



# Aviation Investigation Final Report

<b>Location:</b>	Coden, Alabama	<b>Accident Number:</b>	ERA20LA161
<b>Date &amp; Time:</b>	April 24, 2020, 10:45 Local	<b>Registration:</b>	N43310
<b>Aircraft:</b>	Keuthan Aircraft Corp Buccaneer II	<b>Aircraft Damage:</b>	Substantial
<b>Defining Event:</b>	Fuel related	<b>Injuries:</b>	1 None
<b>Flight Conducted Under:</b>	Part 91: General aviation - Personal		

## Analysis

The private pilot, who owned the airplane, was making a local personal flight from his private grass strip. During the first 1 hour 15-minute of flight, the engine performance was normal. Then, while about 800 ft above the ground (agl), the engine began to lose power and rpm started a slow continuous drop. The pilot moved the throttle to full power, but the engine continued to lose power. About 150 ft agl, the engine lost power completely and the pilot attempted to glide to a small island. About 25 ft agl, the right wing stalled and the airplane impacted power lines then terrain. Postaccident examination of the wreckage revealed no evidence of preimpact mechanical anomalies that would have prevented normal engine operation, and the engine was run successfully at various power settings. The weather conditions at the time of the accident were conducive to the formation of serious carburetor icing at glide (idle) engine power settings. The airplane was not equipped with carburetor heat, contrary to the engine's installation manual, which stated "operation in climatic conditions, where carburetor icing is likely to occur, a heating system must be fitted."

## Probable Cause and Findings

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

A total loss of engine power due to carburetor icing. Contributing to the accident was the lack of a carburetor heat system installed on the engine.

## Findings

<b>Environmental issues</b>	Conducive to carburetor icing - Effect on equipment
<b>Aircraft</b>	Fuel control/carburetor - Not installed/available

# Factual Information

## History of Flight

Enroute-cruise	Fuel related (Defining event)
Emergency descent	Collision with terr/obj (non-CFIT)

On April 24, 2020, about 1045 central daylight time, a Keuthan Aircraft Corp. Buccaneer II, N43310, was substantially damaged when it was involved in an accident near Coden, Alabama. The pilot was not injured. The airplane was operated as a Title 14 *Code of Federal Regulations* Part 91 personal flight.

According to the pilot, he mixed automobile gas with oil and departed from his grass airstrip with full fuel tanks, which was about 10 gallons of fuel. He was flying in the local area over water at 800 ft when "the engine began to lose power, rpm started a slow continuous drop." He moved the throttle to full power, but the engine continued to lose rpms and airspeed. About 150 ft above ground level (agl), the "engine quit," and he attempted to glide to a small island. About 25 ft agl, the right wing stalled first, the airplane rolled right, and the nose dropped. The airplane impacted power lines, and then terrain. During the 1 hour 15-minute flight, he reported the engine performance was normal prior to the loss of power.

A Federal Aviation Administration (FAA) inspector responded to the accident scene and noted that the fuel tank contained about 2 gallons of fuel. Fuel was also present in both carburetor bowls. The fuel and fuel filter were free of debris and contaminants. The engine's crankshaft was manually rotated by turning the propeller, and continuity of the crankshaft and compression of each cylinder was confirmed.

A detailed examination of the engine revealed no evidence of any preimpact mechanical malfunctions or failures that would have precluded normal operation. An engine run was performed, and the engine started immediately, accelerated smoothly, and ran continuously at all selected power settings without interruption. The airplane was not equipped with carburetor heat system.

At 1040, the weather reported at Mobile Downtown Airport (BFM), about 16 miles from the accident site, included a temperature 24°C and dew point 14°C. The calculated relative humidity at this temperature and dewpoint was 53%. Review of the icing probability chart contained in Federal Aviation Administration (FAA) Special Airworthiness Information Bulletin CE-09-35 revealed that the weather conditions at the time of the accident were "conducive to serious icing at glide [idle] power."

According to FAA Advisory Circular 20-113, "To prevent accidents due to induction system icing, the pilot should regularly use [carburetor] heat under conditions known to be conducive to atmospheric icing and be alert at all times for indications of icing in the fuel system." The circular recommended that when operating in conditions where the relative humidity is greater

than 50%, "...apply carburetor heat briefly immediately before takeoff, particularly with float type carburetors, to remove any ice which may have been accumulated during taxi and runup." It also stated, "Remain alert for indications of induction system icing during takeoff and climb-out, especially when the relative humidity is above 50 percent, or when visible moisture is present in the atmosphere."

The pilot completed Pilot/Operator Aircraft Accident/Incident Report (NTSB form 6120.1/2) and reported no preimpact mechanical malfunctions or failures with the airplane that would have precluded normal operation. Furthermore, in the "Operator/Owner Safety Recommendation" section of the report he stated that "manual carburetor heat should be added to all 2 stroke engines."

