Aviation Investigation Final Report

Location:	Marion, Mississippi	**Accident Number:**	ANC05LA033
Date & Time:	February 12, 2005, 15:30 Local	**Registration:**	N20GT
Aircraft:	Twente Pitts Model 12	**Aircraft Damage:**	Destroyed
Defining Event:		**Injuries:**	2 Fatal
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

The commercial certificated pilot/owner was conducting a low altitude aerobatic flight maneuver in an experimental, amateur-built airplane under Title 14, CFR Part 91 when the accident occurred. An FAA inspector who traveled to the site said a witness told him that the airplane had just completed a loop when it rolled abruptly to the left and dove into the ground. The inspector said the airplane impacted the ground in a near vertical attitude. Additional witnesses told the National Transportation Safety Board (NTSB) investigator-in-charge (IIC), that the pilot/owner typically performed single aerobatic maneuvers at 800-1,000 feet above the ground. One witness told the IIC that she saw the airplane descending in a spiral, as she had seen before, but the spiral was tighter and faster than before. She said the pilot did not pull out at the usual height, and descended below the trees. The first person to the accident site was a student pilot and friend of the accident pilot. He said he and his wife watched the accident airplane perform a loop and then enter a counter-clockwise spin at the bottom of the loop. A postcrash fire consumed most of the airplane. During the on-site examination, the FAA inspector found the right cable attachment point to the rudder horn had fractured, and the cable was disconnected. The rudder horn assembly was sent to the NTSB Materials Laboratory for analysis. The analysis disclosed that prior to the fracture, the outboard portion of the horn, where the cable was attached, was bent downward almost perpendicular to its normal plane of rotation. Information received from the rudder horn manufacturer indicated that under normal flight control inputs, there are no mechanical loads that would account for the deformation of the rudder horn prior to the fracture. The airplane was kit-built, and maintained by the pilot under the "condition inspection" criteria. No pilot, airframe, or engine logbooks, were discovered for examination. No evidence of any preimpact mechanical anomaly was found.

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 control of the airplane while performing a low altitude, aerobatic maneuver, which resulted in an uncontrolled descent, and an in-flight collision with terrain. A factor associated with the accident was the initiation of a low altitude aerobatic maneuver.

Findings

Occurrence #1: LOSS OF CONTROL - IN FLIGHT
Phase of Operation: MANEUVERING

Findings
1. AEROBATICS - INTENTIONAL - PILOT IN COMMAND
2. (F) LOW ALTITUDE FLIGHT/MANEUVER - PERFORMED - PILOT IN COMMAND
3. (C) AIRCRAFT CONTROL - NOT MAINTAINED - PILOT IN COMMAND

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

Findings
4. TERRAIN CONDITION - GROUND

Factual Information

HISTORY OF FLIGHT

On February 12, 2005, about 1530 central standard time, an experimental amateur-built, Pitts Model 12 airplane, N20GT, was destroyed following an in-flight collision with terrain and postcrash fire, while performing low-altitude aerobatic maneuvers, about 4 miles west of Marion, Mississippi. The airplane was being operated by the pilot as a visual flight rules (VFR) local personal flight under Title 14, CFR Part 91, when the accident occurred. The commercial pilot and pilot-rated passenger received fatal injuries. Visual meteorological conditions prevailed, and no flight plan was filed. The flight departed Topton Air Estates, Meridian, Mississippi, about 1445.

During a telephone conversation with the National Transportation Safety Board (NTSB) investigator-in-charge (IIC) on February 13, the FAA aviation safety inspector who visited the accident site reported witnesses told him the pilot had been doing aerobatics. One witness said the airplane pulled out of a loop, rolled abruptly left, and then dove into the ground. Another witness said the airplane entered a spin and crashed. A witness also told the FAA inspector that the pilot had given several rides in the airplane prior to the accident flight.

During subsequent telephone interviews, one witness told the IIC the pilot flew frequently and performed aerobatic maneuvers near the airport. He said he had flown with the pilot on several occasions and the pilot typically started maneuvers about 800-1000 feet above ground level (agl), and usually performed single maneuvers. [Federal Aviation Regulation Part 91.303(e) requires that all aerobatic maneuvers be completed above 1,500 feet agl.] He said he felt the pilot was very proficient, and knew his airplane's capabilities very well. Another witness told the IIC that she did not know the pilot, but had observed his aerobatics from her yard on numerous occasions. She said that she saw the airplane in a descending spiral, which she had seen before. She said during the accident descent the spiral was tighter and faster than usual, and descended below the trees, out of sight. She said she had never seen the pilot do anything she felt was unsafe. The first person to the accident site was a student pilot, and friend of the accident pilot. He said he and his wife had stopped to watch the maneuvers. He said they watched the airplane perform a loop, and "when it reached the bottom of a loop, the plane went into a counter-clockwise spin."

Both the pilot and passenger were certificated pilots, and it was not determined who was the pilot flying during the accident. For the purposes of this report, the pilot/owner is considered the first pilot.

INJURIES TO PERSONS

Both the pilot and passenger sustained fatal injuries.

DAMAGE TO AIRCRAFT

The aircraft was destroyed by the impact with terrain and a postcrash fire.

