



# National Transportation Safety Board Aviation Accident Final Report

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<b>Location:</b>	Viriden, IL	<b>Accident Number:</b>	CEN15LA335
<b>Date &amp; Time:</b>	08/01/2015, 1340 CDT	<b>Registration:</b>	N502LH
<b>Aircraft:</b>	AIR TRACTOR INC AT 502B	<b>Aircraft Damage:</b>	Substantial
<b>Defining Event:</b>	Loss of lift	<b>Injuries:</b>	1 None
<b>Flight Conducted Under:</b>	Part 137: Agricultural		

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## Analysis

The pilot reported that the airplane had just been loaded and that he was beginning his sixth agricultural application flight of the day. He noted that, during the previous flights, the wind was from the southwest-southeast and less than 5 knots. Before departing on the sixth flight, he checked the wind sock, which indicated that the wind was from the southwest. He also checked his handheld GPS, which indicated that the local area wind was mainly from the west at 3 to 5 knots. The pilot started the takeoff roll on the runway heading west and noted that, three-quarters of the way down the runway, the airspeed had not yet reached takeoff speed. He jettisoned some of the load so that the airplane could clear the corn at the end of the runway. When the airplane cleared the corn, the pilot ceased the jettison. However, the airplane then began to descend, so the pilot jettisoned more of the load. The airplane continued to descend, banked hard left, and impacted the ground.

The pilot reported that there were no mechanical malfunctions with the airplane that would have precluded normal operation. The airplane was only about 30 lbs below its maximum gross weight. Witnesses stated that, immediately after the accident, the wind was from the southeast about 6 knots, which would have resulted in a quartering tailwind during the takeoff. It is likely that the combined effects of the airplane's near maximum gross weight and the quartering tailwind degraded the airplane's climb performance during takeoff.

## Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The pilot's failure to establish a proper airspeed during takeoff with the airplane near its maximum gross weight and with a quartering tailwind.

## Findings

<b>Aircraft</b>	Takeoff distance - Capability exceeded (Cause) Climb rate - Not attained/maintained (Cause) Maximum weight - Not specified (Cause)
<b>Personnel issues</b>	Use of checklist - Pilot (Cause)
<b>Environmental issues</b>	Tailwind - Effect on operation (Cause)

## Factual Information

On August 1, 2015, at 1340 central daylight time, an Air Tractor AT-502B airplane, N502LH, impacted terrain after departure from the private Holzwarth Flying Service Airport, near Virden, Illinois. The commercial pilot, who was the sole occupant, was not injured. The airplane sustained substantial damage. The airplane was registered to and operated by C & L Holzwarth Inc., Virden, Illinois, under the provisions of 14 Code of Federal Regulations Part 137 as an aerial application flight. Visual meteorological conditions prevailed and no flight plan was filed. The flight was originating at the time of the accident.

According to the pilot, the airplane had just been loaded and he was beginning his sixth aerial application flight of the day. He noted that during the previous flights the wind was from the southwest/southeast and less than 5 knots. Prior to departure, he checked the wind sock which indicated the wind was from the southwest. He also checked his handheld GPS which indicated the local area winds were mainly from the west at 3-5 knots. The pilot started the takeoff roll on the west runway and noted that  $\frac{3}{4}$  of the way down the runway the airspeed had not yet reached takeoff speed. He jettisoned some of the load in order to clear the corn at the west end of the runway. When the airplane cleared the corn, the pilot ceased the jettison. The airplane began to descend so the pilot resumed jettisoning the load. The airplane continued to descend, made a hard left bank and impacted the ground. The pilot reported that there were no mechanical malfunctions with the airplane that would have precluded normal operation.

The pilot returned to the airport by car 15 minutes after the accident and checked the wind sock which revealed the wind was from the southeast. The pilot was uncertain if the wind shifted during the accident takeoff roll.

The responding Federal Aviation Administration (FAA) inspector confirmed substantial damage to the fuselage, both wings and empennage. The airplane came to rest in the corn field; it faced 180 degrees from the direction of departure heading and 1,200 feet from the end of the runway. Witnesses confirmed that immediately after the accident the wind was from the southeast about 6 knots. Also, the airplane was being operated within the weight limits. The maximum hopper load was 4,100 lbs; the hopper weight was 3,897.42 lbs. The maximum aircraft gross weight was 9,400 lbs; the actual airplane gross weight was 9,367 lbs.

