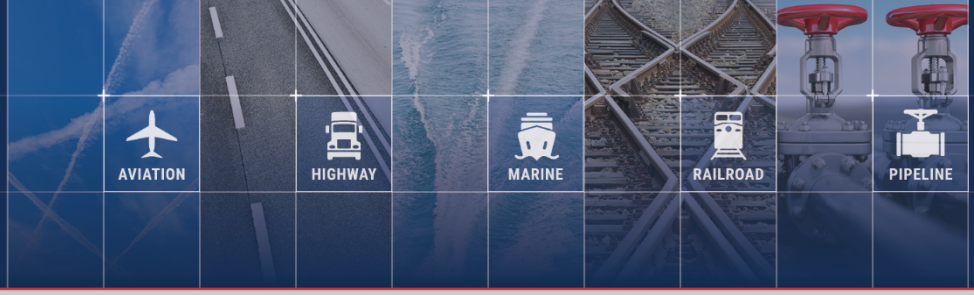

Aviation Investigation Final Report

Location:	Terrell, Texas	**Accident Number:**	CEN13LA186
Date & Time:	March 4, 2013, 16:25 Local	**Registration:**	N70785
Aircraft:	FISHER MICHAEL E CELEBRITY	**Aircraft Damage:**	Destroyed
Defining Event:	Aircraft structural failure	**Injuries:**	1 Fatal
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

Witnesses reported seeing the airplane performing a series of loops and rolls and then sections of the wings separating from the airplane before it descended and impacted terrain. A postaccident examination of the wreckage revealed that the wing failure initiated at the bottom of the right outboard forward wing strut. This failure allowed the right upper wing to rise, which placed an overload stress on the upper wing spar and bottom right wing. The top wing spar separated in the area left of the fuselage struts. The entire upper wing and lower right wing folded up and rearward and then separated from the airplane. All of the separations were consistent with overload failures, indicating that the pilot exceeded the airplane's design stress limits while performing aerobatic maneuvers.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be:

The pilot's exceedance of the airplane's design stress limits while performing aerobatic maneuvers.

Findings

Aircraft	Dynamic load - Capability exceeded
Personnel issues	Incorrect action performance - Pilot
Personnel issues	Use of equip/system - Pilot
Aircraft	(general) - Capability exceeded

Factual Information

History of Flight

Maneuvering-aerobatics	Aircraft structural failure (Defining event)
Uncontrolled descent	Collision with terr/obj (non-CFIT)

On March 4, 2013, at 1625 central standard time, an amateur built Michael E. Fisher Celebrity airplane, N70785, experienced an in-flight structural failure, loss of control, and impact with the terrain while performing aerobatic maneuvers near Terrell, Texas. The private pilot was fatally injured. The airplane was destroyed by impact and a postimpact fire. The personal flight was being operated under 14 Code of Federal Regulations Part 91. Visual meteorological conditions prevailed and no flight plan was filed. The flight departed from the Mesquite Metro Airport (HQZ), Mesquite, Texas, at an unknown time.

Several witness reported seeing the airplane performing aerobatic maneuvers before the accident. One witness reported the airplane made five to seven barrel rolls and was leveling off when the left upper wing separated from the airplane. He stated the wing remained attached by wires and it trailed behind the airplane as it descended to impact with the terrain. Another witness reported hearing changes in the engine power as the pilot performed two loops, followed by a double roll. The airplane flew level for about one mile; then it began a series of two more loops. As the airplane ascended during the second loop, the witness saw two sections of the wing separate from the airplane. He stated these sections "fluttered away" as the airplane continued to ascend. The airplane then entered an aerodynamic stall and descended.

The airplane impacted a field which contained a scattering of small trees. The fuselage, empennage, and lower left wing were destroyed by the post impact fire. Sections of the wings that separated from the airplane while inflight, were located in a wooded area about a half mile east of the main wreckage.

Pilot Information

Certificate:	Private	**Age:**	69
Airplane Rating(s):	Single-engine land	**Seat Occupied:**	Unknown
Other Aircraft Rating(s):	None	**Restraint Used:**	Unknown
Instrument Rating(s):	None	**Second Pilot Present:**	No
Instructor Rating(s):	None	**Toxicology Performed:**	Yes
Medical Certification:	Class 3 With waivers/limitations	**Last FAA Medical Exam:**	August 23, 2012
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	September 27, 2012
Flight Time:	1122 hours (Total, all aircraft)		

The pilot, age 69, held a private pilot certificate with an airplane single-engine land rating. The pilot was issued a third-class medical certificate on August 23, 2012. The certificate contained the limitation,

"Must have glasses available for near vision. Not valid for any class after July 31, 2013." The pilot reported having 1,122 total hours of flight time on the medical certificate application.

The last entry in the pilot's logbook was dated May 7, 2012. The pilot's total flight time was listed as 927.79 hours. None of this flight time was logged in the accident make and model of airplane. The logbook did contain several entry comments regarding aerobatic maneuvers.

