Aviation Investigation Final Report

Location:	Oshkosh, Wisconsin	**Accident Number:**	CEN16LA293
Date & Time:	July 30, 2016, 11:47 Local	**Registration:**	N6271X
Aircraft:	BOAM LARRY RANS S 7	**Aircraft Damage:**	Substantial
Defining Event:	Loss of control in flight	**Injuries:**	1 None
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

The sport pilot reported that during taxi before taking off for the airshow, he was trying to get the airplane set up for takeoff. Shortly after he began his takeoff roll and as he rotated the airplane, the airplane's nose pitched up into a high attitude. He applied forward pressure to the control stick, and the airplane began to drift to the left. Because the left side of the runway was bordered with airshow spectators, the pilot made an abrupt turn to the right, which resulted in an aerodynamic stall. Subsequently, the airplane impacted terrain on the west side of the runway and sustained substantial damage to the wing struts and fuselage.

The pilot stated that he felt rushed and anxious given the number of airplanes trying to land and take off.

Postaccident examination of the airplane revealed flight control continuity, and no preimpact mechanical failures or malfunctions were identified that would have precluded normal operation. Although the aft baggage compartment contained 10 lbs of baggage more than the maximum limit, according to weight and balance calculations, the airplane's takeoff weight was below the maximum, and the aft center of gravity was within normal limits.

The pilot had been diagnosed with Crohn's disease, low back pain, insomnia, and Parkinson's disease and was taking sleep-inducing medications at the time of the accident. Given the circumstances of the accident and the pilot's ability to recall events including the crash itself, it is unlikely that he suffered a sudden period of sleep induced by the medications. Further, it could not be determined if the pilot's medical issues 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 airplane control on takeoff, which resulted in his remedial action to induce an aerodynamic stall and the subsequent impact with terrain.

Findings

Personnel issues	Aircraft control - Pilot

Factual Information

History of Flight

Takeoff	Loss of control in flight (Defining event)
Takeoff	Aerodynamic stall/spin
Emergency descent	Collision with terr/obj (non-CFIT)

On July 30, 2016, about 1147 central daylight time, a Rans S7 airplane, N6271X, impacted terrain shortly after takeoff from the Wittman Regional Airport (KOSH), Oshkosh, Wisconsin. The airplane sustained substantial damage to the wing struts and fuselage, and the sport pilot was not injured. The airplane was privately registered and operated under the provisions of Title 14 *Code of Federal Regulations* Part 91 as a personal flight. Day visual meteorological conditions prevailed for the flight, and no flight plan was filed.

The pilot stated that after camping for a few days at the Experimental Aircraft Association's AirVenture, he decided to head to Ames, Iowa. He finished packing and preflighted the outside of the airplane, but not the inside. After the preflight and engine start sequence, he ground maneuvered his airplane to indicate he was ready to depart, and a flight line marshal came to his airplane to escort him out of the parking area. The pilot stated that during taxi, the tailwheel of the airplane seemed to have some trouble tracking, giving the brakes "a real work out, and causing his airplane to run slower than the other aircraft." The pilot stated that while taxiing, he was also trying to get the airplane set-up for takeoff.

The pilot was cleared for takeoff from runway 36, and he accelerated the engine to full throttle. He reported that during the takeoff roll, "the tail came up, the gear got soft," and he put back pressure on the stick. He reported that "something was very wrong" as the nose pitched up into a high attitude that was indicative of a stall. The pilot pushed forward on the stick, and the airplane began to drift left. He saw the people on the flight line, airplanes on the taxiway and made the decision to make an abrupt turn to the right to cause an aerodynamic stall. The airplane impacted the ground on the west side of the runway.

The pilot reported feeling very rushed and anxious because of all the timing issues given the number of people trying to land and takeoff. He reported that it would have been helpful to complete an "in cabin" preflight checklist prior to takeoff.

Examination of the airplane after the accident by the National Transportation Safety Board (NTSB) investigator-in-charge and a Federal Aviation Administration (FAA) inspector revealed flight control continuity was established to all controls. The elevator trim was found in the takeoff position. All items in the airplane were weighed, and the airplane weight and balance was calculated with a takeoff weight of 1,049 lbs; the maximum takeoff weight was 1,200 lbs. The airplane center of gravity was 77.8 inches; the airplane's center of gravity envelope was 74 to 81-inches. The baggage area weight was 60 lbs which was above the placarded "maximum baggage 50 LBS."

The pilot reported and the examination revealed there were no preimpact mechanical malfunctions or failures with the airframe or engine that would have precluded normal operation.

