



# Aviation Investigation Final Report

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

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## 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

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

## Aircraft and Owner/Operator Information

<b>Aircraft Make:</b>	Aerotek	<b>Registration:</b>	N97DW
<b>Model/Series:</b>	Pitts S-2A	<b>Aircraft Category:</b>	Airplane
<b>Year of Manufacture:</b>		<b>Amateur Built:</b>	
<b>Airworthiness Certificate:</b>	Aerobatic; Normal	<b>Serial Number:</b>	2150
<b>Landing Gear Type:</b>	Tailwheel	<b>Seats:</b>	2
<b>Date/Type of Last Inspection:</b>	Annual	<b>Certified Max Gross Wt.:</b>	1500 lbs
<b>Time Since Last Inspection:</b>		<b>Engines:</b>	1 Reciprocating
<b>Airframe Total Time:</b>		<b>Engine Manufacturer:</b>	Lycoming
<b>ELT:</b>	Installed, not activated	<b>Engine Model/Series:</b>	AEIO-360
<b>Registered Owner:</b>	Christopher G. Anderson	<b>Rated Power:</b>	200 Horsepower
<b>Operator:</b>		<b>Operating Certificate(s) Held:</b>	None

## Meteorological Information and Flight Plan

<b>Conditions at Accident Site:</b>	Visual (VMC)	<b>Condition of Light:</b>	Day
<b>Observation Facility, Elevation:</b>	GPM,589 ft msl	<b>Distance from Accident Site:</b>	5 Nautical Miles
<b>Observation Time:</b>	10:25 Local	<b>Direction from Accident Site:</b>	360°
<b>Lowest Cloud Condition:</b>	Clear	<b>Visibility</b>	10 miles
<b>Lowest Ceiling:</b>	None	<b>Visibility (RVR):</b>	
<b>Wind Speed/Gusts:</b>	/	<b>Turbulence Type Forecast/Actual:</b>	/
<b>Wind Direction:</b>	0°	<b>Turbulence Severity Forecast/Actual:</b>	/
<b>Altimeter Setting:</b>	29.81 inches Hg	<b>Temperature/Dew Point:</b>	30°C / 16°C
<b>Precipitation and Obscuration:</b>	No Obscuration; No Precipitation		
<b>Departure Point:</b>	Grand Prairie , TX (GPM )	<b>Type of Flight Plan Filed:</b>	None
<b>Destination:</b>		<b>Type of Clearance:</b>	None
<b>Departure Time:</b>	10:20 Local	<b>Type of Airspace:</b>	Class E

## Wreckage and Impact Information

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

## Administrative Information

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

The National Transportation Safety Board (NTSB) is an independent federal agency charged by Congress with investigating every civil aviation accident in the United States and significant events in other modes of transportation—railroad, transit, highway, marine, pipeline, and commercial space. We determine the probable causes of the accidents and events we investigate, and issue safety recommendations aimed at preventing future occurrences. In addition, we conduct transportation safety research studies and offer information and other assistance to family members and survivors for each accident or event we investigate. We also serve as the appellate authority for enforcement actions involving aviation and mariner certificates issued by the Federal Aviation Administration (FAA) and US Coast Guard, and we adjudicate appeals of civil penalty actions taken by the FAA.

The NTSB does not assign fault or blame for an accident or incident; rather, as specified by NTSB regulation, “accident/incident investigations are fact-finding proceedings with no formal issues and no adverse parties ... and are not conducted for the purpose of determining the rights or liabilities of any person” (Title 49 *Code of Federal Regulations* section 831.4). Assignment of fault or legal liability is not relevant to the NTSB’s statutory mission to improve transportation safety by investigating accidents and incidents and issuing safety recommendations. In addition, statutory language prohibits the admission into evidence or use of any part of an NTSB report related to an accident in a civil action for damages resulting from a matter mentioned in the report (Title 49 *United States Code* section 1154(b)). A factual report that may be admissible under 49 *United States Code* section 1154(b) is available [here](#).