Aviation Investigation Final Report

Location:	Newark, Illinois	**Accident Number:**	CHI07LA157
Date & Time:	May 27, 2007, 19:00 Local	**Registration:**	N743RP
Aircraft:	Purvis Rans S6S	**Aircraft Damage:**	Substantial
Defining Event:		**Injuries:**	1 Fatal
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

The sport pilot purchased the airplane a month prior to the accident. Witnesses reported seeing the airplane takeoff. They reported that just after liftoff, the nose of the airplane went straight up and the airplane climbed to an altitude of 100 to 200 feet above the runway. One witness stated the airplane was in a 90-degree nose up attitude. They stated the airplane then drifted to the left and stalled. The witnesses reported the pilot made no visible attempt to recover from the stall. The airplane impacted the terrain off the left side of the runway. Examination of the wreckage estabilshed engine and flight control continuity. The pilot contacted the aircraft builder shortly before the accident stating that he did not like the digital instruments that were installed in the airplane. The pilot discussed installing airspeed and altimeter gauges. Inspection of the airplane revealed that airspeed and altimeter gauges had been installed in the airplane. The altimeter was installed, but had not been connected to the static port. The line connection on the back of the altimeter was capped with a plastic plug. The airspeed indicator was connected to the static port only. The instrument panel cutouts were found in the pilot's hangar. The pilot's logbook showed he had 155 hours of ultralight flight time and 42 hours of flight time in light sport airplanes. The logbook showed he had a total of 1.5 hours of flight time in the accident airplane.

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 control of the airplane which resulted in inadequate airspeed and a subsequent stall. Contributing to the accident were the pilot's improper installation of the altimeter and airspeed indicator which rendered them inoperative and his lack of experience in the airplane.

Findings

Occurrence #1: LOSS OF CONTROL - IN FLIGHT
Phase of Operation: TAKEOFF - INITIAL CLIMB

Findings
1. (F) FLIGHT/NAV INSTRUMENTS,ALTIMETER - INOPERATIVE
2. (F) FLIGHT/NAV INSTRUMENTS,AIRSPEED INDICATOR - INOPERATIVE
3. (F) MAINTENANCE,INSTALLATION - IMPROPER - PILOT IN COMMAND
4. (C) AIRCRAFT CONTROL - NOT MAINTAINED - PILOT IN COMMAND
5. (F) LACK OF TOTAL EXPERIENCE IN TYPE OF AIRCRAFT - PILOT IN COMMAND
6. (C) AIRSPEED - INADEQUATE - PILOT IN COMMAND
7. (C) REMEDIAL ACTION - NOT PERFORMED - PILOT IN COMMAND
8. (C) STALL - INADVERTENT - PILOT IN COMMAND

Occurrence #2: IN FLIGHT COLLISION WITH TERRAIN/WATER
Phase of Operation: DESCENT - UNCONTROLLED

Findings
9. TERRAIN CONDITION - GROUND

Factual Information

HISTORY OF FLIGHT

On May 27, 2007, at 1900 central daylight time, an amateur-built sport Purvis Rans S6S, N743RP, collided with the terrain following a loss of control during takeoff from a grass airstrip at Cushing Field (0C8), Newark, Illinois. The sport pilot was fatally injured. The airplane was substantially damaged. The 14 Code of Federal Regulations Part 91 personal flight was operating in visual meteorological conditions without a flight plan. The flight was originating at the time of the accident.

Witnesses stated the pilot taxied the airplane to runway 18 and performed a run-up prior to applying what sounded like full power for takeoff. They stated that just after liftoff, the nose of the airplane went straight up and the airplane climbed to an altitude of 100 to 200 feet above the runway. One witness stated the airplane was in a 90-degree nose up attitude. They stated the airplane then drifted to the left and stalled. The witnesses reported the pilot made no visible attempt to recover from the stall. The witnesses lost sight of the airplane as it disappeared behind a hangar.

PERSONNEL INFORMATION

The pilot, age 59, held a sport pilot certificate. This certificate was issued on January 3, 2007. The pilot's logbook indicated he received a tail wheel endorsement on May 2, 2007. The pilot had a total flight time of approximately 197 hours, of which 155 hours were in ultralights and 42 hours were in light sport airplanes. The pilot's logbook showed he had a total of 1.5 hours of flight time in the accident airplane.

AIRCRAFT INFORMATION

The amateur-built airplane was a Purvis Rans S6S, serial number 02041551-S. The airplane was a single-engine, two-seat, high-wing airplane with conventional landing gear. A 100-horsepower, Rotax 912S UL engine, serial number 5644358, was installed in the airplane.

Maintenance records indicated the date of manufacture of the airplane was May 2, 2006. The builder reported that he flew the first 10 hours on the airplane.

The airplane was still registered to the builder; however, a Bill of Sale was found in the pilot's car showing that he purchased the airplane in April 2007. The pilot's logbook showed that he towed the airplane from Menominee, Wisconsin, to Newark, Illinois, on May 5, 2007. The last entry in the pilot's logbook, dated May 20, 2007, stated "hobbs end 16.3." Inspectors from the Federal Aviation Administration (FAA) who examined the wreckage stated the airplane total

time at the time of the accident was 17.8 hours.

The aircraft builder reported the pilot contacted him shortly before the accident stating that he did not like the digital instruments that were installed in the airplane. The pilot discussed installing airspeed and altimeter gauges. The owner stated that he told the pilot that he should talk to someone else regarding the installation.

