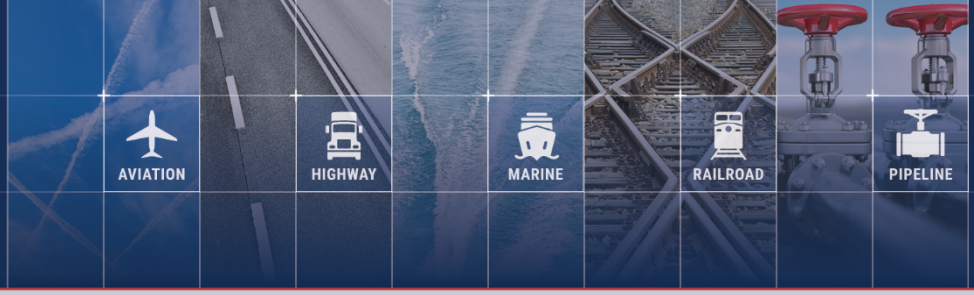

Aviation Investigation Final Report

Location:	Shepherd, Texas	**Accident Number:**	CEN14LA527
Date & Time:	September 27, 2014, 16:00 Local	**Registration:**	N809RD
Aircraft:	BUTCHER RUSSELL A RV9A	**Aircraft Damage:**	Substantial
Defining Event:	Loss of control in flight	**Injuries:**	1 Fatal, 1 Serious
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

The private pilot had conducted a 1-hour personal flight and was attempting to land the experimental amateur-built airplane. The airplane impacted trees and terrain short of the intended runway. Postaccident examination of the airframe and engine revealed no evidence of mechanical malfunctions or failures that would have precluded normal operation.

Examination of the airplane wreckage revealed that the airplane was in an inverted, level attitude at the time of impact. The fuel tanks were ruptured; however, no evidence of fuel spillage or fuel blighting to surrounding vegetation was noted during the on-scene examination, and no fuel was found in the tanks. The departure airport did not have fueling services available at the time of the accident. Based on the available evidence, it is likely that the pilot did not ensure that the gyroplane had adequate fuel for the flight, which resulted in fuel exhaustion and a total loss of engine power. Further, it is likely that, while the pilot was attempting to maintain altitude to clear the trees at the approach end of the runway after the loss of engine power, he lost control of the airplane.

Probable Cause and Findings

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

The pilot's loss of airplane control during the landing approach after a loss of engine power, which led to a collision with trees and terrain. Contributing to the accident was the pilot's inadequate preflight fuel planning, which led to fuel exhaustion and the subsequent loss of engine power.

Findings

Aircraft	(general) - Not attained/maintained
Personnel issues	Use of equip/system - Pilot
Aircraft	Fuel - Fluid level
Personnel issues	Fuel planning - Pilot

Factual Information

History of Flight

Approach	Loss of engine power (total)
Approach	Loss of control in flight (Defining event)
Approach-VFR pattern final	Collision during takeoff/land

HISTORY OF FLIGHT
On September 27, 2014, about 1600 central daylight time, an amateur-built Butcher RV9A airplane, N809RD, sustained substantial damage when it impacted trees during an apparent landing approach to runway 29 at the Lake Water Wheel Airport (XS99), near Shepherd, Texas. The pilot was fatally injured and the passenger received serious injuries. The airplane was owned and operated by the pilot under the provisions of 14 Code of Federal Regulations (CFR) Part 91, as a personal flight. Visual meteorological conditions prevailed for the flight, which was not operated on a flight plan. The local flight originated about 1500.

The passenger reported that he and the pilot left XS99 about 1500 so that the pilot could direct certain work that was being done at the CAVOK airpark project near Cleveland, Texas. They were supposed to be back to XS99 by 1600 since the passenger and family needed to leave XS99 due to an evening commitment in Houston. When they were almost back to XS99, the pilot flew over some water that he pointed out to the passenger, but this body of water was not the one that was immediately adjacent to the runway at XS99. They subsequently completed a fly over of the runway at XS99, banked to the right and climbed steeply making a U-turn. The passenger did not remember anything further about the flight or the subsequent crash.

PERSONNEL INFORMATION
The pilot, age 44, held a private pilot certificate with airplane multiengine land, airplane single-engine land, and rotorcraft-helicopter certificates. His most recent second-class medical certificate was issued on August 14, 2011. The medical certificate listed no limitations. The pilot's logbook was not available for review, however, the pilot reported having 720 hours of total flight experience and 58 hours in the six months preceding his most recent medical examination. According to 14 CFR 61.23d, the pilot's medical certificate was not valid for any operations after August 31, 2013.

AIRCRAFT INFORMATION
The accident airplane was an amateur-built experimental airplane constructed from a kit. The airplane was a single engine, low-wing monoplane, configured to seat two occupants in a side-by-side seating arrangement. It employed a tricycle landing gear arrangement and was constructed primarily from aluminum alloy materials. The airplane was powered by a Lycoming O-320-E2B engine rated to produce 150 horsepower.

The kit manufacturer's website listed the following specifications:
Wing span: 28 feet

Length: 20 feet 5 inches
Empty Weight: 1,028-1,075 pounds
Gross Weight: 1,600-1,750 pounds
Cruise speed: 165 mph (143 knots)

According to 14 CFR 61.23c, a pilot requires either a valid medical certificate or a State issued driver's license in order to operate a light sport aircraft. According to 14 CFR 1.1, a light sport land based airplane must have met the following requirements, among others:
1: A maximum takeoff weight of not more than 1,320 pounds
2: A maximum airspeed in level flight with maximum continuous power of not more than 120 knots CAS under standard atmospheric conditions at sea level.

