



AVIATION



HIGHWAY



MARINE



RAILROAD



PIPELINE

Aviation Investigation Final Report

Location:	Manteo, North Carolina	Accident Number:	ERA18FA180
Date & Time:	June 27, 2018, 10:26 Local	Registration:	N60111
Aircraft:	Cessna 150J	Aircraft Damage:	Destroyed
Defining Event:	Flight control sys malf/fail	Injuries:	1 Fatal
Flight Conducted Under:	Part 91: General aviation - Banner tow		

Analysis

The commercial pilot was performing a banner-tow flight. A ground crewmember who witnessed the accident stated that the airplane was operating too low during the banner pickup. That witness and another indicated that, when the airplane picked up the banner-tow rope, it became entangled in the area of the left horizontal stabilizer and elevator. The pilot radioed that he was unable to release the banner rope and could not turn the airplane. The airplane yawed left and only climbed to about 250 ft before descending into the trees by the airport.

A postaccident examination of the flight controls and the engine revealed no anomalies that would have precluded normal operation with the exception that the banner tow rope was wrapped around the leading edge of the left horizontal stabilizer.

During the approach to pick up the banner, the wind was a direct left crosswind at 10 knots gusting to 14 knots. It is likely that the pilot flew an approach that was hampered by the crosswind. During pickup of the tow line, the banner tow-rope became entangled with the horizontal stabilizer and elevator, reducing the pilot's ability to control the airplane, and resulted in a loss of control in flight.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: A loss of control due to the banner tow rope becoming entangled with the left horizontal stabilizer in crosswind conditions.

Findings

Personnel issues	Aircraft control - Pilot
Aircraft	Aerial tow equipment section - Incorrect use/operation
Environmental issues	Crosswind - Effect on operation
Aircraft	Altitude - Incorrect use/operation

Factual Information

History of Flight

Initial climb	Flight control sys malf/fail (Defining event)
Initial climb	Loss of control in flight
Uncontrolled descent	Collision with terr/obj (non-CFIT)

On June 27, 2018, about 1026 eastern daylight time, a Cessna 150J, N60111, was destroyed when it was involved in an accident near Manteo, North Carolina. The commercial pilot was fatally injured. The airplane was operated as a Title 14 *Code of Federal Regulations* Part 91 banner-tow flight.

A ground crewmember who was working in the banner pick-up area watched the accident airplane approach and line up with the pickup poles. He noted that the airplane was "very low" and estimated that the tail of the airplane was about 5 ft off the ground. The witness stated that, as the airplane flew through the pickup area, the pickup loop got caught around the left elevator. He recalled that the pilot made a radio call to the ground crew stating, "I can't turn, it won't release." He watched the airplane continue north and stated that, when the airplane was "barely over" the tops of the trees, the airplane made a climbing left turn. He noted that the wind was blowing from right to left and that it seemed to be "pushing" the airplane to the left. He watched as the airplane disappeared behind the tree line.

Another witness stated that she did not see the pickup of the banner but saw the airplane as it climbed out to midfield with the tow rope wrapped around the left horizontal stabilizer. She stated that the airplane was yawing to the left when it reached the end of the runway. The witness further stated that the airplane made a climbing left turn to an altitude of about 250 ft before it appeared to enter an aerodynamic stall and descend into the trees just to the left of the departure end of runway 23. The airplane wreckage was found in between trees adjacent to the airport perimeter.

Pilot Information

Certificate:	Commercial	Age:	35,Male
Airplane Rating(s):	Single-engine land; Multi-engine land	Seat Occupied:	Left
Other Aircraft Rating(s):	None	Restraint Used:	4-point
Instrument Rating(s):	Airplane	Second Pilot Present:	No
Instructor Rating(s):	None	Toxicology Performed:	Yes
Medical Certification:	Class 2 With waivers/limitations	Last FAA Medical Exam:	February 12, 2018
Occupational Pilot:	Yes	Last Flight Review or Equivalent:	May 7, 2018
Flight Time:	(Estimated) 150 hours (Total, all aircraft), 150 hours (Total, this make and model)		

On his medical certificate application, the pilot reported 150 hours of total flight experience

and no hours in previous 6 months. The pilot's logbook was not recovered; therefore, his total flight experience at the time of the accident could not be determined. A review of the pilot's training records revealed he successfully completed a proficiency check for banner-tow operations on May 7, 2018.

