National Transportation Safety Board
Aviation Accident Preliminary Report

Location:	Grant, NE	**Accident Number:**	CEN20LA306
Date & Time:	July 25, 2020, 11:36 Local	**Registration:**	N502KJ
Aircraft:	Air Tractor AT502	**Injuries:**	1 Fatal
Flight Conducted Under:	Part 137: Agricultural		

On July 25, 2020, about 1136 mountain daylight time, an Air Tractor AT-502B airplane, N502KJ, was substantially damaged when it was involved in an accident near Grant, Nebraska. The pilot was fatally injured. The airplane was operated as a Title 14 *Code of Federal Regulations* (CFR) Part 137 agricultural flight.

According to the airplane operator, the pilot was flying an aerial application flight at the time of the accident. The track data downloaded from the airplane's Satloc GPS guidance system showed most of the flight. At 1108, the airplane departed runway 33 at Grant Municipal Airport (GGF), Grant, Nebraska, and then flew southbound to the field to be sprayed. After arriving over the field, the pilot completed several orbits of the field before he began spraying the field using a series of east/west flight paths.

According to the recovered track data (Figure 1), the pilot entered a climbing left turn after each spray pass, with the airplane routinely climbing 400-500 ft during a course reversal turn. The airplane's average ground speed during the spray passes ranged between 155 and 165 mph, and the ground speed decreased to between 104 and 120 mph during each course reversal turn (Figure 2). At 1136:48, the final recorded track point showed the airplane climbing on a west heading near the end of a spray pass at the north edge of the field. The airplane's final ground speed and altitude above ground level (agl) were 152 mph and 70 ft agl, respectively. According to a Satloc representative, the GPS guidance system had a 6 second delay between data acquisition and when the data was saved to non-volatile memory. The final position report was located about ¼ mile northeast of the accident site.