METEOROLOGICAL INFORMATION

Weather conditions recorded by the Cleveland Municipal Airport, Cleveland, Texas, (6R3) Automated Weather Observing System (AWOS), located about 8 miles southwest of the accident site, at 1055, were: wind from 90 degrees at 3 knots, visibility 10 miles, broken clouds at 1,700 feet agl, scattered clouds at 4,600 feet agl, broken clouds at 11,000 feet agl, temperature 28 degrees Celsius, dew point 20 degrees Celsius, and altimeter 29.97 inches of mercury.

AIRPORT INFORMATION

The accident airport was a privately owned airport with a 2,600 foot by 100 foot turf runway (runway 11/29). The airport was part of a property owners association with some homes that included aircraft hangars. The accident pilot reportedly owned a home adjacent to the runway and based the accident airplane at XS99. No fuel services were available at XS99 at the time of the accident.

WRECKAGE AND IMPACT INFORMATION

Investigators on-scene reported that the airplane impacted a wooded area short of the approach end of runway 29. The impacted trees stood about 75 feet in height and were located about 300 feet from the end of the runway. The impacted trees and the damage to the airplane components were consistent with an inverted attitude at the time of the impact. The right wing had a semi-circular indentation from the leading edge aft, past the main spar location, that was also consistent with an impact with a tree. The indentation in the wing went vertically through structure, which was consistent with a level, but inverted attitude at impact. The wings had separated from the fuselage. The fuselage came to rest predominately intact with crushing damage due to impact. The fuselage had apparently traveled through gaps in the larger trees before impacting the ground. There was no evidence of a fuel spill and no fuel was found in the airplane, however, both fuel tanks had ruptured. No fuel blight was evident on vegetation surrounding the accident site days after the accident. Examination of the airplane's control system verified continuity from the cockpit to the controls with the exception of separations that were consistent with the impact. Examination of the engine at the accident site was limited due to the position of the airplane; however, there was no outward evidence of catastrophic failure of the engine. The postaccident examination of the airframe and engine revealed no evidence of mechanical malfunctions or failures that would have precluded normal operation.

MEDICAL AND PATHOLOGICAL INFORMATION

An autopsy of the pilot was performed Forensic Medical Management Services of Texas, P.A.,

Beaumont, Texas, on September 28, 2014. The pilot's death was attributed to injuries received in the accident.

Toxicology testing was performed by the FAA Civil Aerospace Medical Institute. Testing results were negative for all substances in the screening profile.

ADDITIONAL INFORMATION
An attorney involved in the case submitted airplane components believed to have avian (bird) blood evidence to the Smithsonian Institute for DNA testing. Testing of the components submitted failed to recover any avian DNA.

Pilot Information

Certificate:	Private	**Age:**	44
Airplane Rating(s):	Single-engine land; Multi-engine land	**Seat Occupied:**	Left
Other Aircraft Rating(s):	Helicopter	**Restraint Used:**	
Instrument Rating(s):	None	**Second Pilot Present:**	No
Instructor Rating(s):	None	**Toxicology Performed:**	Yes
Medical Certification:	Class 2 Without waivers/limitations	**Last FAA Medical Exam:**	August 14, 2011
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	
Flight Time:	720 hours (Total, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	BUTCHER RUSSELL A	**Registration:**	N809RD
Model/Series:	RV9A A	**Aircraft Category:**	Airplane
Year of Manufacture:	2008	**Amateur Built:**	Yes
Airworthiness Certificate:	Experimental (Special)	**Serial Number:**	90781
Landing Gear Type:	Tricycle	**Seats:**	2
Date/Type of Last Inspection:	Unknown	**Certified Max Gross Wt.:**	
Time Since Last Inspection:		**Engines:**	
Airframe Total Time:		**Engine Manufacturer:**	
ELT:	Installed	**Engine Model/Series:**	
Registered Owner:	On file	**Rated Power:**	
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:	6R3,150 ft msl	**Distance from Accident Site:**	8 Nautical Miles
Observation Time:	20:55 Local	**Direction from Accident Site:**	225°
Lowest Cloud Condition:	Scattered / 4600 ft AGL	**Visibility**	10 miles
Lowest Ceiling:	Broken / 11000 ft AGL	**Visibility (RVR):**	
Wind Speed/Gusts:	3 knots /	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	90°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	29.96 inches Hg	**Temperature/Dew Point:**	28°C / 20°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Shepherd, TX (XS99)	**Type of Flight Plan Filed:**	None
Destination:	Shepherd, TX (XS99)	**Type of Clearance:**	None
Departure Time:		**Type of Airspace:**	Class G

Airport Information

Airport:	LAKE WATER WHEEL XS99	**Runway Surface Type:**	
Airport Elevation:	80 ft msl	**Runway Surface Condition:**	Dry
Runway Used:	29	**IFR Approach:**	None
Runway Length/Width:	2600 ft / 100 ft	**VFR Approach/Landing:**	Traffic pattern

Wreckage and Impact Information

Crew Injuries:	1 Fatal	**Aircraft Damage:**	Substantial
Passenger Injuries:	1 Serious	**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	1 Fatal, 1 Serious	**Latitude, Longitude:**	30.471111,-94.91278

Administrative Information

Investigator In Charge (IIC):	Brannen, John
Additional Participating Persons:	Jefferson Riff; FAA-Houston FSDO; Houston, TX
Original Publish Date:	April 4, 2016
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=90181