The pilot was color blind, and had been diagnosed with Crohn's disease, low back pain, insomnia as well as Parkinson's disease. His last FAA airman medical certificate was issued in 1972. According to his personal medical records, his medications at the time of the accident included baby aspirin, a combination of diphenhydramine and acetaminophen at night for sleep, mesalamine for the Crohn's disease, rasagiline mesylate, pramipexole, a combination of carbidopa and levodopa, and amantadine for his Parkinson's disease. Sudden periods of sleep may be caused by 4 of these medications. Finally, he was using a 1% solution of atropine orally to treat excessive drooling as needed. The musculoskeletal symptoms including tremor and rigidity of his Parkinson's were somewhat alleviated but not eliminated by his use of medications; in April 2016, his score on the motor portion of the Unified Parkinson's Disease Rating Scale was 18. In addition, his health care provider documented that his tremors became worse when he was nervous and that he was beginning to have some mild cognitive issues. No post-accident toxicology testing was performed.

Two of the pilot's medications were medically disqualifying for an FAA airman medical certification because they depress the central nervous system. However, a sport pilot is not required to hold a FAA airman medical certificate and can use a U.S. driver's license to meet the medical requirements. When using a U.S. driver's license, the sport pilot must self-certify that they "do not know or have reason to know of any medical condition that would make that person unable to operate a light-sport aircraft in a safe manner." Therefore, the FAA is not involved with medical disqualification when a U.S. driver's license is used in lieu of an FAA airman medical certificate.

Pilot Information

Certificate:	Sport Pilot	**Age:**	72,Male
Airplane Rating(s):	Single-engine land	**Seat Occupied:**	Front
Other Aircraft Rating(s):	None	**Restraint Used:**	3-point
Instrument Rating(s):	None	**Second Pilot Present:**	No
Instructor Rating(s):	None	**Toxicology Performed:**	No
Medical Certification:	Sport pilot	**Last FAA Medical Exam:**	
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	July 18, 2016
Flight Time:	464 hours (Total, all aircraft), 291 hours (Total, this make and model), 464 hours (Pilot In Command, all aircraft), 33 hours (Last 90 days, all aircraft), 25 hours (Last 30 days, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	BOAM LARRY	**Registration:**	N6271X
Model/Series:	RANS S 7	**Aircraft Category:**	Airplane
Year of Manufacture:	1997	**Amateur Built:**	Yes
Airworthiness Certificate:	Experimental (Special)	**Serial Number:**	0196170
Landing Gear Type:	Tailwheel	**Seats:**	2
Date/Type of Last Inspection:	April 10, 2016 Annual	**Certified Max Gross Wt.:**	
Time Since Last Inspection:		**Engines:**	1 Reciprocating
Airframe Total Time:	1191.7 Hrs at time of accident	**Engine Manufacturer:**	Rotax
ELT:	Not installed	**Engine Model/Series:**	912UL
Registered Owner:	On file	**Rated Power:**	80 Horsepower
Operator:	On file	**Operating Certificate(s) Held:**	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	KOSH,782 ft msl	**Distance from Accident Site:**	0 Nautical Miles
Observation Time:	16:53 Local	**Direction from Accident Site:**	6°
Lowest Cloud Condition:	Clear	**Visibility**	10 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	9 knots / None	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	80°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	30.04 inches Hg	**Temperature/Dew Point:**	24°C / 14°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Oshkosh, WI (OSH)	**Type of Flight Plan Filed:**	None
Destination:	Ames, IA (AMW)	**Type of Clearance:**	None
Departure Time:	11:45 Local	**Type of Airspace:**	Class D

Airport Information

Airport:	WITTMAN RGNL OSH	**Runway Surface Type:**	Concrete
Airport Elevation:	808 ft msl	**Runway Surface Condition:**	Dry
Runway Used:	36	**IFR Approach:**	None
Runway Length/Width:	8002 ft / 150 ft	**VFR Approach/Landing:**	None

Wreckage and Impact Information

Crew Injuries:	1 None	**Aircraft Damage:**	Substantial
Passenger Injuries:		**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	1 None	**Latitude, Longitude:**	43.980278,-88.557502(est)

Administrative Information

Investigator In Charge (IIC):	Liedler, Courtney
Additional Participating Persons:	Daniel R Oskar; FAA; Milwaukee, WI
Original Publish Date:	April 13, 2020
Last Revision Date:	
Investigation Class:	Class
Note:	The NTSB did not travel to the scene of this accident.
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=93716

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.