The airport was equipped with a single asphalt runway, 2,640 ft by 100 ft, oriented on a magnetic heading of 090 and 270.

## History of Flight

Takeoff	Collision with terr/obj (non-CFIT)
	Loss of lift (Defining event)
	Other weather encounter
	Attempted remediation/recovery
	Loss of control in flight

## Pilot Information

<b>Certificate:</b>	Commercial	<b>Age:</b>	60
<b>Airplane Rating(s):</b>	Single-engine Land	<b>Seat Occupied:</b>	Single
<b>Other Aircraft Rating(s):</b>	Helicopter	<b>Restraint Used:</b>	
<b>Instrument Rating(s):</b>	Airplane; Helicopter	<b>Second Pilot Present:</b>	No
<b>Instructor Rating(s):</b>	None	<b>Toxicology Performed:</b>	No
<b>Medical Certification:</b>	Class 2 With Waivers/Limitations	<b>Last Medical Exam:</b>	09/18/2014
<b>Occupational Pilot:</b>	Yes	<b>Last Flight Review or Equivalent:</b>	03/17/2014
<b>Flight Time:</b>	11710 hours (Total, all aircraft), 430 hours (Total, this make and model), 11576 hours (Pilot In Command, all aircraft), 290 hours (Last 90 days, all aircraft), 137 hours (Last 30 days, all aircraft), 7 hours (Last 24 hours, all aircraft)		

## Aircraft and Owner/Operator Information

<b>Aircraft Manufacturer:</b>	AIR TRACTOR INC	<b>Registration:</b>	N502LH
<b>Model/Series:</b>	AT 502B	<b>Aircraft Category:</b>	Airplane
<b>Year of Manufacture:</b>		<b>Amateur Built:</b>	No
<b>Airworthiness Certificate:</b>	Restricted	<b>Serial Number:</b>	502B-2693
<b>Landing Gear Type:</b>	Tailwheel	<b>Seats:</b>	1
<b>Date/Type of Last Inspection:</b>	07/28/2015, 100 Hour	<b>Certified Max Gross Wt.:</b>	9400 lbs
<b>Time Since Last Inspection:</b>		<b>Engines:</b>	Turbo Prop
<b>Airframe Total Time:</b>	2254 Hours	<b>Engine Manufacturer:</b>	Pratt & Whitney
<b>ELT:</b>	Not installed	<b>Engine Model/Series:</b>	PT6A-34A
<b>Registered Owner:</b>	C & L HOLZWARth INC	<b>Rated Power:</b>	750 hp
<b>Operator:</b>	C & L HOLZWARth INC	<b>Air Carrier Operating Certificate:</b>	Agricultural Aircraft (137)

## Meteorological Information and Flight Plan

Observation Facility, Elevation:		Observation Time:	CDT
Distance from Accident Site:		Condition of Light:	Day
Direction from Accident Site:		Conditions at Accident Site:	Visual Conditions
Lowest Cloud Condition:	Clear	Temperature/Dew Point:	27° C
Lowest Ceiling:	None	Visibility	10 Miles
Wind Speed/Gusts, Direction:	4 knots, 230°	Visibility (RVR):	
Altimeter Setting:		Visibility (RVV):	
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	VIRDEN, IL (25IL)	Type of Flight Plan Filed:	None
Destination:	VIRDEN, IL (25IL)	Type of Clearance:	None
Departure Time:	1340 CDT	Type of Airspace:	Class G

## Airport Information

Airport:	HOLZWARTH FLYING SERVICE (25IL)	Runway Surface Type:	Asphalt
Airport Elevation:	680 ft	Runway Surface Condition:	Dry
Runway Used:	27	IFR Approach:	None
Runway Length/Width:	2640 ft / 100 ft	VFR Approach/Landing:	None

## 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		

## Administrative Information

Investigator In Charge (IIC):	Joshua D Lindberg	Adopted Date:	01/05/2016
Additional Participating Persons:	Stanley Swank; FAA; Springfield, IL		
Publish Date:	01/05/2016		
Note:	The NTSB did not travel to the scene of this accident.		
Investigation Docket:	<a href="http://dms.nts.gov/pubdms/search/dockList.cfm?mKey=91708">http://dms.nts.gov/pubdms/search/dockList.cfm?mKey=91708</a>		

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