Aircraft and Owner/Operator Information

Aircraft Make:	Cessna	Registration:	N60111
Model/Series:	150J J	Aircraft Category:	Airplane
Year of Manufacture:	1968	Amateur Built:	
Airworthiness Certificate:	Normal; Utility	Serial Number:	15070076
Landing Gear Type:	Tricycle	Seats:	1
Date/Type of Last Inspection:	June 19, 2017 Annual	Certified Max Gross Wt.:	1601 lbs
Time Since Last Inspection:	149 Hrs	Engines:	1 Reciprocating
Airframe Total Time:	932.7 Hrs as of last inspection	Engine Manufacturer:	LYCOMING
ELT:	Not installed	Engine Model/Series:	O-360-A4A
Registered Owner:		Rated Power:	180 Horsepower
Operator:		Operating Certificate(s) Held:	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	Condition of Light:	Day
Observation Facility, Elevation:	KMQI, 13 ft msl	Distance from Accident Site:	0 Nautical Miles
Observation Time:	14:35 Local	Direction from Accident Site:	249°
Lowest Cloud Condition:	Scattered / 1900 ft AGL	Visibility	10 miles
Lowest Ceiling:		Visibility (RVR):	
Wind Speed/Gusts:	10 knots / 14 knots	Turbulence Type Forecast/Actual:	/
Wind Direction:	120°	Turbulence Severity Forecast/Actual:	/
Altimeter Setting:	30.06 inches Hg	Temperature/Dew Point:	27°C / 22°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Manteo, NC (MQI)	Type of Flight Plan Filed:	None
Destination:	Manteo, NC (MQI)	Type of Clearance:	VFR
Departure Time:	10:20 Local	Type of Airspace:	Class G

The wind reported at MQI about the time of the accident was from 120° at 10 knots, gusting to 14 knots, which would have resulted in a nearly direct left crosswind when operating from runway 23.

One of the witnesses that observed the accident also was the owner of another banner tow company that operated at MQI. She characterized that the crosswind to runway 23 that prevailed on the day of the accident was "unusual." She further described that when she had flown earlier that morning the air was very turbulent.

Airport Information

Airport:	Dare County Rgnl MQI	Runway Surface Type:	Asphalt
Airport Elevation:	13 ft msl	Runway Surface Condition:	Dry
Runway Used:	23	IFR Approach:	None
Runway Length/Width:	4305 ft / 100 ft	VFR Approach/Landing:	None

Wreckage and Impact Information

Crew Injuries:	1 Fatal	Aircraft Damage:	Destroyed
Passenger Injuries:		Aircraft Fire:	None
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	1 Fatal	Latitude, Longitude:	35.918888,-75.695556(est)

The main wreckage was located about 400 ft from the departure runway 35 centerline on a 242° magnetic heading. The wreckage path was 124 ft long and oriented on a 242° magnetic heading. The airplane came to rest inverted and facing the direction of travel. The airplane sustained extensive compression damage to the forward fuselage, crushing the cockpit. The cockpit instrument panel was damaged by impact, which prevented an examination of the instruments. The right wing had trailing edge tree damage at the flap and aileron as well as leading edge crush damage throughout the length of the wing. The left wing was still attached to the airplane with part of the outboard section separated. The right elevator separated from the horizontal stabilizer. The banner-tow rope was wrapped around the leading edge of the left horizontal stabilizer. All flight control surfaces were located at the accident site. Flight control continuity was established from the cockpit to each flight control surface.

The engine was damaged by impact. The engine remained attached to the airframe at the tubular mount and was displaced aft and toward the left. The engine was partially disassembled to facilitate further examination. The engine was rotated by turning the crankshaft flange, and continuity of the crankshaft to the rear gears and the valve train was confirmed. Compression and suction were observed on all four engine cylinders. The interior of each cylinder was viewed using a lighted borescope, and no anomalies were noted.

The propeller remained attached to the engine crankshaft flange. The propeller spinner was fragmented. Examination of the propeller revealed that both blades remained attached to the crankshaft flange. Both blades were damaged; they were bent aft and had chordwise scoring throughout the blade span.

Examination of the flight controls and the engine revealed no anomalies that would have precluded normal operation.

Medical and Pathological Information

The East Carolina University Brody School of Medicine, Division of Forensic Pathology, Greenville, North Carolina, performed an autopsy of the pilot. The pilot's cause of death was multiple blunt force trauma.

Toxicology testing performed at the Federal Aviation Administration Forensic Sciences Laboratory was negative for ethanol and drugs.

Administrative Information

Investigator In Charge (IIC):	Alleyne, Eric
Additional Participating Persons:	Mike Childers; Lycoming; Williamsport, PA Ricardo Asensio; Cessna/Texton Aviation; Wichita, KS Dave Laycock; FAA/FSDO; Greensboro, NC John Combrinck; FAA/FSDO; Greensboro, NC
Original Publish Date:	May 19, 2020
Note:	The NTSB traveled to the scene of this accident.
Investigation Docket:	https://data.nts.gov/Docket?ProjectID=97620

The National Transportation Safety Board (NTSB), established in 1967, is an independent federal agency mandated by Congress through the Independent Safety Board Act of 1974 to investigate transportation accidents, determine the probable causes of the accidents, issue safety recommendations, study transportation safety issues, and evaluate the safety effectiveness of government agencies involved in transportation. The NTSB makes public its actions and decisions through accident reports, safety studies, special investigation reports, safety recommendations, and statistical reviews.

The Independent Safety Board Act, as codified at 49 U.S.C. Section 1154(b), precludes the admission into evidence or use of any part of an NTSB report related to an incident or accident in a civil action for damages resulting from a matter mentioned in the report. A factual report that may be admissible under 49 U.S.C. § 1154(b) is available [here](#).