Aviation Investigation Final Report

Location:	Tallassee, Alabama	**Accident Number:**	MIA02FA026
Date & Time:	November 22, 2001, 13:30 Local	**Registration:**	N280XF
Aircraft:	Enstrom 280FX	**Aircraft Damage:**	Destroyed
Defining Event:		**Injuries:**	2 Fatal, 1 Serious
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

The pilot stated he keeps the helicopter at his residence. On the day of the accident he flew to his sisters house. After dinner, he departed his sisters house, which is located about 5 miles from the accident site, with the 2 passengers. They flew around the town of Tallassee, and he then entered on the downwind leg for runway 13 at Reeves Airport. He turned on base over the Tallapoosa River, and was flying to the south. He observed a glimmer and remembers seeing power lines. The next thing he remembers is being in the river. Postcrash examination of the helicopter showed it had collided with an unmarked power transmission line, which drooped below the tree level on the river banks, to a point about 75 feet about the river. The collision occurred about midpoint in the river and the wire rapped around the main rotor mast. The main rotor system separated from the helicopter and the helicopter crashed into the river about 500 feet south of the power lines. Postcrash examination of the helicopter and engine showed no evidence of precrash failure or malfunction of the helicopter structure, flight controls, or engine. Toxicology tests performed on specimens obtained from the pilot after admission to a hospital were negative for ethanol and drugs.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The failure of the pilot to maintain a safe altitude above terrain and maintain a visual lookout resulting in the helicopter colliding with power transmission lines and crashing into a river. A factor in the accident was the power transmission lines not being marked.

Findings

Occurrence #1: IN FLIGHT COLLISION WITH OBJECT
Phase of Operation: APPROACH - VFR PATTERN - BASE LEG/BASE TO FINAL

Findings
1. OBJECT - WIRE,TRANSMISSION
2. (C) ALTITUDE - NOT MAINTAINED - PILOT IN COMMAND
3. (C) VISUAL LOOKOUT - NOT MAINTAINED - PILOT IN COMMAND

Occurrence #2: IN FLIGHT COLLISION WITH TERRAIN/WATER
Phase of Operation: DESCENT - UNCONTROLLED

Findings
4. TERRAIN CONDITION - WATER
5. TERRAIN CONDITION - ROCK(S)/BOULDER(S)

Factual Information

History of the Flight

On November 22, 2001, about 1330 central standard time, a Enstrom 280FX, N280XF, registered to Tread-Aire, LLC, collided with electrical wires, while approaching runway 13, at Reeves Airport, Tallassee, Alabama, while on a 14 CFR Part 91 personal flight. Visual meteorological conditions prevailed at the time and no flight plan was filed. The helicopter was destroyed and the commercial-rated pilot received serious injuries. The two passengers received fatal injuries. The flight originated from a residence, about 15 minutes before the accident.

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Personnel Information

The pilot holds an FAA commercial pilot certificate with a rotorcraft helicopter rating and a private pilot certificate with a airplane single engine land rating. The pilot holds a flight instructor rating with a rotorcraft helicopter rating, which was issued on December 19, 2000. The pilot holds a FAA second class medical certificate, issued on May 8, 2001, with the limitation that correcting lenses be worn. The pilot last received a biennial flight review on December 19, 2000, when his flight instructor certificate was issued. The pilot reported he had accumulated 900 total flight hours, with 600 flight hours in helicopters, and 150 flight hours in the Enstrom 280FX.

Aircraft Information

The helicopter was an Enstrom model 280FX, serial number 2080, manufactured in 1997. The helicopter was equipped with a Lycoming HIO-360-F1AD, 225 horsepower engine. At the time of the accident, the helicopter and engine had accumulated 460 total flight hours. The helicopter received a annual inspection on June 1, 2001, 52 flight hours before the accident. (See aircraft logbook records, and attachment to this report.)

Meteorological Information

Visual meteorological conditions prevailed at the time of the accident. The Dannelly Field,

Montgomery, Alabama, 1330 surface weather observation was winds 130 degrees at 5 knots, visibility 10 statute miles, sky clear, temperature 69 degrees F, dew point temperature 38 degrees F, altimeter setting 30.02 inches Hg. Dannelly Field is located 20 nautical miles southwest of the accident site.

Wreckage and Impact Information

The helicopter crashed in the Tallapoosa River, approximately 1/4 mile south of the Thurlow Dam, Tallassee, Alabama. Examination of the crash site showed that two sets of electrical transmission lines ran east and west across the river. Each set consisted of a top wire and 3 wires about 8 feet below the top wire. The two sets of wires were about 17 feet apart. The wires drooped toward the river and were below the trees on the river banks at the midpoint of the river. The wires were about 75 feet above the river at the midpoint. The wires did not have marking balls. The helicopter collided with the top wire on the south set of wires, at about the midpoint of the river. After collision, the wire separated and rapped around the rotor mast. The main rotor, rotor mast, and transmission separated from the helicopter and were found about 500 feet south of the transmission wires. About 1,000 feet of the transmission wire was still rapped around the main rotor mast and extended to the north. The tail boom and tailrotor were found about 40 feet south of the main rotor system. The fuselage and engine were found about 70 feet southeast of the main rotor system. All components of the helicopter which are necessary for flight were located at the crash site. A small postcrash fire erupted in the engine compartment.