PERSONNEL INFORMATION

The first pilot held a commercial pilot certificate with ratings for single-engine land airplane, and instrument airplane. No pilot logbooks were located, and according to his most recent application for an FAA Third Class Airman Medical Certificate dated September 25, 2003, the pilot had accumulated about 1,580 total hours of flying experience. The pilot was issued an FAA Third Class Medical Certificate on September 25, 2003. No evidence of a current biennial flight review, which is typically recorded in the pilot's logbook, was discovered.

AIRCRAFT INFORMATION

The airplane was an experimental, amateur built, Pitts Model 12, two-place, tandem cockpit, aerobatic airplane. The airplane was a tailwheel equipped, bi-wing design. According to the kit manufacturer, the airplane is available as a plans-built, or kit-built airplane, and the accident airplane was built by the pilot using primarily kit components. The airplane was issued an FAA Experimental Fixed Wing Single-Engine type certificate on October 25, 2001. The pilot/builder was issued an experimental repair certificate on December 20, 2001. The airplane was maintained under the "condition inspection" criteria, no airframe or engine logbooks were located, and the total service hours for the airplane and engine are unknown.

WRECKAGE AND IMPACT INFORMATION

According to the FAA inspector who visited the accident site, the airplane impacted the ground in a near vertical descent, and was consumed by a postcrash fire.

MEDICAL AND PATHOLOGICAL INFORMATION

A postmortem examination of the pilot was conducted under the authority of the Mississippi State Medical Examiner, Post Office Box 1719, 1700 W. Government Street Suite G, Brandon, Mississippi, on February 14, 2005. The examination revealed that the cause of death for the pilot was craniocerebral trauma. Toxicology tests were performed for legal and illegal drugs by the Mississippi State Medical Examiner's Office with negative results. No tissue samples were sent to the FAA Civil Aerospace Medical Institute, Okalahoma City, Oklahoma, for toxicological analysis.

TEST AND RESEARCH

During the on-site examination of the wreckage by the FAA air safety inspector, the inspector

found the right cable attachment point to the rudder horn had fractured, and the cable was disconnected. The rudder horn, fractured attachment, and cable were taken by the inspector and forwarded to the NTSB Materials Laboratory in Washington D.C., for analysis. The analysis disclosed that prior to the fracture, the outboard portion of the horn, where the cable is attached, was bent downward almost perpendicular to its normal plane of rotation. Information and pictures received from the rudder horn manufacturer indicated that when properly installed, and under normal flight control inputs, there are no mechanical loads that would account for the deformation of the rudder horn prior to the fracture.

ADDITIONAL INFORMATION

On June 30, upon completion of the material analysis, the rudder horn was returned to the FAA aviation safety inspector from the Jackson, Mississippi, Flight Standards District Office, who provided it for examination. No pieces or parts of the accident airplane were taken or retained by the NTSB.

Pilot Information

Certificate:	Commercial	**Age:**	59,Male
Airplane Rating(s):	Single-engine land	**Seat Occupied:**	Rear
Other Aircraft Rating(s):	None	**Restraint Used:**	
Instrument Rating(s):	Airplane	**Second Pilot Present:**	Yes
Instructor Rating(s):	None	**Toxicology Performed:**	No
Medical Certification:	Class 3 With waivers/limitations	**Last FAA Medical Exam:**	September 1, 2003
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	
Flight Time:	1580 hours (Total, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Twente	**Registration:**	N20GT
Model/Series:	Pitts Model 12	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	Yes
Airworthiness Certificate:	Experimental (Special)	**Serial Number:**	86
Landing Gear Type:	Tailwheel	**Seats:**	2
Date/Type of Last Inspection:	Condition	**Certified Max Gross Wt.:**	2300 lbs
Time Since Last Inspection:		**Engines:**	1 Reciprocating
Airframe Total Time:		**Engine Manufacturer:**	Vendeneyev
ELT:		**Engine Model/Series:**	M14PF
Registered Owner:	George Twente	**Rated Power:**	360 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:		**Distance from Accident Site:**	
Observation Time:		**Direction from Accident Site:**	
Lowest Cloud Condition:	Clear	**Visibility**	10 miles
Lowest Ceiling:		**Visibility (RVR):**	
Wind Speed/Gusts:	/	**Turbulence Type Forecast/Actual:**	/
Wind Direction:		**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:		**Temperature/Dew Point:**	
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Topton Air, MS (0MS0)	**Type of Flight Plan Filed:**	None
Destination:		**Type of Clearance:**	None
Departure Time:	14:45 Local	**Type of Airspace:**	

Wreckage and Impact Information

Crew Injuries:	1 Fatal	**Aircraft Damage:**	Destroyed
Passenger Injuries:	1 Fatal	**Aircraft Fire:**	On-ground
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	2 Fatal	**Latitude, Longitude:**	32.333057,-88.751113

Administrative Information

Investigator In Charge (IIC):	Lewis, Lawrence
Additional Participating Persons:	Jacob Corbett; FAA; Jackson, MS
Original Publish Date:	March 28, 2006
Last Revision Date:	
Investigation Class:	Class
Note:	
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=61006