



National Transportation Safety Board Aviation Accident Final Report

Location:	Kingman, AZ	Accident Number:	LAX02LA147
Date & Time:	05/01/2002, 1858 PDT	Registration:	N90802
Aircraft:	Air Tractor AT-802A	Aircraft Damage:	Substantial
Defining Event:		Injuries:	1 None

Flight Conducted Under: Part 91: General Aviation - Positioning

Analysis

The airplane ground looped during landing and the left main landing gear strut fractured and separated. The pilot told a Federal Aviation Administration (FAA) inspector that the landing gear strut collapsed unexpectedly, and without warning, during the landing roll, and the airplane ground looped to the right. It was not subjected to an abnormal load during landing and the airplane was relatively light with no chemical load aboard and about 1,300 pounds of fuel. The inspector examined the airplane and said the left landing gear leaf broke inside the saddle. There was rust and beach marks in the fracture face indicative of a pre-existing crack. The FAA inspector said the left landing gear strut, a single spring steel leaf, separated in the shoulder area where the strut enters the saddle at the fuselage skin line. The left landing gear wheel was broken in the outboard flange area and the tire was deflated. The tire exhibited deep radial scratch marks on the outboard side wall. The aileron hinge bracket at the left wing tip was bent inboard and striations on the left wing lower surface were oriented spanwise. The left wing outer half-span was bent upward accompanied by compression wrinkling of the upper wing skin. Examination of the fracture by a metallurgical laboratory revealed that the strut met the manufacturer's chemical, hardness, and materials specifications for the component. The fracture through the strut was characterized by two distinct modes. The first was 0.08 inches in depth and 0.37 inches in width and exhibited features consistent with fatigue. The fatigue crack had multiple initiation sites along the top surface in an area that had fretting damage. The remainder of the fracture face displayed gross overload features. According to the laboratory report, the transverse failure of the strut resulted from an overload condition, with high side and drag loads, well in excess of the design ultimate load for the component.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The failure of the pilot to maintain directional control during landing.

Findings

Occurrence #1: LOSS OF CONTROL - ON GROUND/WATER

Phase of Operation: LANDING - ROLL

Findings

1. (C) DIRECTIONAL CONTROL - NOT MAINTAINED - PILOT IN COMMAND
2. (C) GROUND LOOP/SWERVE - ENCOUNTERED - PILOT IN COMMAND

Occurrence #2: MAIN GEAR COLLAPSED

Phase of Operation: LANDING - ROLL

Findings

3. LANDING GEAR,MAIN GEAR STRUT - OVERLOAD
4. LANDING GEAR,MAIN GEAR STRUT - FRACTURED

Occurrence #3: ON GROUND/WATER ENCOUNTER WITH TERRAIN/WATER

Phase of Operation: LANDING - ROLL

Findings

5. TERRAIN CONDITION - RUNWAY

Factual Information

On May 1, 2000, at 1858 Pacific daylight time, an Air Tractor AT-802A, N90802, main landing gear collapsed during landing roll at the Kingman, Arizona, airport. The airline transport certificated pilot, the sole occupant, was not injured. The airplane was substantially damaged. The flight departed from Eagle Airpark, Bullhead City, Arizona, about 1840. The repositioning flight of the agricultural application aircraft was operated under 14 CFR Part 91 by Eagle Aviation. Visual meteorological conditions prevailed and no flight plan was filed.

The pilot told an inspector from the Federal Aviation Administration (Las Vegas, Nevada) Flight Standards District Office (FSDO) that the landing gear strut collapsed unexpectedly, and without warning, during the landing roll, and the airplane ground looped to the right. It was not subjected to an abnormal load during landing and the airplane was relatively light with no chemical load aboard and about 1,300 pounds of fuel.

The inspector examined the airplane and said the left landing gear leaf broke inside the saddle. There was rust and beach marks in the fracture face indicative of a pre-existing crack. The model year 2000 airplane had about 1,100 hours total flying time and had recently received a 100-hour maintenance inspection; however, the inspector said the area where the crack occurred was difficult to inspect.

The FSDO inspector said the left landing gear strut, a single spring steel leaf, separated in the shoulder area where the strut enters the saddle at the fuselage skin line. The left landing gear wheel was broken in the outboard flange area and the tire was deflated. The tire exhibited deep radial scratch marks on the outboard side wall. The aileron hinge bracket at the left wing tip was bent inboard and striations on the left wing lower surface were oriented spanwise. The left wing outer half-span was bent upward accompanied by compression wrinkling of the upper wing skin.

