



AVIATION



HIGHWAY



MARINE



RAILROAD



PIPELINE

Aviation Investigation Final Report

Location:	Mount Sterling, Kentucky	Accident Number:	ERA20LA069
Date & Time:	January 6, 2020, 17:24 Local	Registration:	N118CV
Aircraft:	Glassair I	Aircraft Damage:	Substantial
Defining Event:	Fuel starvation	Injuries:	1 Serious
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

The pilot departed his home airport, remained in the traffic pattern and performed "several" touch-and-go landings, flew about 20 miles to a nearby airport, returned to his home airport, and performed another takeoff. Shortly after takeoff, the engine stopped producing power while the propeller continued to "windmill." The pilot said that he rotated the fuel selector from the "main tank" to the "header tank" position and that he turned the electric fuel boost pump on, but engine power was not restored. The airplane struck trees and terrain during the forced landing and sustained substantial damage, and the pilot was seriously injured.

Examination of the airplane after the accident revealed that the two main and the header fuel tanks were compromised by impact, but continuity was confirmed through the entire fuel system with compressed air. The fuel selector was in the "Off" position and was immobilized in that position by impact damage. The pilot reported no deficiencies with the performance and handling of the airplane before the loss of engine power, and a postaccident engine run on the airframe revealed the engine started immediately, accelerated smoothly, and ran continuously without interruption.

The pilot reported the airplane's header tank contained 9 gallons of fuel and that the airplane averaged a fuel consumption rate of 8 gallons per hour. Based on the capacity of the header tank, the airplane's fuel consumption rate, the as-found position of the fuel selector, and the successful postaccident engine run, it is likely the pilot inadvertently conducted the entire accident flight with the header tank selected, exhausted its fuel supply, then rotated the selector to the "Off" position after the engine lost power.

Probable Cause and Findings

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

The pilot's mismanagement of the fuel selector, which resulted in fuel starvation and a total loss of engine power.

Findings

Aircraft	Fuel - Fluid management
Personnel issues	Use of equip/system - Pilot
Environmental issues	Tree(s) - Contributed to outcome

Factual Information

History of Flight

Approach-VFR pattern downwind	Fuel starvation (Defining event)
Approach-VFR pattern downwind	Loss of engine power (total)
Emergency descent	Collision with terr/obj (non-CFIT)

On January 6, 2020, at 1724 eastern standard time, an experimental amateur-built Glassair I RG, N118CV, was destroyed when it was involved in an accident near Mount Sterling, Kentucky. The private pilot was seriously injured. The airplane was operated as a Title 14 *Code of Federal Regulations* Part 91 personal flight.

The pilot said that, after takeoff from Mount Sterling-Montgomery Airport (IOB), Mount Sterling, Kentucky, he remained in the traffic pattern and performed "several" touch-and-go landings. He then departed the pattern, flew about 20 miles to a nearby airport, landed, and departed for the return flight to IOB, where he landed to a full stop, taxied back, and performed another takeoff.

Shortly after takeoff, the engine stopped producing power while the propeller continued to "windmill." The pilot said that he rotated the fuel selector from the "main tank" to the "header tank" position where he left it and that he turned the electric fuel boost pump on, but engine power was not restored. The pilot further described that he was sure that he had positioned the selector in the header tank position prior to the accident and added that he had to "raise the gate" before moving the selector.

The pilot maneuvered the airplane back toward IOB but struck trees and terrain before the airplane came to rest in an abandoned highway rest stop area. The pilot reported that there were no deficiencies with the performance and handling of the airplane other than the loss of engine power.

According to the airplane's maintenance records, the airplane had flown 0.8 hour since its most recent condition inspection. According to the owner, the airplane's average fuel consumption rate in cruise flight was 8 gallons per hour.

Postaccident examination of the wreckage at the accident site revealed that both wings and the structure beneath the engine and cockpit area were destroyed by impact. The cockpit, canopy, cabin, empennage, and tail sections all appeared intact. The fuel selector was found in the "Off" position and could not be rotated by hand where the airplane came to rest.