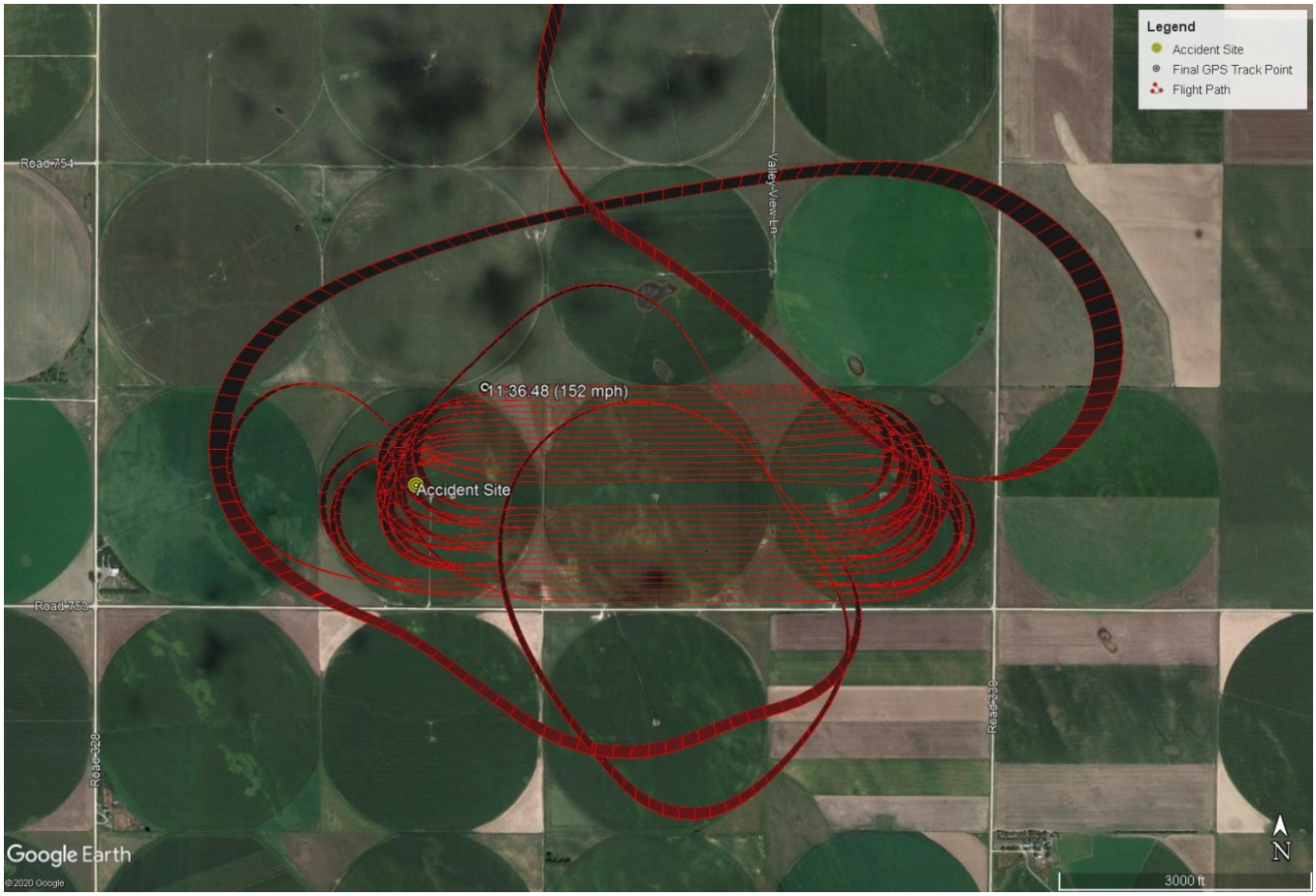

Figure 1: Plot of GPS Track Data

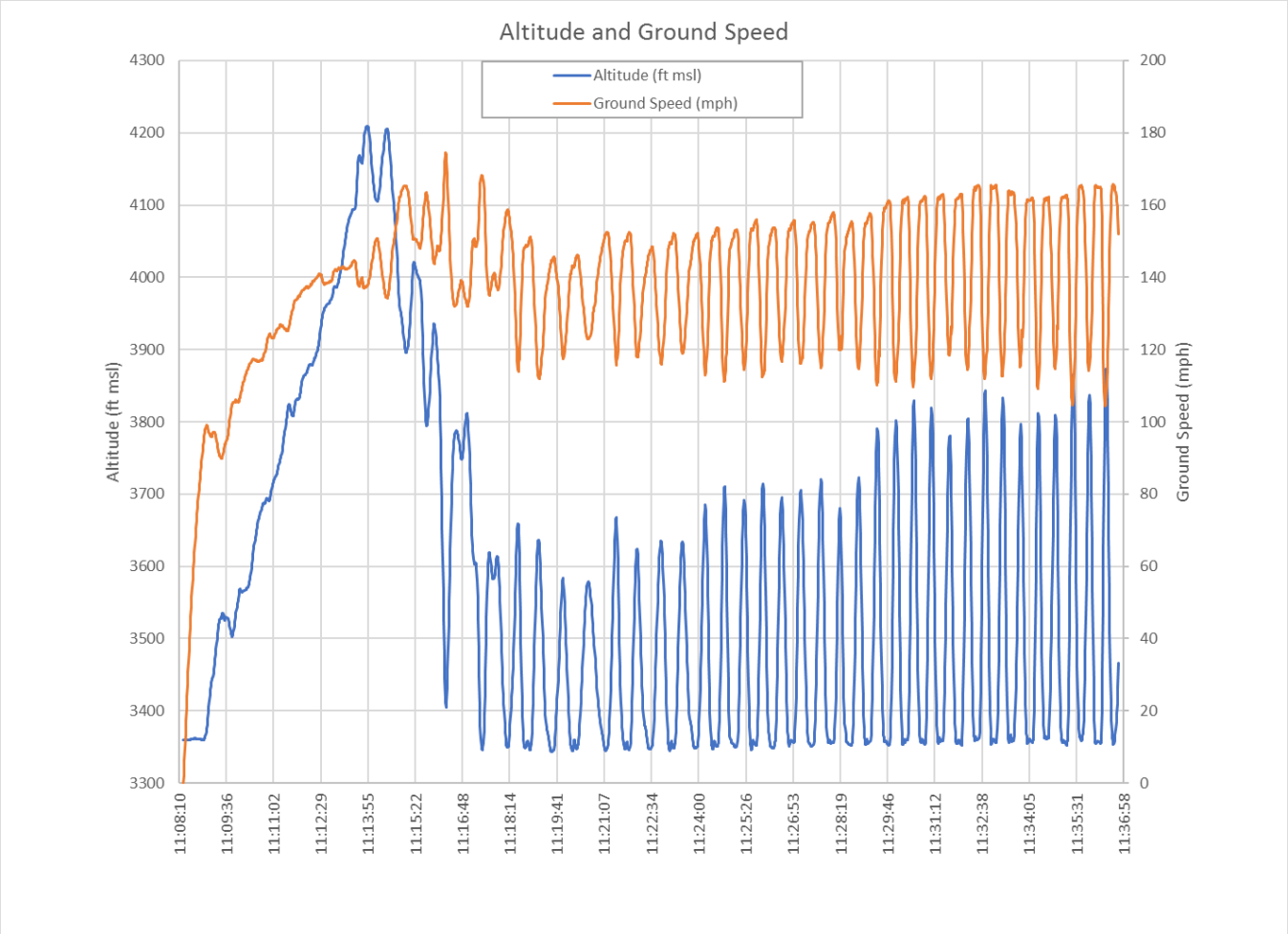

Figure 2: Plot of Altitude and Ground Speed

A pilot of another agricultural airplane was operating in a nearby field when the accident occurred. He reported that he and the accident pilot had maintained radio contact throughout their respective flights using a common traffic advisory frequency. The pilot reported that the accident airplane consistently climbed 450-500 ft agl during its course reversal turns following each spray pass. The pilot stated that the last time he saw the accident airplane it was flying westbound in a climb before it rolled right into a 90°-100° bank turn with a nose-high pitch angle of 10°-12° above the horizon. The pilot stated that the accident airplane was turning toward north as the nose of the airplane pitched down through the horizon, consistent with a Lazy Eight flight maneuver. The pilot stated that he lost visual contact with the accident airplane when he entered a left turn at the end of a spray pass. After completing several additional spray passes, the pilot was unable to contact the accident pilot over the radio and subsequently spotted the airplane wreckage in the cornfield (Figure 3) as he was returning to GGF.

Figure 3: Aerial Photo Taken of Accident Site

The accident site was in a cornfield located about 8.7 miles south-southeast of GGF. According to a Federal Aviation Administration inspector and an Air Tractor accident investigator who responded to the accident site, the airplane impacted terrain in a nose down pitch attitude. The corn stalks immediately surrounding the accident site exhibited damage consistent with a 45° nose down flight path angle. There were no ground impacts or a discernable debris path preceding the wreckage. The airplane was found upright with significant impact damage to the forward fuselage and the leading edge of both wings.

