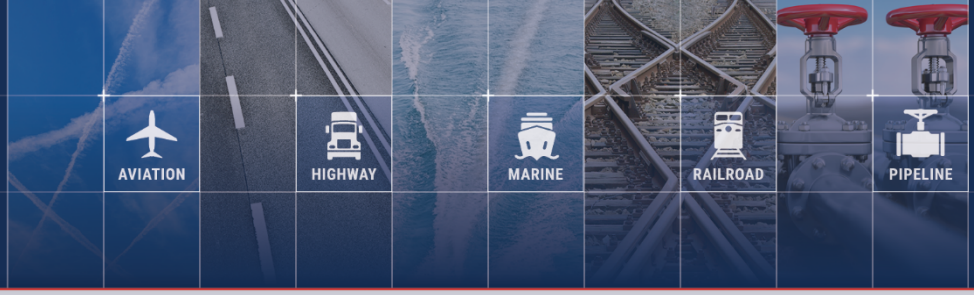

Aviation Investigation Final Report

Location:	Hampton, Georgia	**Accident Number:**	ERA20LA213
Date & Time:	June 12, 2020, 19:50 Local	**Registration:**	N553KM
Aircraft:	Vans RV8	**Aircraft Damage:**	Substantial
Defining Event:	Loss of engine power (partial)	**Injuries:**	1 Serious
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

During the airplane's initial climb after takeoff, witnesses reported hearing the engine misfire and seeing black smoke trailing the airplane. The pilot performed a 180° turn and approached the departure runway in the opposite direction and overflew the airport environment. The airplane subsequently entered a 180° turn for landing on the departure runway and impacted terrain in a flat attitude at the approach end of the runway. The landing gear and cockpit canopy separated, and the wings and the fuselage were substantially damaged. Video of the accident captured the airplane in steep pitch and roll attitudes at low altitude.

A detailed postaccident examination of the engine revealed that the fuel nozzle on the No. 2 cylinder was blocked and the spark plugs (top and bottom) revealed signatures consistent with "rich" mixtures in the Nos. 1 and 4 cylinders and "lean" mixtures in the Nos. 2 and 3 cylinders. The blocked fuel nozzle likely resulted in the partial loss of engine power.

Probable Cause and Findings

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

The pilot's excessive maneuvering at low altitude following a partial loss of engine power which resulted in an aerodynamic stall and collision with terrain.

Findings

Personnel issues	Decision making/judgment - Pilot

Factual Information

History of Flight

Initial climb	Loss of engine power (partial) (Defining event)
Landing-flare/touchdown	Collision with terr/obj (non-CFIT)

On June 12, 2020, at 1950 eastern daylight time, an experimental amateur-built Vans RV8 airplane, N553KM, was substantially damaged when it was involved in an accident at Henry County Airport (HMP), Hampton, Georgia. The pilot was seriously injured. The flight was conducted under the provisions of Title 14 *Code of Federal Regulations* Part 91.

A witness captured the accident flight on video. The airplane is seen taking off, entering a steep climb, performing a tight 180° turn, and then descending steeply before leveling off near the ground and traveling in the opposite direction of takeoff over the airfield as the video ends. The engine can be heard misfiring throughout the video and black smoke can be seen trailing the airplane. Witness testimony of what was seen and heard was consistent with the video.

Witnesses further described the airplane entering a subsequent 180°-turn for landing on the departure runway. At low altitude, and low airspeed, the airplane "stalled." The airplane subsequently aligned with the left base leg of the traffic pattern for runway 06 at a low altitude and then impacted terrain in a flat attitude at the approach end of the runway. The landing gear and cockpit canopy separated, and the wings and the fuselage were substantially damaged. Examination of video footage of the accident flight forwarded by the airplane's owner revealed a steep, nearly vertical climb after takeoff, followed by maneuvers consistent with those described by the witnesses.

Data recovered from non-volatile memory of onboard avionics suggested a steep pitch upward followed by a steep left roll after takeoff. The maneuvers were depicted below 500 ft, over the runway environment, with large pitch and roll values, followed by a loss of oil pressure and RPM.

A postaccident examination of the airplane was conducted and flight control continuity was confirmed. The engine was examined, and the No. 2 fuel nozzle was found blocked by an unspecified material. Examination of the spark plugs (top and bottom) revealed signatures consistent with "rich" mixtures in the Nos. 1 and 4 cylinders, and "lean" mixtures in the Nos. 2 and 3 cylinders. No other anomalies were noted with the airframe or engine.