Aircraft and Owner/Operator Information

Aircraft Make:	FISHER MICHAEL E	**Registration:**	N70785
Model/Series:	CELEBRITY	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	Yes
Airworthiness Certificate:	Experimental (Special)	**Serial Number:**	AV1057
Landing Gear Type:	Tailwheel	**Seats:**	2
Date/Type of Last Inspection:	January 18, 2013 Condition	**Certified Max Gross Wt.:**	1250 lbs
Time Since Last Inspection:		**Engines:**	1 Reciprocating
Airframe Total Time:	195.3 Hrs as of last inspection	**Engine Manufacturer:**	Continental
ELT:	Installed, not activated	**Engine Model/Series:**	IO-240
Registered Owner:	Michael J. Payne	**Rated Power:**	125 Horsepower
Operator:	Michael J. Payne	**Operating Certificate(s) Held:**	None

The accident airplane was a 1993 experimental amateur built Michael Fisher Celebrity, serial number AV1057. The airplane was issued a Special Airworthiness Certificate on September 28, 1993. It was a two-place, bi-wing airplane with conventional landing gear. The airplane was powered by a 125 horsepower, Continental model IO-240 engine.

The airplane was constructed with a fabric covered welded, tubular steel fuselage and empennage. The wooden wing spars and ribs were also fabric covered. The airplane had interplane struts between the upper and lower wings and inverted "V" cabane wing struts which connected the upper wing to fuselage.

The pilot purchased the airplane on January 19, 2013. A review of the maintenance logbooks indicated the most recent condition inspection of the airframe and engine was performed on January 18, 2013, at a total airframe and engine total time of 195.3 hours. The emergency locator transmitter battery was replaced on January 22, 2013, at an aircraft total time of 197.82 hours. This was the last entry in the airframe logbook. The aircraft total time at the time of the accident could not be determined due to the postimpact fire.

Static load test documents for the Fisher Celebrity airplane show the design load factors used were +4 and -2 g's with the ultimate load factors of +6 and -3 g's.

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	TRL,474 ft msl	**Distance from Accident Site:**	3 Nautical Miles
Observation Time:	16:53 Local	**Direction from Accident Site:**	60°
Lowest Cloud Condition:	Clear	**Visibility**	10 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	11 knots / 21 knots	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	170°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	29.63 inches Hg	**Temperature/Dew Point:**	24°C / 10°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Mesquite, TX (KTRL)	**Type of Flight Plan Filed:**	None
Destination:	Mesquite, TX (KTRL)	**Type of Clearance:**	None
Departure Time:		**Type of Airspace:**	Class G

At 1653, the weather conditions reported at the Terrell Municipal Airport (TRL), located 3 miles northeast of the accident site were: Wind from 170 degrees at 11 knots gusting to 21 knots; visibility 10 statute miles; clear sky; temperature 24 degrees Celsius; dew point 10 degrees Celsius; altimeter 29.64 inches of mercury.

Wreckage and Impact Information

Crew Injuries:	1 Fatal	**Aircraft Damage:**	Destroyed
Passenger Injuries:		**Aircraft Fire:**	On-ground
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	1 Fatal	**Latitude, Longitude:**	32.68861,-96.310279(est)

The upper cowling, engine, fuselage, lower left wing, main landing gear, empennage and tail wheel were charred, melted and consumed by the postimpact fire. The upper left wing was fractured at mid-span. The spars and ribs on the upper left wing and both the upper and lower right wings were broken up and aft. The wing fabric was torn and shredded. The right forward interplane wing strut tube was broken at the bottom wing mounting bracket. The fracture surface showed elongation, necking and a 45-degree cone tear consistent with a tension overload failure.

The airplane's flight controls were examined. Aileron cable failures to the top wing and bottom right wing were consistent with overload when the wings separated from the airplane. Flight control

continuity to the elevator and rudder was confirmed.

The airplane's engine was examined and showed continuity throughout. The propeller blades were broken off at the hub and found at the accident site. The propeller spinner was crushed aft and twisted counterclockwise on the propeller hub.

Medical and Pathological Information

An autopsy of the pilot was performed on March 5, 2013, at the Southwestern Institute of Forensic Sciences at Dallas. The cause of death was listed as a result of blunt force injuries.

A Forensic Toxicology Fatal Accident Report was prepared for the pilot by the FAA Civil Aeromedical Institute, Oklahoma City, Oklahoma. The results for tests performed were negative, with the exception of Metoprolol which was found in the muscle and liver tissues. Metoprolol is a beta blocker commonly used to treat hypertension and to prevent mortality from coronary artery disease.

Administrative Information

Investigator In Charge (IIC):	Sullivan, Pamela
Additional Participating Persons:	Marcus A Taite; FAA-DAL-FSDO; Dallas, TX
Original Publish Date:	April 27, 2015
Last Revision Date:	
Investigation Class:	Class
Note:	The NTSB did not travel to the scene of this accident.
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=86350