The two main fuel tanks were voided by impact, and the 9-gallon header tank was ruptured beneath the pickup line and contained no fuel. The fuel system was damaged by impact, but

continuity of the system was confirmed from the main tanks and the header tank through the fuel selector both visually and with compressed air. The gascolator and fuel screens were inspected, and they were clear and absent of debris.

The airplane was placed on jacks and suspended by an engine hoist. Due to impact damage, all three propeller blades were cut to matching lengths. Fuel was plumbed to the carburetor from an external tank and a substitute switch was used in lieu of the impact-damaged ignition switch. An engine start was attempted, and the engine started immediately, accelerated smoothly, and ran continuously without interruption until stopped with the ignition switch. The engine was restarted and a magneto check confirmed operation of both magnetos.

Pilot Information

Certificate:	Private	Age:	69, Male
Airplane Rating(s):	Single-engine land	Seat Occupied:	Left
Other Aircraft Rating(s):	None	Restraint Used:	4-point
Instrument Rating(s):	None	Second Pilot Present:	No
Instructor Rating(s):	None	Toxicology Performed:	No
Medical Certification:	BasicMed	Last FAA Medical Exam:	September 2, 2019
Occupational Pilot:	No	Last Flight Review or Equivalent:	
Flight Time:	591 hours (Total, all aircraft), 361.7 hours (Total, this make and model)		

Aircraft and Owner/Operator Information

Aircraft Make:	Glassair	Registration:	N118CV
Model/Series:	I RG	Aircraft Category:	Airplane
Year of Manufacture:	2008	Amateur Built:	Yes
Airworthiness Certificate:	Experimental (Special)	Serial Number:	255
Landing Gear Type:	Tricycle	Seats:	2
Date/Type of Last Inspection:	January 3, 2020 Condition	Certified Max Gross Wt.:	
Time Since Last Inspection:	1 Hrs	Engines:	1 Reciprocating
Airframe Total Time:	405.9 Hrs at time of accident	Engine Manufacturer:	Superior
ELT:	Not installed	Engine Model/Series:	XPO-320-B1AC2
Registered Owner:	On file	Rated Power:	
Operator:	On file	Operating Certificate(s) Held:	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	Condition of Light:	Dusk
Observation Facility, Elevation:	KIOB, 1019 ft msl	Distance from Accident Site:	1 Nautical Miles
Observation Time:	17:35 Local	Direction from Accident Site:	180°
Lowest Cloud Condition:	Clear	Visibility	10 miles
Lowest Ceiling:	None	Visibility (RVR):	
Wind Speed/Gusts:	/	Turbulence Type Forecast/Actual:	/
Wind Direction:		Turbulence Severity Forecast/Actual:	/
Altimeter Setting:	30.22 inches Hg	Temperature/Dew Point:	5°C / -1°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Mount Sterling, KY (IOB)	Type of Flight Plan Filed:	None
Destination:	Mount Sterling, KY (IOB)	Type of Clearance:	None
Departure Time:		Type of Airspace:	Class G

Airport Information

Airport:	Mount Sterling-Montgomery Coun IOB	Runway Surface Type:	Asphalt
Airport Elevation:	1019 ft msl	Runway Surface Condition:	Dry
Runway Used:	03	IFR Approach:	None
Runway Length/Width:	5000 ft / 75 ft	VFR Approach/Landing:	Forced landing;Traffic pattern

Wreckage and Impact Information

Crew Injuries:	1 Serious	Aircraft Damage:	Substantial
Passenger Injuries:		Aircraft Fire:	None
Ground Injuries:		Aircraft Explosion:	None
Total Injuries:	1 Serious	Latitude, Longitude:	38.075,-83.979446

Administrative Information

Investigator In Charge (IIC):	Rayner, Brian
Additional Participating Persons:	Ronald Killingsworth; FAA/FSDO; Louisville, KY
Original Publish Date:	September 16, 2021
Last Revision Date:	
Investigation Class:	Class 3
Note:	The NTSB did not travel to the scene of this accident.
Investigation Docket:	https://data.nts.gov/Docket?ProjectID=100775

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