The fuselage was oriented on an east-southeast heading. The aft fuselage and empennage exhibited minor impact-related damage. Both wing fuel tanks had ruptured during impact, and the odor of Jet-A fuel was present at the accident site. Flight control continuity could not be established due to damage; however, all observed separations were consistent with impact-related damage. The flap actuator measured 2.125 inches and was consistent with a 20° flap extension at impact. The aileron drooping system was continuous from the flap torque tube to the aileron bellcrank support assembly. Both landing gear legs had separated from the fuselage during impact. The engine and the propeller were found buried

about 3 ft below ground level. The postaccident examination did not reveal any anomalies that would have precluded normal airplane operation during the flight.

Figure 4: Overview Photo of Main Wreckage at Accident Site

Aircraft and Owner/Operator Information

Aircraft Make:	Air Tractor	**Registration:**	N502KJ
Model/Series:	AT502 B	**Aircraft Category:**	Airplane
Amateur Built:	No		
Operator:		**Operating Certificate(s) Held:**	Agricultural aircraft (137)
Operator Designator Code:			

Meteorological Information and Flight Plan

Conditions at Accident Site:	VMC	**Condition of Light:**	Day
Observation Facility, Elevation:	IML,3276 ft msl	**Observation Time:**	11:53 Local
Distance from Accident Site:	15 Nautical Miles	**Temperature/Dew Point:**	30°C /19°C
Lowest Cloud Condition:	Clear	**Wind Speed/Gusts, Direction:**	/ ,
Lowest Ceiling:	None	**Visibility:**	10 miles
Altimeter Setting:	29.98 inches Hg	**Type of Flight Plan Filed:**	Company VFR
Departure Point:	Grant, NE (GGF)	**Destination:**	Grant, NE (GGF)

Wreckage and Impact Information

Crew Injuries:	1 Fatal	**Aircraft Damage:**	Substantial
Passenger Injuries:		**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	1 Fatal	**Latitude, Longitude:**	40.747222,-101.709999

Administrative Information

Investigator In Charge (IIC):	Fox, Andrew
Additional Participating Persons:	Steve Rasmussen; Federal Aviation Administration, Lincoln FSDO; Lincoln, NE Dakota Lowe; Air Tractor; Olney, TX Kurt Franklin; Aurora Cooperative Elevator Company; Aurora, NE
Note:	The NTSB did not travel to the scene of this accident.