Examination of the fracture by a metallurgical laboratory revealed that the strut met the manufacturer's chemical, hardness, and materials specifications for the component. The fracture through the strut was characterized by two distinct modes. The first was 0.08 inches in depth and 0.37 inches in width and exhibited features consistent with fatigue. The fatigue crack had multiple initiation sites along the top surface in an area that had fretting damage. The remainder of the fracture face displayed gross overload features. According to the laboratory report, the transverse failure of the strut resulted from an overload condition, with high side and drag loads, well in excess of the design ultimate load for the component. The complete metallurgical report is in the docket for this accident.

Pilot Information

Certificate:	Airline Transport; Commercial	Age:	56, Male
Airplane Rating(s):	Multi-engine Land; Single-engine Land	Seat Occupied:	Single
Other Aircraft Rating(s):	Helicopter	Restraint Used:	Seatbelt, Shoulder harness
Instrument Rating(s):	Airplane; Helicopter	Second Pilot Present:	No
Instructor Rating(s):	None	Toxicology Performed:	No
Medical Certification:	Class 2	Last FAA Medical Exam:	01/01/2002
Occupational Pilot:		Last Flight Review or Equivalent:	05/01/2001
Flight Time:	30000 hours (Total, all aircraft), 200 hours (Total, this make and model), 28000 hours (Pilot In Command, all aircraft), 95 hours (Last 90 days, all aircraft), 40 hours (Last 30 days, all aircraft), 1 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Air Tractor	Registration:	N90802
Model/Series:	AT-802A	Aircraft Category:	Airplane
Year of Manufacture:		Amateur Built:	No
Airworthiness Certificate:	Restricted	Serial Number:	92
Landing Gear Type:	Tailwheel	Seats:	1
Date/Type of Last Inspection:	03/01/2002, Annual	Certified Max Gross Wt.:	9200 lbs
Time Since Last Inspection:	33 Hours	Engines:	1 Turbo Prop
Airframe Total Time:	1107 Hours	Engine Manufacturer:	Pratt & Whitney Canada
ELT:		Engine Model/Series:	PT6-65
Registered Owner:	William R. Dare	Rated Power:	750 hp
Operator:	William R. Dare	Operating Certificate(s) Held:	
Operator Does Business As:	Eagle Aviation	Operator Designator Code:	

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual Conditions	Condition of Light:	Day
Observation Facility, Elevation:	IGM, 3449 ft msl	Distance from Accident Site:	
Observation Time:	1856 MST	Direction from Accident Site:	
Lowest Cloud Condition:	Clear	Visibility	10 Miles
Lowest Ceiling:	None	Visibility (RVR):	
Wind Speed/Gusts:	10 knots /	Turbulence Type Forecast/Actual:	/
Wind Direction:	220°	Turbulence Severity Forecast/Actual:	/
Altimeter Setting:	29.82 inches Hg	Temperature/Dew Point:	17° C / -9° C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Bullhead City, AZ (A09)	Type of Flight Plan Filed:	None
Destination:	Kingman, AZ (IGM)	Type of Clearance:	None
Departure Time:	1840 PDT	Type of Airspace:	

Airport Information

Airport:	Kingman (IGM)	Runway Surface Type:	Asphalt
Airport Elevation:	3449 ft	Runway Surface Condition:	Dry
Runway Used:	21	IFR Approach:	None
Runway Length/Width:	6831 ft / 150 ft	VFR Approach/Landing:	Full Stop

Wreckage and Impact Information

Crew Injuries:	1 None	Aircraft Damage:	Substantial
Passenger Injuries:	N/A	Aircraft Fire:	None
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	1 None	Latitude, Longitude:	35.265833, -113.941111

Administrative Information

Investigator In Charge (IIC):	RICHARD B PARKER	Report Date:	04/25/2006
Additional Participating Persons:	Frank Vavra; Federal Aviation Administration; Las Vegas, NV T Hirsch; Air Tractor, Inc.; Olney, TX		
Publish Date:			
Investigation Docket:	NTSB accident and incident dockets serve as permanent archival information for the NTSB's investigations. Dockets released prior to June 1, 2009 are publicly available from the NTSB's Record Management Division at pubinq@ntsb.gov , or at 800-877-6799. Dockets released after this date are available at http://dms.nts.gov/pubdms/ .		

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