METEOROLOGICAL CONDITIONS

The closest weather reporting facility was located at the Aurora Municipal Airport (ARR), Aurora, Illinois, approximately 18 miles north-northeast of Newark, Illinois. At 1852, the weather was recorded as: Wind from 280 degrees at 8 knots, visibility 9 miles, scattered clouds at 20,000 feet, temperature 21 degrees Celsius, dew point 9 degrees Celsius, altimeter 30.08 inches of mercury.

WRECKAGE AND IMPACT INFORMATION

The wreckage was located southeast of the south end of runway 18 at 0C8.

The bottom surface of the airplane from the propeller rearward to just aft of the seats was crushed upward. The top engine cowling was popped open. The windshield was separated from the lower attach points and was pushed upward. Both wooden propeller blades were shattered. The left wing was bent upward approximately 60 degrees at the wing root and the wing strut was pulled away from the fuselage attach point. The aft fuselage was primarily intact as was the empennage. The right wing was intact. Both main landing gear were separated from the airplane.

Inspectors from the FAA examined the wreckage. The inspectors verified engine continuity. The propeller was free to turn and spark was achieved on all four spark plugs. Flight control continuity was established to the elevator, rudder, and right aileron. The left aileron control tube was fractured at the wing root where the wing was bent. The cockpit elevator trim indicator showed one unit of nose up trim was applied. The elevator trim tab surface was in a slight tab-down position.

Inspection of the airplane revealed that airspeed and altimeter gauges had been installed in the airplane. The altimeter was installed, but had not been connected to the static port. The line connection on the back of the altimeter was capped with a plastic plug. The airspeed indicator was connected to the static port only. The instrument panel cutouts were found in the pilot's hangar.

MEDICAL AND PATHOLOGICAL INFORMATION

An autopsy of the pilot was performed by the LaSalle County Coroner's Office on May 29, 2007.

The final autopsy report listed the cause of death as "Blunt Head and Chest Trauma."

The FAA's Civil Aerospace Medical Institute performed forensic toxicology on specimens from the pilot. Those results indicated:

0.164 (ug/ml, ug/g) Citalopram detected in Blood
Citalopram present in Urine
0.049 (ug/ml, ug/g) N-Desmethylcitalopram in Blood
N-Desmethylcitalopram present in Urine
DI-N- N-Desmethylcitalopram detected in Urine
DI-N- N-Desmethylcitalopram NOT detected in Blood

Citalopram is a prescription antidepressant; also know by the trade name Celexa.

Pilot Information

Certificate:	Sport Pilot	**Age:**	59,Male
Airplane Rating(s):		**Seat Occupied:**	Left
Other Aircraft Rating(s):		**Restraint Used:**	
Instrument Rating(s):		**Second Pilot Present:**	No
Instructor Rating(s):		**Toxicology Performed:**	Yes
Medical Certification:	Sport pilot	**Last FAA Medical Exam:**	
Occupational Pilot:		**Last Flight Review or Equivalent:**	January 1, 2007
Flight Time:	197 hours (Total, all aircraft), 2 hours (Total, this make and model), 172 hours (Pilot In Command, all aircraft), 30 hours (Last 90 days, all aircraft), 7 hours (Last 30 days, all aircraft), 0 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Purvis	**Registration:**	N743RP
Model/Series:	Rans S6S	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	Yes
Airworthiness Certificate:	Experimental (Special)	**Serial Number:**	02041551-S
Landing Gear Type:	Tailwheel	**Seats:**	2
Date/Type of Last Inspection:	August 1, 2006 Condition	**Certified Max Gross Wt.:**	1200 lbs
Time Since Last Inspection:	18 Hrs	**Engines:**	1 Reciprocating
Airframe Total Time:	18 Hrs at time of accident	**Engine Manufacturer:**	Rotax
ELT:		**Engine Model/Series:**	912S UL
Registered Owner:	Ronald E. Purvis	**Rated Power:**	100 Horsepower
Operator:	Richard B. Moroniak	**Operating Certificate(s) Held:**	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	ARR,712 ft msl	**Distance from Accident Site:**	17 Nautical Miles
Observation Time:	18:52 Local	**Direction from Accident Site:**	20°
Lowest Cloud Condition:	Scattered / 20000 ft AGL	**Visibility**	9 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	8 knots / None	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	280°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	30.07 inches Hg	**Temperature/Dew Point:**	21°C / 9°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	NEWARK, IL (0C8)	**Type of Flight Plan Filed:**	None
Destination:	Newark, IL (0C8)	**Type of Clearance:**	None
Departure Time:		**Type of Airspace:**	

Airport Information

Airport:	CUSHING FIELD 0C8	**Runway Surface Type:**	Grass/turf
Airport Elevation:	640 ft msl	**Runway Surface Condition:**	Dry
Runway Used:	18	**IFR Approach:**	
Runway Length/Width:	2831 ft / 180 ft	**VFR Approach/Landing:**	

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:**	41.5194444444444,-88.6055555555556

Administrative Information

Investigator In Charge (IIC):	Sullivan, Pamela
Additional Participating Persons:	Dave Behr; FAA; West Chicago, IL
Original Publish Date:	June 30, 2008
Last Revision Date:	
Investigation Class:	Class
Note:	
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=65875