



Aviation Investigation Final Report

Location:	Kilbourne, Louisiana	Accident Number:	CEN16LA154
Date & Time:	April 18, 2016, 09:10 Local	Registration:	N301LA
Aircraft:	AIR TRACTOR INC AT 502	Aircraft Damage:	Destroyed
Defining Event:	Loss of control in flight	Injuries:	1 Fatal
Flight Conducted Under:	Part 137: Agricultural		

Analysis

The commercial pilot was conducting his second spray load application of the day to a field located about 1/4 mile north of the accident site. A farmer stated that the pilot's last passes were to finish up spraying a tight area of the field that had trees at the end. A witness near the accident site saw the airplane turning at low altitude and then rapidly descending until ground impact.

Postaccident examination of the wreckage and ground scars revealed that the airplane impacted terrain in a steep, nose-down attitude with low groundspeed, consistent with an aerodynamic stall. Examination of the airframe and engine revealed no evidence of any preimpact mechanical malfunctions or failures that would have precluded normal operation.

The pilot had hypertension and left ventricular hypertrophy (LVH). However, the investigation was unable to determine whether the pilot's underlying hypertension and LVH might have contributed to the accident.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be:

The pilot's failure to maintain adequate airspeed and his exceedance of the airplane's critical angle of attack during a turn, which resulted in an aerodynamic stall and loss of airplane control at too low of an altitude for a safe recovery.

Findings

Personnel issues	Aircraft control - Pilot
Aircraft	Airspeed - Not attained/maintained
Aircraft	Angle of attack - Not attained/maintained

Factual Information

History of Flight

Maneuvering-low-alt flying	Loss of control in flight (Defining event)
Uncontrolled descent	Collision with terr/obj (non-CFIT)

On April 18, 2016, about 0910 central daylight time, an Air Tractor Inc AT-502 airplane, N301LA, impacted terrain during spray operations near Kilbourne, Louisiana. The pilot was fatally injured, and the airplane was destroyed. The airplane was registered to and operated by Pioneer Flying Service, Inc., under the provisions of *Title 14 Code of Federal Regulations Part 137* as an aerial application flight. Day visual meteorological conditions prevailed for the flight, with no flight plan filed. The local flight departed a private airport about 0900.

According to operator personnel, the pilot was conducting his second load of spray operations for the day to the same farm area, which was about ¼ mile north of the accident site. A witness near the accident noticed the airplane enter a rapid descent while in a turn until it impacted the ground. A post-crash fire ensued.

The farmer whose field was being sprayed stated the pilot was "dressing up" a field, which had a tight area shaped like a bull nose, with trees at the end. The farmer did not witness the accident. He remarked the pilot was able to spray tight areas of fields that other pilots elected not to spray.

Pilot Information

Certificate:	Commercial	Age:	48, Male
Airplane Rating(s):	Single-engine land	Seat Occupied:	Front
Other Aircraft Rating(s):	None	Restraint Used:	Unknown
Instrument Rating(s):	None	Second Pilot Present:	No
Instructor Rating(s):	None	Toxicology Performed:	Yes
Medical Certification:	Class 2 With waivers/limitations	Last FAA Medical Exam:	June 1, 2015
Occupational Pilot:	Yes	Last Flight Review or Equivalent:	March 15, 2016
Flight Time:	(Estimated) 13261 hours (Total, all aircraft), 2463 hours (Total, this make and model), 13261 hours (Pilot In Command, all aircraft), 100 hours (Last 90 days, all aircraft), 50 hours (Last 30 days, all aircraft), 2 hours (Last 24 hours, all aircraft)		

The pilot, age 48, held a commercial pilot certificate with an airplane single-engine land rating. The pilot held a second-class medical certificate issued on June 1, 2015, with the restriction that he must wear corrective lenses for near vision. The date of his last flight review was March 15, 2016.

Aircraft and Owner/Operator Information

Aircraft Make:	AIR TRACTOR INC	Registration:	N301LA
Model/Series:	AT 502	Aircraft Category:	Airplane
Year of Manufacture:	1989	Amateur Built:	
Airworthiness Certificate:	Restricted (Special)	Serial Number:	502-0037
Landing Gear Type:	Tailwheel	Seats:	1
Date/Type of Last Inspection:	February 17, 2016 Annual	Certified Max Gross Wt.:	9400 lbs
Time Since Last Inspection:		Engines:	1 Turbo prop
Airframe Total Time:	9585 Hrs at time of accident	Engine Manufacturer:	Pratt and Whitney
ELT:	Not installed	Engine Model/Series:	PT6A-34G
Registered Owner:	Pioneer Flying Service	Rated Power:	750 Horsepower
Operator:	PIONEER FLYING SERVICE INC	Operating Certificate(s) Held:	Agricultural aircraft (137)
Operator Does Business As:		Operator Designator Code:	JQBG

The single-engine low-wing conventional-gear airplane was equipped with a Pratt and Whitney PT6A-34AG turbo-prop engine. According to the operator, the last annual inspection was performed on February 17, 2016. The airframe total time was 9,585 hours and the engine total time was 7,022 hours, with 445 hours since the last hot section inspection.

