Aviation Investigation Final Report

Location:	St. Paul, Missouri	**Accident Number:**	CHI04LA158
Date & Time:	June 19, 2004, 18:06 Local	**Registration:**	N1161
Aircraft:	Monocoupe Aircraft 90AL-115	**Aircraft Damage:**	Destroyed
Defining Event:		**Injuries:**	2 Fatal
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

The airplane impacted terrain while maneuvering during a local area flight. Primary aircraft radar track returns were used to reconstruct the accident flight because the airplane was not equipped with a transponder. No altitude information was available with primary radar data. The plotted data showed the accident airplane performing several 180-degree turns within a 1.4 nm square area. The airplane's calculated ground speed varied between 74 and 146 knots during the series of 180-degree turns. The data indicated that the ground speed decreased to approximately 75 knots when the airplane was turning. The ground speed increased to 111-146 knots during the straight flight paths between turns. An on-site survey of the wreckage determined that all primary airframe structural components, flight control systems and powerplant components were present. Flight control cables were inspected and all breaks were consistent with an overload failure. No discrepancies were found with the airframe, flight control systems, engine or propeller that could be associated with a pre-impact malfunction.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The pilot's failure to maintain altitude/clearance from the terrain while maneuvering.

Findings

Occurrence #1: IN FLIGHT COLLISION WITH TERRAIN/WATER
Phase of Operation: MANEUVERING

Findings
1. (C) ALTITUDE/CLEARANCE - NOT MAINTAINED - PILOT IN COMMAND
2. TERRAIN CONDITION - GROUND

Factual Information

HISTORY OF FLIGHT

On June 19, 2004, at 1806 central daylight time, a Monocoupe 90AL-115, N1161, owned and operated by a private pilot, was destroyed when it impacted terrain while maneuvering near St. Paul, Missouri. Visual meteorological conditions prevailed at the time of the accident. The personal flight was operating under the provisions of 14 Code of Federal Regulations Part 91 without a flight plan. The pilot and his passenger were fatally injured. The local flight departed Creve Coeur Airport (1H0), near Maryland Heights, Missouri, at 1755.

Aircraft radar track data was obtained from the Federal Aviation Administration (FAA), St. Louis Approach Control facility. Primary radar returns were used to reconstruct the accident flight because the airplane was not equipped with a transponder. No altitude information is available with primary radar data. The track data was plotted on a St. Louis Terminal Area Chart and showed N1161 departing 1H0 from runway 34, then continuing north-northwest toward Peruque, Missouri.

The plotted data then showed the accident airplane performing several 180-degree turns approximately 1.8 nm northwest of Waldmeister Farm Airport (45MO). The turns were completed within a 1.4 nm square area. The airplane's calculated ground speed varied between 74 and 146 knots during the series of 180-degree turns. The data indicated that the ground speed decreased to approximately 75 knots when the airplane was turning. The ground speed increased to 111-146 knots during the straight flight paths between turns. The accident site was located approximately 1,500 feet from the last recorded radar return.

PERSONNEL INFORMATION

The pilot held a private pilot certificate with a single-engine land airplane rating. The pilot certificate was issued by the FAA on March 11, 1983. The pilot was not instrument rated. FAA records indicated that his last airman medical examination was completed on October 1, 2003, when he was issued a third-class medical certificate with the limitation "Must wear corrective lenses." The pilot indicated that his total flight time was 3,000 hours on his application for the current medical certificate.

The passenger held a private pilot certificate with a single-engine land airplane rating. The pilot certificate was issued by the FAA on May 19, 1968. The pilot was not instrument rated. FAA records indicated that his last airman medical examination was completed on November 11, 2002, when he was issued a third-class medical certificate with the limitation "Must wear corrective lenses." The pilot indicated that his total flight time was 1,460 hours on his application for the current medical certificate.

Current flight records for the pilot and passenger were not recovered during the investigation.

AIRCRAFT INFORMATION

The accident airplane, a refurbished 1948 clip-wing Monocoupe 90AL-115, serial number 862, incorporated a tubular frame, wooden wing spar and ribs, and fabric covering. The accident airplane was issued an experimental airworthiness certificate on April 19, 1977, for exhibition use. However, the accident airplane was never used for exhibition purposes, according to FAA records. The airplane was powered by a Warner Super Scarab 185J radial engine. The airplane was equipped with a Univair model 220-093, two-bladed wooden propeller. No maintenance logbooks were recovered during the investigation.

