Aviation Investigation Final Report

Location:	Cambridge, Kansas	**Accident Number:**	CHI04CA224
Date & Time:	August 12, 2004, 10:00 Local	**Registration:**	N2353W
Aircraft:	Air Tractor AT-301	**Aircraft Damage:**	Substantial
Defining Event:		**Injuries:**	1 Minor
Flight Conducted Under:	Part 137: Agricultural		

Analysis

The aerial application airplane sustained substantial damage on impact with a tree and terrain during initial climb. The pilot's accident report stated, "When I first powered up the engine, I thought it seemed a bit rough running, but soon it straightened up. I looked down, at the manifold pressure to see if the blower was producing, and it was at 36 inches, which was normal for this aircraft. At this point, I concluded that the engine was okay and seemed to be producing adequate power. The takeoff roll was as I had expected, with rotation and liftoff at about the point it should have been. Then, the AT 301 seemed to settle back to the runway, with the tail wheel hitting first, which put the main gear back on the runway. With this bounce the AT 301 went back into the air, and I thought I was going to carry the load on out. There was no time left at this point to shut down, and I thought it was going to fly. Just after crossing the end of the runway, the plane lost altitude with the left wing catching a tree, which tore off the left aileron and immediately put me on the ground, hitting with the left wing and engine first." An on-scene examination of the wreckage revealed no pre-impact anomalies. The pilot's safety recommendation stated, "If I had an engine analyzer which could have told of a cylinder that was not up to standard - there would not have been any take off attempted. From now on any ag aircraft I fly I will have my left hand resting on the dump on take off."

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The pilot not jettisoning his chemical load during initial climb with the reported loss of airplane performance. Factors were the reported loss of aircraft performance and the tree.

Findings

Occurrence #1: IN FLIGHT COLLISION WITH OBJECT
Phase of Operation: TAKEOFF - INITIAL CLIMB

Findings
1. (F) OBJECT - TREE(S)
2. (C) LOAD JETTISON - NOT PERFORMED - PILOT IN COMMAND
3. (F) AIRCRAFT PERFORMANCE - LOSS,PARTIAL

Factual Information

On August 12, 2004, about 1000 central daylight time, an Air Tractor, AT-301, N2353W, operated by a commercial pilot, sustained substantial damage on impact with a tree and terrain during initial climb from a private airport near Cambridge, Kansas. The aerial application flight was operating under 14 CFR Part 137. Visual meteorological conditions prevailed at the time of the accident. No flight plan was on file. The pilot reported minor injuries. The local flight was originating at the time of the accident.

The pilot's accident report stated:

> When I first powered up the engine, I thought it seemed a bit rough running, but soon it straightened up. I looked down, at the manifold pressure to see if the blower was producing, and it was at 36 inches, which was normal for this aircraft. At this point, I concluded that the engine was okay and seemed to be producing adequate power. The takeoff roll was as I had expected, with rotation and liftoff at about the point it should have been. Then, the AT 301 seemed to settle back to the runway, with the tail wheel hitting first, which put the main gear back on the runway. With this bounce the AT 301 went back into the air, and I thought I was going to carry the load on out. There was no time left at this point to shut down, and I thought it was going to fly. Just after crossing the end of the runway, the plane lost altitude with the left wing catching a tree, which tore off the left aileron and immediately put me on the ground, hitting with the left wing and engine first. The impact spun the aircraft around counterclockwise. The tail hit and the engine came off, which passed through the left wing, severing about 5 - 6 feet off. The plane skidded backwards about 50 feet to a stop, crumpling the tail section. I received minor injuries, and was fully aware during the entire flight.

A Federal Aviation Administration Inspector performed an on-scene examination of the wreckage. No pre-impact anomalies were detected during that examination.

The pilot's safety recommendation stated:

> If I had an engine analyzer which could have told of a cylinder that was not up to standard - there would not have been any take off attempted. From now on any ag aircraft I fly I will have my left hand resting on the dump on take off.

Pilot Information

Certificate:	Commercial	**Age:**	52,Male
Airplane Rating(s):	Single-engine land	**Seat Occupied:**	Center
Other Aircraft Rating(s):	None	**Restraint Used:**	
Instrument Rating(s):	None	**Second Pilot Present:**	
Instructor Rating(s):	None	**Toxicology Performed:**	No
Medical Certification:	Class 2 Valid Medical--w/ waivers/lim	**Last FAA Medical Exam:**	May 6, 2004
Occupational Pilot:	Yes	**Last Flight Review or Equivalent:**	May 15, 2003
Flight Time:	3656 hours (Total, all aircraft), 34 hours (Total, this make and model), 34 hours (Last 90 days, all aircraft), 34 hours (Last 30 days, all aircraft), 4 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Air Tractor	**Registration:**	N2353W
Model/Series:	AT-301	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	
Airworthiness Certificate:	Restricted (Special)	**Serial Number:**	301-0394
Landing Gear Type:	Tailwheel	**Seats:**	1
Date/Type of Last Inspection:	July 15, 2004 Annual	**Certified Max Gross Wt.:**	5000 lbs
Time Since Last Inspection:	40 Hrs	**Engines:**	1 Reciprocating
Airframe Total Time:	3257 Hrs at time of accident	**Engine Manufacturer:**	Pratt & Whitney
ELT:	Not installed	**Engine Model/Series:**	R-1340
Registered Owner:	WARNER AG AIR L C	**Rated Power:**	600 Horsepower
Operator:		**Operating Certificate(s) Held:**	
Operator Does Business As:	Warner Ag Air LLC	**Operator Designator Code:**	W2WG

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	WLD,1160 ft msl	**Distance from Accident Site:**	15 Nautical Miles
Observation Time:	09:45 Local	**Direction from Accident Site:**	220°
Lowest Cloud Condition:		**Visibility**	10 miles
Lowest Ceiling:	Broken / 6000 ft AGL	**Visibility (RVR):**	
Wind Speed/Gusts:	4 knots / 0 knots	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	150°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	30.14 inches Hg	**Temperature/Dew Point:**	18°C / 14°C
Precipitation and Obscuration:			
Departure Point:	Cambridge, KS	**Type of Flight Plan Filed:**	None
Destination:		**Type of Clearance:**	None
Departure Time:	10:00 Local	**Type of Airspace:**	Class G

Wreckage and Impact Information

Crew Injuries:	1 Minor	**Aircraft Damage:**	Substantial
Passenger Injuries:		**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	1 Minor	**Latitude, Longitude:**	37.316665,-96.883331

Administrative Information

Investigator In Charge (IIC):	Malinowski, Edward
Additional Participating Persons:	Verle Engel; Federal Aviation Administration; Wichita, KS
Original Publish Date:	October 28, 2004
Last Revision Date:	
Investigation Class:	Class
Note:	This accident report documents the factual circumstances of this accident as described to the NTSB.
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=59939