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	Condition of Light:	Day
Observation Facility, Elevation:	KBQP, 167 ft msl	Distance from Accident Site:	32 Nautical Miles
Observation Time:	09:15 Local	Direction from Accident Site:	243°
Lowest Cloud Condition:	Clear	Visibility	10 miles
Lowest Ceiling:	None	Visibility (RVR):	
Wind Speed/Gusts:	4 knots / None	Turbulence Type Forecast/Actual:	/
Wind Direction:	80°	Turbulence Severity Forecast/Actual:	/
Altimeter Setting:	30.23 inches Hg	Temperature/Dew Point:	19°C / 15°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Pioneer, LA (PRI)	Type of Flight Plan Filed:	None
Destination:	Pioneer, LA (PRI)	Type of Clearance:	None
Departure Time:	09:00 Local	Type of Airspace:	Class G

At 0915, the weather observation station at Morhouse Memorial Airport (BQP), Bastrop, Louisiana, located about 32 miles southwest of the accident site, reported the following conditions: wind 080 degrees at 4 knots, 10 miles visibility, clear skies, temperature 19°C, dew point 15°C, altimeter setting 30.24 inches of mercury.

Wreckage and Impact Information

Crew Injuries:	1 Fatal	Aircraft Damage:	Destroyed
Passenger Injuries:		Aircraft Fire:	On-ground
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	1 Fatal	Latitude, Longitude:	32.999721,-91.315002

The airplane impacted a soft open field. Other than a set of electrical lines, no obstacles were in the immediate area of the wreckage. The wreckage had no signs of an in-flight impact with wires, trees, or other obstacles. The wooded area toward the sprayed field was searched for broken branches or other signs of tree impact, with none observed.

The wreckage was confined to the immediate vicinity of the impact site. The impact crater contained pieces of engine cowling, windshield plexiglass, and the hopper top and lid. The engine penetrated about 3 ft deep into the soft soil. Radiating from the crater were impressions in the soil, consistent with impact marks from the leading edge of both wings. The wings were located about 10 feet away from these impressions. Both wings were crushed aft, with the left wing receiving more damage than the right wing. The aft fuselage and rudder showed signs of momentum toward the left side of the airplane. The ground impact markings and wreckage were consistent with a steep, nose down impact at low groundspeed. The fuselage was mostly destroyed by impact forces and a post-crash fire.

All control surfaces were located and identified, except for the vertical stabilizer. The only piece of the vertical stabilizer that was located was a short piece of the stabilizer rear spar that remained attached to the lower portion of the rudder. The lower hinge point of the rudder was found fully intact with minimal damage. The end of the wire deflector cable that was attached to the top of the stabilizer was found underneath the cockpit wreckage. Multiple pieces of fire-damaged aluminum were identified as possible vertical stabilizer components, but none could be confirmed. A witness mark was observed on the top fuselage skin that corresponded to the shape of the vertical stabilizer's leading edge.

The wings flaps were in the full up position. Flight control continuity was confirmed to the extent possible, with several components consumed by the fire or cut by emergency response personnel during the pilot's extrication. The aileron/rudder interconnect system, which is a system of cables that connect the rudder pedals to the aileron controls to assist the pilot with coordinated flight, had been removed from the airplane.

The engine was damaged by the post-crash fire, with the inlet case fractured, causing complete separation of the accessories gearbox from the engine. Rotational signatures were observed throughout the compressor and power turbines and adjacent static components, consistent with the engine rotating under power during impact. There was no evidence of pre-impact anomalies of the engine, airframe, or propeller.

Due to fire damage, data from a GPS unit found in the wreckage could not be downloaded.

Medical and Pathological Information

During his last FAA medical examination, the pilot reported heterophoria (cross-eyes), previous treatment for a kidney stone, and long-standing hypertension. He also reported using nisoldipine, valsartan, and hydrochlorothiazide, commonly sold with the names Sular and Diovan-HCT. Used to treat his blood pressure, none of these medications are generally considered impairing.

According to the autopsy report from the West Carroll Parish Coroner's Office in Oak Grove, Louisiana, the cause of death was multiple blunt force injuries and the manner of death was accident. The heart weighed 550 grams and was enlarged due to concentric left ventricular hypertrophy (LVH). The left wall of the ventricle was reported as 1.8 cm thick; measurements in other areas were not reported. Average for a man with the pilot's weight of 282 pounds is 443 grams with a range of 335-584 grams; average left ventricular wall thickness is about 1.3 cm. LVH is commonly caused by longstanding hypertension. Toxicology performed by the FAA's Bioaeronautical Sciences Research Laboratory identified valsartan in urine and cavity blood. Valsartan is described above.

Administrative Information

Investigator In Charge (IIC):	Folkerts, Michael
Additional Participating Persons:	Shawn Crump; Flight Standards District Office; Baton Rouge, LA Kyle Schroeder; Air Tractor, Inc; Olney, TX Marc Gratton; Pratt & Whitney Canada Corp.; Longueuil
Original Publish Date:	June 5, 2018
Last Revision Date:	
Investigation Class:	Class
Note:	The NTSB did not travel to the scene of this accident.
Investigation Docket:	https://data.nts.gov/Docket?ProjectID=93025

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](#).