



Aviation Investigation Final Report

Location:	Refugio, Texas	Accident Number:	CEN19LA007
Date & Time:	October 12, 2018, 13:04 Local	Registration:	N81383
Aircraft:	Grumman AA5	Aircraft Damage:	Substantial
Defining Event:	Fuel starvation	Injuries:	1 Serious
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

The pilot was conducting a personal cross-country flight when he became lost. The pilot reported that he did not understand how to navigate using the GPS that was installed in the airplane before the flight. Instead of continuing to the southeast toward the intended destination, the pilot turned south for the remainder of the flight. After flying for about 1.5 hours, the pilot became concerned about how much fuel remained and decided to land to refuel. The pilot stated that the airplane had a total loss of engine power while in the airport traffic pattern, and that he did not maintain adequate airspeed, which resulted in an aerodynamic stall during the turn from the base leg to final. The airplane sustained substantial damage to the fuselage and empennage during impact.

Examination of the airplane revealed no fuel in the left fuel tank, about 7 gallons of fuel in the right fuel tank, and less than 2 fluid ounces of combined fuel from the electric boost pump, the fuel line to the carburetor, and the carburetor fuel bowl. The pilot reported that the fuel selector valve was positioned to the left fuel tank when the loss of engine power occurred. The loss of engine power was likely due to fuel starvation.

Probable Cause and Findings

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

The pilot's improper inflight fuel management, which resulted in a total loss of engine power due to fuel starvation and the pilot's failure to maintain adequate airspeed, which resulted in the airplane exceeding its critical angle of attack and an aerodynamic stall at a low altitude.

Findings

Aircraft	Fuel - Fluid management
Personnel issues	Use of equip/system - Pilot
Personnel issues	Aircraft control - Pilot
Aircraft	Airspeed - Not attained/maintained
Aircraft	Angle of attack - Not attained/maintained

Factual Information

History of Flight

Enroute-cruise	Course deviation
Approach-VFR pattern base	Fuel starvation (Defining event)
Approach-VFR pattern base	Loss of control in flight
Approach-VFR pattern base	Collision with terr/obj (non-CFIT)

On October 12, 2018, about 1304 central daylight time, a Grumman AA-5B airplane, N81383, was substantially damaged when it was involved in an accident while maneuvering to land at Rooke Field Airport (RFG) near Refugio, Texas. The pilot sustained serious injuries. The airplane was operated as a Title 14 *Code of Federal Regulations* Part 91 personal flight.

During a telephone interview with the National Transportation Safety Board (NTSB) Investigator-in-Charge (IIC), the pilot stated that the accident occurred during the first flight after an annual inspection and the installation of a Garmin 480 GPS. The pilot estimated that the airplane had about 26 gallons of fuel onboard when he departed Silver Wings Airport (TS36), Fredericksburg, Texas, for the cross-country flight to Lane Airpark (T54), Rosenberg, Texas. The pilot reported that he did not understand how to navigate using the GPS, and as a result he became lost during the flight and turned south instead of continuing to the southeast toward T54. After flying for about 1.5 hours, he became concerned about how much fuel remained and decided to land at RFG to refuel. The pilot stated that he did not maintain adequate airspeed while in the traffic pattern for runway 14L at RFG, which resulted in an aerodynamic stall during the turn from the base leg to final. The pilot did not submit a completed NTSB Accident Report Form (6120.1) during the investigation.

During a telephone interview with a Federal Aviation Administration (FAA) Airworthiness Inspector, the pilot confirmed that he became lost during the flight and that he decided to land to refuel. He selected the left fuel tank while he maneuvered to land, but the airplane had a total loss of engine power while on final approach.

A witness reported seeing the airplane wreckage in a field north of the airport as he taxied his airplane toward the approach end of runway 14L at RFG. The airplane had traveled about 100-125 ft after it impacted the ground. The accident pilot reportedly told the witness that he made a “rookie mistake” while maneuvering to land for fuel. A medical helicopter was dispatched to the site to transport the pilot to a hospital for treatment of his injuries. The witness then called the FAA to report the accident. The witness stated that the left tank did not contain any fuel, but there was fuel visible in the right tank. Neither fuel tank appeared to be damaged, and the fuel selector valve handle was positioned to the right fuel tank. The mixture control was full rich, the throttle was full forward, and the ignition key was positioned on the right magneto. The flap selector was full down.

