Aviation Investigation Final Report

Location:	Wellington, Florida	**Accident Number:**	ERA18TA222
Date & Time:	August 17, 2018, 16:00 Local	**Registration:**	N80932
Aircraft:	Globe GC1B	**Aircraft Damage:**	Substantial
Defining Event:	Loss of engine power (partial)	**Injuries:**	1 Serious, 1 Minor
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

During the airplane's initial climb in crosswind conditions for the personal flight, the engine experienced a partial loss of power, and the airline transport pilot reported that the airplane entered an aerodynamic stall. He attempted to lower the nose of the airplane, but with insufficient altitude, the airplane impacted a ditch parallel to the runway, which resulted in substantial damage to the fuselage and both wings. Examination of the airplane revealed that the engine's No. 3 cylinder had low compression, and the No. 3 intake valve had hardened carbon deposit buildup on its stem. After the valve was cleaned and reinstalled, the engine compression returned to the normal range. It is likely that, during the initial climb, the intake valve stuck intermittently due to the carbon deposit buildup, which resulted in the partial loss of engine power and the airplane's inability to climb.

Probable Cause and Findings

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

The partial loss of engine power during the initial climb due to a sticking intake valve on the No. 3 cylinder.

Findings

Aircraft	Recip eng cyl section - Malfunction
Environmental issues	(general) - Contributed to outcome

Factual Information

History of Flight

Initial climb	Loss of engine power (partial) (Defining event)
Initial climb	Other weather encounter
Initial climb	Loss of control in flight
Initial climb	Aerodynamic stall/spin
Initial climb	Collision with terr/obj (non-CFIT)

On August 17, 2018, about 1600 eastern daylight time, a Globe GC-1B, N80932, was substantially damaged when it impacted terrain after a partial loss of engine power during the initial climb at the Wellington Aero Club Airport (FD38), Wellington, Florida. The airline transport pilot sustained serious injuries and the passenger sustained minor injuries. The airplane was operated by the pilot as a personal flight conducted under the provisions of Title 14 *Code of Federal Regulations* Part 91. Visual meteorological conditions prevailed, and no flight plan was filed for the local flight.

According to the pilot, during the preflight inspection he noticed a wind from the east about 5 knots, gusting to 9 knots. He taxied to runway 16, performed a runup that did not produce any abnormalities, and began the takeoff roll. During the ground roll, the pilot reported that he noticed a "slower acceleration" and had to use "more right brake to maintain directional control." Subsequently, the airplane lifted off and about 50 ft above ground level (agl), the airplane experienced a "hard yaw to the left due to a crosswind" and "[aerodynamic] stall indications." The pilot reduced the pitch, and the airplane impacted a ditch parallel to the runway. The fuselage and wings sustained substantial damage. The pilot reported that the engine experienced a partial loss of power during the takeoff.

Postaccident examination of the airplane by an airframe and powerplant mechanic, found that during an engine compression test, each cylinder was found to be in a normal range, with exception to the number 3 cylinder, which measured 10/80. Further examination of the cylinder's intake valve exhibited hardened carbon deposit buildup on the valve stem. The intake valve was cleaned and reinstalled, where the number 3 cylinder's compression was measured at 78/80. There were no other anomalies found with any other engine component.

According to Federal Aviation Administration (FAA) airman records, the pilot held an airline transport pilot certificate with a rating for airplane multi-engine land and a commercial pilot certificate with ratings for airplane single-engine land and sea. He was issued a first-class medical certificate in July 2017. The pilot reported 22,937 total flight hours and 50 hours in the accident make and model airplane.

According to the FAA airworthiness records, the airplane was powered by a Continental O-300-A, 145-horsepower engine. It was equipped with retractable landing gear in the tailwheel configuration and had 2-seats. The most recent annual inspection was completed in February 2018.

The weather conditions reported at 1553 at Palm Beach International Airport (PBI), West Palm Beach, Florida, about 11 miles east of FD38, included wind 080° at 10 knots, visibility 10 statute miles, scattered clouds at 3,000 ft agl, temperature 31°C, and dew point 24°C.

Pilot Information

Certificate:	Airline transport; Commercial; Flight engineer; Military	**Age:**	65,Male
Airplane Rating(s):	Single-engine land; Single-engine sea; Multi-engine land	**Seat Occupied:**	Left
Other Aircraft Rating(s):	None	**Restraint Used:**	4-point
Instrument Rating(s):	Airplane	**Second Pilot Present:**	No
Instructor Rating(s):	None	**Toxicology Performed:**	No
Medical Certification:	Class 2 With waivers/limitations	**Last FAA Medical Exam:**	July 5, 2017
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	April 15, 2017
Flight Time:	22937 hours (Total, all aircraft), 50 hours (Total, this make and model), 14000 hours (Pilot In Command, all aircraft), 6 hours (Last 90 days, all aircraft), 12 hours (Last 30 days, all aircraft), 0 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Globe	**Registration:**	N80932
Model/Series:	GC1B	**Aircraft Category:**	Airplane
Year of Manufacture:	1946	**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	1125
Landing Gear Type:	Retractable - Tailwheel	**Seats:**	2
Date/Type of Last Inspection:	February 25, 2018 Annual	**Certified Max Gross Wt.:**	1785 lbs
Time Since Last Inspection:		**Engines:**	1 Reciprocating
Airframe Total Time:	1650 Hrs as of last inspection	**Engine Manufacturer:**	Continental
ELT:	C91A installed, not activated	**Engine Model/Series:**	O-300-A
Registered Owner:		**Rated Power:**	145 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:	KPBI,19 ft msl	**Distance from Accident Site:**	11 Nautical Miles
Observation Time:	15:53 Local	**Direction from Accident Site:**	90°
Lowest Cloud Condition:	Scattered / 3000 ft AGL	**Visibility**	10 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	10 knots /	**Turbulence Type Forecast/Actual:**	None / None
Wind Direction:	80°	**Turbulence Severity Forecast/Actual:**	N/A / N/A
Altimeter Setting:	30.18 inches Hg	**Temperature/Dew Point:**	31°C / 24°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Wellington, FL (FD38)	**Type of Flight Plan Filed:**	None
Destination:	Wellington, FL (FD38)	**Type of Clearance:**	None
Departure Time:	16:00 Local	**Type of Airspace:**	Class G

Airport Information

Airport:	Wellington Aero Club FD38	**Runway Surface Type:**	Asphalt
Airport Elevation:	20 ft msl	**Runway Surface Condition:**	Dry
Runway Used:	16	**IFR Approach:**	None
Runway Length/Width:	4055 ft / 75 ft	**VFR Approach/Landing:**	Forced landing

Wreckage and Impact Information

Crew Injuries:	1 Serious	**Aircraft Damage:**	Substantial
Passenger Injuries:	1 Minor	**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	1 Serious, 1 Minor	**Latitude, Longitude:**	26.646667,-80.294998(est)

Administrative Information

Investigator In Charge (IIC):	Gerhardt, Adam
Additional Participating Persons:	Juan C Garcia; FAA/ FSDO; Miramar, FL
Original Publish Date:	September 27, 2019
Note:	The NTSB did not travel to the scene of this accident.
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=98101