Examination of the helicopter at the crash site showed the main rotor blades and main rotor mast had marks consistent with striking a electrical transmission line and that the transmission line was still wrapped around the mast. The fuselage and engine came to rest lying inverted with the nose pointing to the south. The tail rotor turned freely and continuity of the tail rotor drive system was established. The main rotor head, mast and gearbox turned freely.

Examination of the helicopter after recovery from the river was performed by an FAA inspector and representatives from Enstrom Helicopter and Lycoming Engines. Continuity of the main and tail rotor drive systems was established. Continuity of the tail rotor, cyclic, and collective flight control systems was established. No evidence of precrash failure or malfunction of the helicopter structure, flight controls, and systems was found. (See Enstrom Helicopter report, an attachment to this report.)

Examination of the engine after recovery showed that the engine rotated and that continuity of the crankshaft, camshaft, valve train, and accessory drives was established. Each cylinder produced compression when the engine was rotated. The magnetos contained water and would not fire when rotated by hand. Each spark plug had deposits with a color consistent with normal engine operation. Fuel was found in the engine fuel system. No evidence of precrash failure or malfunction of the engine was found. (See Lycoming Engine report, an attachment to this report.)

Medical and Pathological Information

The pilot received serious injuries as a result of the accident. Toxicology testing of specimens obtained from the pilot after admission to the hospital were performed by Dennis V. Canfield, Ph.D., Manager, FAA Toxicology Laboratory, Oklahoma City, Oklahoma. The tests were negative for ethanol and drugs. The tests were positive 1.39 ug/ml Lidocaine.

Postmortem examination of the two passengers was conducted by Ben L. Bristol, M.D., and Emily Wofford Ward, M.D., Deputy Medical Examiners, Montgomery, Alabama. The cause of death for each was attributed to blunt force injury. No findings which could be considered causal to the accident were reported. Toxicology testing on specimens obtained from the passengers were performed by Alabama Department of Forensic Sciences, Auburn, Alabama. The tests were negative for carbon monoxide, ethanol, and drugs.

Additional Information

The aircraft wreckage was released by NTSB to the pilot on February 4, 2002. No components were retained fro further testing.

Pilot Information

Certificate:	Commercial; Flight instructor; Private	**Age:**	51,Male
Airplane Rating(s):	Single-engine land	**Seat Occupied:**	Left
Other Aircraft Rating(s):	Helicopter	**Restraint Used:**	
Instrument Rating(s):	None	**Second Pilot Present:**	No
Instructor Rating(s):	Helicopter	**Toxicology Performed:**	Yes
Medical Certification:	Class 2 Valid Medical--w/ waivers/lim	**Last FAA Medical Exam:**	May 8, 2001
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	December 19, 2001
Flight Time:	900 hours (Total, all aircraft), 850 hours (Pilot In Command, all aircraft), 25 hours (Last 90 days, all aircraft), 5 hours (Last 30 days, all aircraft), 1 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Enstrom	**Registration:**	N280XF
Model/Series:	280FX	**Aircraft Category:**	Helicopter
Year of Manufacture:		**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	2080
Landing Gear Type:	Skid	**Seats:**	3
Date/Type of Last Inspection:	June 1, 2001 Annual	**Certified Max Gross Wt.:**	2600 lbs
Time Since Last Inspection:	52 Hrs	**Engines:**	1 Reciprocating
Airframe Total Time:	460 Hrs at time of accident	**Engine Manufacturer:**	Lycoming
ELT:	Installed, not activated	**Engine Model/Series:**	HIO-360-F1AD
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:	MGM,221 ft msl	**Distance from Accident Site:**	20 Nautical Miles
Observation Time:	13:30 Local	**Direction from Accident Site:**	230°
Lowest Cloud Condition:	Clear	**Visibility**	10 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	5 knots /	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	130°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	30.02 inches Hg	**Temperature/Dew Point:**	21°C / 3°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Tallassee, AL	**Type of Flight Plan Filed:**	None
Destination:		**Type of Clearance:**	None
Departure Time:	13:15 Local	**Type of Airspace:**	Class G

Airport Information

Airport:	Reeves 41A	**Runway Surface Type:**	Asphalt
Airport Elevation:	326 ft msl	**Runway Surface Condition:**	Dry
Runway Used:	13	**IFR Approach:**	None
Runway Length/Width:	3232 ft / 80 ft	**VFR Approach/Landing:**	Traffic pattern

Wreckage and Impact Information

Crew Injuries:	1 Serious	**Aircraft Damage:**	Destroyed
Passenger Injuries:	2 Fatal	**Aircraft Fire:**	On-ground
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	2 Fatal, 1 Serious	**Latitude, Longitude:**	32.519721,-85.892501

Administrative Information

Investigator In Charge (IIC):	Kennedy, Jeff
Additional Participating Persons:	Steven Blansett; FAA FSDO; Birmingham, AL John Butler; Lycoming Engines; Williamsport, PA William E Taylor; Enstrom Helicopter; Menominee, MI Douglas J Smith; Enstrom Helicopter; Menominee, MI
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