	Second Pilot Present:	Yes
Instructor Rating(s):	Helicopter	Toxicology Performed:	No
Medical Certification:	Class 2 With waivers/limitations	Last FAA Medical Exam:	March 1, 2010
Occupational Pilot:	No	Last Flight Review or Equivalent:	March 1, 2010
Flight Time:	346 hours (Total, all aircraft), 4 hours (Total, this make and model), 288 hours (Pilot In Command, all aircraft), 43 hours (Last 90 days, all aircraft), 26 hours (Last 30 days, all aircraft), 0 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Enstrom	Registration:	N327TB
Model/Series:	280FX	Aircraft Category:	Helicopter
Year of Manufacture:		Amateur Built:	
Airworthiness Certificate:	Normal	Serial Number:	2118
Landing Gear Type:	Skid	Seats:	2
Date/Type of Last Inspection:	March 4, 2010 Annual	Certified Max Gross Wt.:	2600 lbs
Time Since Last Inspection:		Engines:	1 Reciprocating
Airframe Total Time:	244 Hrs as of last inspection	Engine Manufacturer:	Lycoming
ELT:	Not installed	Engine Model/Series:	H10-360-51A
Registered Owner:	On file	Rated Power:	225 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:	GSH,827 ft msl	Distance from Accident Site:	1 Nautical Miles
Observation Time:	09:53 Local	Direction from Accident Site:	185°
Lowest Cloud Condition:		Visibility	10 miles
Lowest Ceiling:	None	Visibility (RVR):	
Wind Speed/Gusts:	7 knots / None	Turbulence Type Forecast/Actual:	/
Wind Direction:	350°	Turbulence Severity Forecast/Actual:	/
Altimeter Setting:	30.12 inches Hg	Temperature/Dew Point:	0°C / -6°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Goshen, IN (GSH)	Type of Flight Plan Filed:	None
Destination:	Goshen, IN (GSH)	Type of Clearance:	None
Departure Time:	10:00 Local	Type of Airspace:	

Airport Information

Airport:	Goshen Municipal Airport GSH	Runway Surface Type:	
Airport Elevation:	827 ft msl	Runway Surface Condition:	
Runway Used:		IFR Approach:	None
Runway Length/Width:		VFR Approach/Landing:	Forced landing

Wreckage and Impact Information

Crew Injuries:	1 Serious, 1 Minor	Aircraft Damage:	Substantial
Passenger Injuries:		Aircraft Fire:	None
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	1 Serious, 1 Minor	Latitude, Longitude:	41.52639,-85.794166(est)

Administrative Information

Investigator In Charge (IIC): Gallo, Mitchell

Additional Participating Persons: Gregory Varner; Federal Aviation Administration; Southbend, IN

Original Publish Date: July 1, 2010

Last Revision Date:

Investigation Class: [Class](#)

Note: This accident report documents the factual circumstances of this accident as described to the NTSB.

Investigation Docket: <https://data.nts.gov/Docket?ProjectID=75445>

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