Aviation Investigation Final Report

Location:	Grand Prairie, Texas	**Accident Number:**	FTW03LA164
Date & Time:	May 31, 2003, 10:30 Local	**Registration:**	N97DW
Aircraft:	Aerotek Pitts S-2A	**Aircraft Damage:**	Substantial
Defining Event:		**Injuries:**	2 None
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

During the recovery from an aerobatic maneuver, a section of the lower left wing separated in-flight, and the airplane landed uneventfully at the departure airport. Approximately 5 minutes into the flight, the pilot was performing a power-on stall. During the stall, the airplane broke to the left, and then the airplane entered an inverted spin. During the spin, the aircraft performed approximately two rotations. To recover, the pilot reduced power, and the airplane entered a nose low attitude. The pilot "pulled hard" to recover from the nose low attitude, and the airplane again broke to the left. During recovery of the ensuing dive, the airplane was shuddering and a section of the lower left wing separated. Approximately 30 days prior to the accident flight, during a low altitude pass over some of the pilot's property, the airplane impacted the tops of some trees. The pilot repaired the airplane fabric damage with duct tape and did not report what additional inspections and/or repairs had been completed. He also had not received any formal aerobatic instruction and was learning aerobatics on his own.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: the pilot's improper inspection of the aircraft after impacting trees on a previous flight which resulted in an in-flight separation of the lower left wing and aileron while performing aerobatic maneuvers.

Findings

Occurrence #1: AIRFRAME/COMPONENT/SYSTEM FAILURE/MALFUNCTION
Phase of Operation: MANEUVERING

Findings
1. (C) MAINTENANCE,INSPECTION - IMPROPER - PILOT IN COMMAND
2. WING - SEPARATION
3. FLIGHT CONTROL,AILERON - SEPARATION

Factual Information

On May 31, 2003, approximately 1030 central daylight time, an Aerotek Pitts S-2A single-engine aerobatic bi-plane, N97DW, sustained substantial damage following a partial in-flight breakup while maneuvering near Grand Prairie Municipal Airport (GPM), Grand Prairie, Texas. The commercial pilot and his passenger were not injured. The airplane was registered to and operated by the pilot. Visual meteorological conditions prevailed, and a flight plan was not filed for the 14 Code of Federal Regulations Part 91 personal flight. The local flight departed GPM at 1020.

In an interview with the NTSB investigator-in-charge, the pilot stated that approximately 5 minutes into the flight, he was performing a power-on stall. During the stall, the airplane broke to the left, and then the airplane entered an inverted spin. During the recovery from the spin, an outboard section of the bottom left wing separated. Subsequently, the pilot returned to GPM and landed uneventfully.

In an interview with an FAA inspector, the pilot stated that during the spin, the aircraft performed approximately two rotations. To recover the airplane, the pilot reduced power, and the airplane entered a nose low attitude. The pilot "pulled hard" to recover from the nose low attitude, and the airplane again broke to the left. During the recovery from the ensuing dive, the airplane was shuddering and a section of the lower left wing separated. The pilot stated that after the flight, the 'G' meter read +7.2/-2, and the flight lasted a total of 10 minutes. The FAA inspector reported the airplane has a +6/-3 'G' limit load factor, and a +9/-4.5 'G' ultimate load factor.

In addition, the pilot reported approximately 30 days prior to the accident flight, during a low altitude pass over some of his property, the airplane impacted the tops of some trees. The pilot repaired the airplane fabric damage with duct tape and did not report what additional inspections and/or repairs had been completed. He also had not received any formal aerobatic instruction and was learning aerobatics on his own.

Examination of the airplane by the pilot revealed that a 4-foot portion of the bottom left wing and the left aileron had separated from the aircraft.

According to an FAA Airworthiness Inspector who examined the airplane, the forward wooden wing spar was splintered and fractured, and the aileron was separated. The separated section and aileron were not recovered.

Numerous attempts to obtain a completed NTSB Pilot/Operator Aircraft Accident Report (NTSB Form 6120.1/2) from the pilot were unsuccessful.

Pilot Information

Certificate:	Commercial; Private	**Age:**	38,Male
Airplane Rating(s):	Single-engine land; Multi-engine land	**Seat Occupied:**	Unknown
Other Aircraft Rating(s):	Helicopter	**Restraint Used:**	
Instrument Rating(s):	Airplane	**Second Pilot Present:**	No
Instructor Rating(s):	None	**Toxicology Performed:**	No
Medical Certification:	Class 1 Valid Medical--no waivers/lim.	**Last FAA Medical Exam:**	August 10, 2000
Occupational Pilot:	UNK	**Last Flight Review or Equivalent:**	
Flight Time:			

Aircraft and Owner/Operator Information

Aircraft Make:	Aerotek	**Registration:**	N97DW
Model/Series:	Pitts S-2A	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	
Airworthiness Certificate:	Aerobatic; Normal	**Serial Number:**	2150
Landing Gear Type:	Tailwheel	**Seats:**	2
Date/Type of Last Inspection:	Annual	**Certified Max Gross Wt.:**	1500 lbs
Time Since Last Inspection:		**Engines:**	1 Reciprocating
Airframe Total Time:		**Engine Manufacturer:**	Lycoming
ELT:	Installed, not activated	**Engine Model/Series:**	AEIO-360
Registered Owner:	Christopher G. Anderson	**Rated Power:**	200 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:	GPM,589 ft msl	**Distance from Accident Site:**	5 Nautical Miles
Observation Time:	10:25 Local	**Direction from Accident Site:**	360°
Lowest Cloud Condition:	Clear	**Visibility**	10 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	/	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	0°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	29.81 inches Hg	**Temperature/Dew Point:**	30°C / 16°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Grand Prairie , TX (GPM)	**Type of Flight Plan Filed:**	None
Destination:		**Type of Clearance:**	None
Departure Time:	10:20 Local	**Type of Airspace:**	Class E

Wreckage and Impact Information

Crew Injuries:	1 None	**Aircraft Damage:**	Substantial
Passenger Injuries:	1 None	**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	2 None	**Latitude, Longitude:**	32.698333,-97.046386

Administrative Information

Investigator In Charge (IIC):	Sauer, Aaron
Additional Participating Persons:	Michael G Hendricks; Federal Aviation Administration; Fort Worth, TX
Original Publish Date:	March 2, 2004
Last Revision Date:	
Investigation Class:	Class
Note:	
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=57090