METEOROLOGICAL INFORMATION

The automated surface observing system (ASOS) at St. Charles County Smartt Airport (SET), St. Charles, Missouri, recorded the following information at 1754:

Wind 360 degrees true at 8 knots; 10 statute mile visibility; sky clear; temperature 22 degrees Celsius; dew point of 13 degrees Celsius; altimeter 30.21 inches of mercury.

WRECKAGE AND IMPACT INFORMATION

Federal Aviation Administration (FAA) inspectors performed the on-scene inspection of the wreckage.

A global positioning system (GSP) receiver recorded the position of the main wreckage as 38-degrees 52.28-minutes north latitude, 90-degrees 39.62-minutes west longitude. The main wreckage was found in a muddy field located about 1.8 nm north-northwest of Waldmeister Farm Airport (45MO).

The wreckage was distributed in a fan-shaped area. The centerline of the debris field was on a 150-degree magnetic heading. The furthest wreckage was located about 280 feet from the initial impact point. The initial impact point consisted of a ground depression consistent with the left wing impacting the terrain. The pitot tube, installed on the left wing, was found buried in the initial impact crater. Portions of the wooden propeller were found in and immediately adjacent to the initial impact crater.

The left and right wing tips were found 50 and 60 feet from the initial impact point, respectively. The remaining portion of the right wing was found approximately 95 feet from the initial impact point. The engine and oil tank were found about 169 feet from the initial impact point. The left main landing gear was found about 175 feet from the initial impact point, and was attached to the left wing strut and forward portion of the cockpit structure. The main wreckage consisted of the fuselage and empennage, and was found 180 feet from the

initial impact point. The left and right fuel tanks were located 195 and 200 feet from the initial impact point, respectively. The furthest portion of wreckage was the right main landing gear, which was located about 280 feet from the initial impact point.

An on-site survey of the wreckage determined that all primary airframe structural components, flight control systems and powerplant components were present. Flight control cables were inspected and all breaks were consistent with an overload failure. No discrepancies were found with the airframe, flight control systems, engine or propeller that could be associated with a pre-impact malfunction. The airspeed indicator read 240 mph and the G-meter indicated 13 g-units.

MEDICAL AND PATHOLOGICAL INFORMATION

Autopsies were performed on the pilot and passenger on June 21, 2004, at the St. Charles County Medical Examiner's Office, St. Charles, Missouri.

Toxicology samples for the pilot and passenger were submitted to the FAA Civil Aeromedical Institute, Oklahoma City, Oklahoma, and negative results were reported for all tests performed.

ADDITIONAL INFORMATION

The FAA was a party to the investigation.

Pilot Information

Certificate:	Private	**Age:**	60,Male
Airplane Rating(s):	Single-engine land	**Seat Occupied:**	
Other Aircraft Rating(s):	None	**Restraint Used:**	
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:**	October 1, 2003
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	
Flight Time:	3000 hours (Total, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Monocoupe Aircraft	**Registration:**	N1161
Model/Series:	90AL-115	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	
Airworthiness Certificate:	Experimental (Special)	**Serial Number:**	862
Landing Gear Type:	Tailwheel	**Seats:**	2
Date/Type of Last Inspection:	Unknown	**Certified Max Gross Wt.:**	1610 lbs
Time Since Last Inspection:		**Engines:**	1 Reciprocating
Airframe Total Time:		**Engine Manufacturer:**	Warner
ELT:	Not installed	**Engine Model/Series:**	185J
Registered Owner:	On file	**Rated Power:**	185 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:	SET,436 ft msl	**Distance from Accident Site:**	11 Nautical Miles
Observation Time:	17:54 Local	**Direction from Accident Site:**	72°
Lowest Cloud Condition:	Clear	**Visibility**	10 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	8 knots /	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	360°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	30.2 inches Hg	**Temperature/Dew Point:**	22°C / 13°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Maryland Height, MO (1H0)	**Type of Flight Plan Filed:**	None
Destination:	(1H0)	**Type of Clearance:**	None
Departure Time:	17:55 Local	**Type of Airspace:**	

Wreckage and Impact Information

Crew Injuries:	1 Fatal	**Aircraft Damage:**	Destroyed
Passenger Injuries:	1 Fatal	**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	2 Fatal	**Latitude, Longitude:**	38.874443,-90.667221

Administrative Information

Investigator In Charge (IIC):	Fox, Andrew
Additional Participating Persons:	Robert Linenweber; Federal Aviation Administration - St. Louis FSDO; St. Louis, MO
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Investigation Class:	Class
Note:	
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=59506