The Rotax 582 installation manual states, "operation in climatic conditions, where carburetor icing is likely to occur, a heating system must be fitted."

### Pilot Information

<b>Certificate:</b>	Private	<b>Age:</b>	73, Male
<b>Airplane Rating(s):</b>	Single-engine land; Multi-engine land	<b>Seat Occupied:</b>	Right
<b>Other Aircraft Rating(s):</b>	None	<b>Restraint Used:</b>	Unknown
<b>Instrument Rating(s):</b>	None	<b>Second Pilot Present:</b>	No
<b>Instructor Rating(s):</b>	None	<b>Toxicology Performed:</b>	No
<b>Medical Certification:</b>	Sport pilot None	<b>Last FAA Medical Exam:</b>	August 23, 2011
<b>Occupational Pilot:</b>	No	<b>Last Flight Review or Equivalent:</b>	November 26, 2019
<b>Flight Time:</b>	(Estimated) 3100 hours (Total, all aircraft), 3.2 hours (Total, this make and model), 3.2 hours (Last 90 days, all aircraft), 3.2 hours (Last 30 days, all aircraft)		

## Aircraft and Owner/Operator Information

<b>Aircraft Make:</b>	Keuthan Aircraft Corp	<b>Registration:</b>	N43310
<b>Model/Series:</b>	Buccaneer II	<b>Aircraft Category:</b>	Airplane
<b>Year of Manufacture:</b>	1994	<b>Amateur Built:</b>	
<b>Airworthiness Certificate:</b>	Experimental light sport (Special)	<b>Serial Number:</b>	B11R
<b>Landing Gear Type:</b>	Retractable - Tailwheel	<b>Seats:</b>	2
<b>Date/Type of Last Inspection:</b>	March 10, 2020 Condition	<b>Certified Max Gross Wt.:</b>	1125 lbs
<b>Time Since Last Inspection:</b>		<b>Engines:</b>	1 Reciprocating
<b>Airframe Total Time:</b>	246 Hrs as of last inspection	<b>Engine Manufacturer:</b>	Rotax
<b>ELT:</b>	Not installed	<b>Engine Model/Series:</b>	582
<b>Registered Owner:</b>	On file	<b>Rated Power:</b>	65 Horsepower
<b>Operator:</b>	On file	<b>Operating Certificate(s) Held:</b>	None

## Meteorological Information and Flight Plan

<b>Conditions at Accident Site:</b>	Visual (VMC)	<b>Condition of Light:</b>	Day
<b>Observation Facility, Elevation:</b>	BFM, 26 ft msl	<b>Distance from Accident Site:</b>	16 Nautical Miles
<b>Observation Time:</b>	10:40 Local	<b>Direction from Accident Site:</b>	17°
<b>Lowest Cloud Condition:</b>	Clear	<b>Visibility</b>	10 miles
<b>Lowest Ceiling:</b>	None	<b>Visibility (RVR):</b>	
<b>Wind Speed/Gusts:</b>	7 knots / None	<b>Turbulence Type Forecast/Actual:</b>	/
<b>Wind Direction:</b>	60°	<b>Turbulence Severity Forecast/Actual:</b>	/
<b>Altimeter Setting:</b>	29.87 inches Hg	<b>Temperature/Dew Point:</b>	24°C / 14°C
<b>Precipitation and Obscuration:</b>	No Obscuration; No Precipitation		
<b>Departure Point:</b>	Foley, AL (NONE)	<b>Type of Flight Plan Filed:</b>	None
<b>Destination:</b>	Foley, AL (NONE)	<b>Type of Clearance:</b>	None
<b>Departure Time:</b>	09:30 Local	<b>Type of Airspace:</b>	Class G

## Wreckage and Impact Information

<b>Crew Injuries:</b>	1 None	<b>Aircraft Damage:</b>	Substantial
<b>Passenger Injuries:</b>		<b>Aircraft Fire:</b>	None
<b>Ground Injuries:</b>		<b>Aircraft Explosion:</b>	None
<b>Total Injuries:</b>	1 None	<b>Latitude, Longitude:</b>	30.376943,-88.157501(est)

## Administrative Information

<b>Investigator In Charge (IIC):</b>	Hill, Millicent
<b>Additional Participating Persons:</b>	Todd Pryor; FAA/FSDO; Birmingham, AL
<b>Original Publish Date:</b>	June 21, 2022
<b>Last Revision Date:</b>	
<b>Investigation Class:</b>	<a href="#">Class 3</a>
<b>Note:</b>	The NTSB did not travel to the scene of this accident.
<b>Investigation Docket:</b>	<a href="https://data.ntsb.gov/Docket?ProjectID=101208">https://data.ntsb.gov/Docket?ProjectID=101208</a>

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](#).