A FAA Airworthiness Inspector stated that the airplane's left fuel tank was empty at the accident site, and that the right fuel tank contained about 7 gallons of fuel. Less than 2 fluid ounces of combined fuel was recovered from the electric boost pump, the fuel line to the carburetor, and the carburetor fuel bowl. The airplane sustained substantial damage to the fuselage and empennage during impact. A mechanic at the departure airport reported seeing about 8 gallons of fuel in each fuel tank (16 gallons total) before the flight. The airplane was not refueled before the flight because there was no fuel service at the departure airport.

Based on available radar track data, the flight likely departed TS36 about 1120. The airplane's ground track generally continued to the southeast toward T54 until about 1155 when it turned to the south. The airplane did not reestablish a course toward T54 for the remainder of the flight. At 1302:24, the last radar return was recorded about 0.125 mile south-southwest of RFG at 350 ft mean sea level. The accident site was located about 1,300 ft north of the approach end of runway 14L at RFG.

Pilot Information

Certificate:	Commercial	Age:	73, Male
Airplane Rating(s):	Single-engine land; Multi-engine land	Seat Occupied:	Left
Other Aircraft Rating(s):	None	Restraint Used:	Unknown
Instrument Rating(s):	Airplane	Second Pilot Present:	No
Instructor Rating(s):	Airplane single-engine; Instrument airplane	Toxicology Performed:	No
Medical Certification:	Class 2 With waivers/limitations	Last FAA Medical Exam:	January 13, 2015
Occupational Pilot:	No	Last Flight Review or Equivalent:	
Flight Time:	(Estimated) 2600 hours (Total, all aircraft), 300 hours (Total, this make and model)		

Aircraft and Owner/Operator Information

Aircraft Make:	Grumman	Registration:	N81383
Model/Series:	AA5 B	Aircraft Category:	Airplane
Year of Manufacture:	1977	Amateur Built:	
Airworthiness Certificate:	Normal	Serial Number:	AA5B0522
Landing Gear Type:	Tricycle	Seats:	4
Date/Type of Last Inspection:	October 12, 2018 Annual	Certified Max Gross Wt.:	2401 lbs
Time Since Last Inspection:	1.5 Hrs	Engines:	1 Reciprocating
Airframe Total Time:		Engine Manufacturer:	Lycoming
ELT:	Installed, not activated	Engine Model/Series:	O-360-A4K
Registered Owner:		Rated Power:	180 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:	RKP, 24 ft msl	Distance from Accident Site:	20 Nautical Miles
Observation Time:	12:53 Local	Direction from Accident Site:	130°
Lowest Cloud Condition:	Clear	Visibility	10 miles
Lowest Ceiling:	None	Visibility (RVR):	
Wind Speed/Gusts:	11 knots /	Turbulence Type Forecast/Actual:	None / None
Wind Direction:	140°	Turbulence Severity Forecast/Actual:	N/A / N/A
Altimeter Setting:	29.93 inches Hg	Temperature/Dew Point:	29°C / 22°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Fredericksburg, TX (TS36)	Type of Flight Plan Filed:	None
Destination:	Refugio, TX (RFG)	Type of Clearance:	None
Departure Time:	11:20 Local	Type of Airspace:	Class G

Airport Information

Airport:	Rooke Field Airport RFG	Runway Surface Type:	Asphalt
Airport Elevation:	56 ft msl	Runway Surface Condition:	Dry
Runway Used:	14L	IFR Approach:	None
Runway Length/Width:	4361 ft / 60 ft	VFR Approach/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:	28.303888,-97.330833(est)

Administrative Information

Investigator In Charge (IIC):	Fox, Andrew		
Additional Participating Persons:	Frank G Fortmann; Federal Aviation Administration - San Antonio FSDO; San Antonio, TX		
Original Publish Date:	August 24, 2021	Investigation Class:	3
Note:	The NTSB did not travel to the scene of this accident.		
Investigation Docket:	https://data.nts.gov/Docket?ProjectID=98475		

The National Transportation Safety Board (NTSB), established in 1967, is an independent federal agency mandated by Congress through the Independent Safety Board Act of 1974 to investigate transportation accidents, determine the probable causes of the accidents, issue safety recommendations, study transportation safety issues, and evaluate the safety effectiveness of government agencies involved in transportation. The NTSB makes public its actions and decisions through accident reports, safety studies, special investigation reports, safety recommendations, and statistical reviews.

The Independent Safety Board Act, as codified at 49 U.S.C. Section 1154(b), precludes the admission into evidence or use of any part of an NTSB report related to an incident or accident in a civil action for damages resulting from a matter mentioned in the report. A factual report that may be admissible under 49 U.S.C. § 1154(b) is available [here](#).