Pilot Information

Certificate:	Airline transport	**Age:**	50,Male
Airplane Rating(s):	Single-engine land; Multi-engine land	**Seat Occupied:**	Front
Other Aircraft Rating(s):	None	**Restraint Used:**	4-point
Instrument Rating(s):	Airplane	**Second Pilot Present:**	No
Instructor Rating(s):	Airplane multi-engine; Airplane single-engine	**Toxicology Performed:**	No
Medical Certification:	Class 1 Without waivers/limitations	**Last FAA Medical Exam:**	January 2, 2020
Occupational Pilot:	Yes	**Last Flight Review or Equivalent:**	
Flight Time:	12500 hours (Total, all aircraft), 100 hours (Total, this make and model)		

Aircraft and Owner/Operator Information

Aircraft Make:	Vans	**Registration:**	N553KM
Model/Series:	RV8 UNDESIGNAT	**Aircraft Category:**	Airplane
Year of Manufacture:	2004	**Amateur Built:**	Yes
Airworthiness Certificate:	Experimental (Special)	**Serial Number:**	81553
Landing Gear Type:	Tailwheel	**Seats:**	2
Date/Type of Last Inspection:	February 10, 2020 Condition	**Certified Max Gross Wt.:**	1550 lbs
Time Since Last Inspection:		**Engines:**	Reciprocating
Airframe Total Time:	1894.7 Hrs as of last inspection	**Engine Manufacturer:**	JBA
ELT:	Installed, not activated	**Engine Model/Series:**	IO-360-B1XC3
Registered Owner:	Rieder Kenneth J	**Rated Power:**	185
Operator:	Rieder Kenneth J	**Operating Certificate(s) Held:**	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	K6A2,959 ft msl	**Distance from Accident Site:**	10 Nautical Miles
Observation Time:	19:55 Local	**Direction from Accident Site:**	164°
Lowest Cloud Condition:	Clear	**Visibility**	10 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	3 knots /	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	70°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	30.07 inches Hg	**Temperature/Dew Point:**	27°C / 16°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Hampton, GA (HMP)	**Type of Flight Plan Filed:**	None
Destination:	Hampton, GA (HMP)	**Type of Clearance:**	None
Departure Time:		**Type of Airspace:**	Class G

Airport Information

Airport:	HENRY COUNTY AIRPORT HMP	**Runway Surface Type:**	Asphalt
Airport Elevation:	882 ft msl	**Runway Surface Condition:**	Dry
Runway Used:	06	**IFR Approach:**	None
Runway Length/Width:	5500 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:**	33.389999,-84.331108(est)

Preventing Similar Accidents

Prevent Aerodynamic Stalls at Low Altitude (SA-019)

The Problem

While maneuvering an airplane at low altitude in visual meteorological conditions, many pilots fail to avoid conditions that lead to an aerodynamic stall, recognize the warning signs of a stall onset, and apply appropriate recovery techniques. Many stall accidents result when a pilot is momentarily distracted from the primary task of flying, such as while maneuvering in the airport traffic pattern, during an emergency, or when fixating on ground objects.

What can you do?

- Be honest with yourself about your knowledge of stalls and your preparedness to recognize and handle a stall situation in your airplane. Seek training to ensure that you fully understand the stall phenomenon, including angle-of attack (AOA) concepts and how elements such as weight, center of gravity, turbulence, maneuvering loads, and other factors affect an airplane's stall characteristics.
- Remember that an aerodynamic stall can occur at any airspeed, at any attitude, and with any engine power setting.
- Remember that the stall airspeeds marked on the airspeed indicator (for example, the bottom of the green arc and the bottom of the white arc) typically represent steady flight speeds at 1G at the airplane's maximum gross weight in the specified configuration. Maneuvering loads and other factors can increase the airspeed at which the airplane will stall. For example, increasing bank angle can increase stall speed exponentially. Check your airplane's handbook for information.
- Reducing AOA by lowering the airplane's nose at the first indication of a stall is the most important immediate response for stall avoidance and stall recovery.
- Manage distractions when maneuvering at low altitude so that they do not interfere with the primary task of flying.
- Resist the temptation to perform maneuvers in an effort to impress people, including passengers, other pilots, persons on the ground, or others via an onboard camera. "Showing off" can be a deadly distraction because it diverts your attention away from the primary task of safe flying.
- Understand that the stall characteristics of an unfamiliar airplane may differ substantially from those of airplanes with which you have more flight experience.

See https://www.ntsb.gov/Advocacy/safety-alerts/Documents/SA-019.pdf for additional resources.

The NTSB presents this information to prevent recurrence of similar accidents. Note that this should not be considered guidance from the regulator, nor does this supersede existing FAA Regulations (FARs).

Administrative Information

Investigator In Charge (IIC):	Rayner, Brian
Additional Participating Persons:	Danny Cox; FAA/FSDO; Atlanta, GA
Original Publish Date:	June 28, 2022
Last Revision Date:	
Investigation Class:	Class 3
Note:	The NTSB did not travel to the scene of this accident.
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=101434