



Aviation Investigation Final Report

Location:	Kenedy, Texas	Accident Number:	CEN22FA232
Date & Time:	June 6, 2022, 15:22 Local	Registration:	N2118R
Aircraft:	Cessna 182G	Aircraft Damage:	Destroyed
Defining Event:	Loss of control in flight	Injuries:	2 Fatal
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

The initial portion of the personal flight was conducted in day visual conditions and appeared to proceed uneventfully. Automatic dependent surveillance – broadcast (ADS-B) data revealed that the pilot initiated an enroute descent beginning about 23 miles from the airport. About 10 miles from the airport, the flight became established on an extended final to the runway. About 3 seconds before the final ADS-B data point, the flight track depicted the airplane entering a left turn that gradually increased to 30° bank angle at the end of the available data. A pilot approaching the airport noted that, when he initially observed the accident airplane, it appeared to be straight-and-level and established on an extended final approach. However, when he saw the airplane a short time later, it appeared to be about 30 feet above ground level and descending in a spin. Surveillance video footage depicted the airplane in a steep nose-down, left-wing low attitude immediately before impact, consistent with an in-flight loss of control. The accident site was located about 0.12 miles from the final ADS-B data point.

A postaccident examination provided no evidence of an in-flight structural failure, an anomaly with the primary flight control system, or a loss of engine power. The examination of the wing flap system was unremarkable with exception of the left flap extension cable. Specifically, at the time of the postaccident examination, the swaged cable end of the left flap extension cable was separated with the cable disengaged from the drive pulley. The separated cable end could not be located, which prevented further examination. Although an impression from the flap extension cable along the radius and a witness mark from the cable end washer were observed on the drive pulley, the investigation was not able to determine if those features were formed during normal operation or during the accident sequence.

The pilot's autopsy identified focally severe coronary artery disease, which conveyed an increased risk of a sudden impairing or incapacitating cardiac event such as abnormal heartbeat, heart attack, or chest pain. There was no autopsy evidence that such an event

occurred, although such an event does not reliably leave autopsy evidence if it occurs just before death. Despite the risk it conveys, coronary artery disease often does not produce significant symptoms. The circumstances of the accident neither exclude nor clearly indicate a sudden medical event. Thus, whether the pilot's coronary artery disease contributed to the accident cannot be determined.

The pilot had a history of mild depression and anxiety that had been waivered by the Federal Aviation Administration (FAA). Documentation in her FAA records, as of about 5 months before the crash date, indicated that her depression and anxiety were well controlled on a sertraline regimen that had been stable since February 2020, without adverse side effects or neurocognitive deficits. Her postmortem toxicology results were consistent with continued use of sertraline. It is unlikely that the pilot's history of mild anxiety and depression or her use of sertraline contributed to the crash.

Based on the available information, the airplane was under control and above aerodynamic stall airspeed until the end of the available ADS-B data. Whether or not the left wing flap extension cable end separated in-flight or during the impact sequence could not be determined because the cable end was not found. An in-flight separation of the left flap extension cable end would have resulted in a partial retraction of the left flap due to normal aerodynamic forces. The resulting aerodynamic asymmetry caused by a partially retracted left flap and a fully extended right flap would have induced a rolling tendency and could explain the gradual left turn as observed in the ADS-B data; this rolling tendency would have required prompt attention from the pilot to maintain control of the airplane. Ultimately, the cause of the loss of airplane control could not be determined with the available information.

Probable Cause and Findings

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

A loss of airplane control on final approach for reasons that could not be determined.

Findings

Not determined

(general) - Unknown/Not determined

Factual Information

.

History of Flight	
Approach	Unknown or undetermined
Approach-VFR pattern final	Loss of control in flight (Defining event)
Uncontrolled descent	Collision with terr/obj (non-CFIT)

On June 6, 2022, at 1522 central daylight time, a Cessna 182G airplane, N2118R, was destroyed when it was involved in an accident near Kenedy, Texas. The pilot and passenger were fatally injured. The airplane was operated as a Title 14 *Code of Federal Regulations* Part 91 personal flight.

Recorded ADS-B data revealed that the flight departed the New Braunfels National Airport (BAZ), at 1452 and proceeded southbound toward Kenedy Regional Airport (2R9), Kenedy, Texas. The airplane briefly reached an altitude of 6,300 ft mean sea level (msl) before descending to 5,600 ft msl. About 1508, when the airplane was about 23 miles north of 2R9, the airplane entered a gradual descent that continued until the final ADS-B data point. About 1516, the pilot appeared to alter course slightly to align with the extended centerline of runway 16 at 2R9. About 3 seconds before the final data point, the flight track depicted the airplane entering a gradual left turn. The final data point was recorded at 1522:15. At that time, the airplane altitude was about 641 ft msl.

A pilot approaching 2R9 noted that the accident pilot reported on a straight-in approach for runway 16 on the common traffic advisory frequency. When he initially observed the accident airplane, it appeared to be straight-and-level and established on an extended final approach. However, when he saw the airplane a short time later, it appeared to be about 30 feet above ground level and descending in a spin.

Surveillance video footage from a local establishment located about 0.2 miles west-southwest of the accident site depicted the airplane in a steep nose-down, left-wing-low attitude immediately before impact.

Pilot Information

Certificate:	Private	Age:	32,Female
Airplane Rating(s):	Single-engine land	Seat Occupied:	Left
Other Aircraft Rating(s):	None	Restraint Used:	3-point
Instrument Rating(s):	None	Second Pilot Present:	No
Instructor Rating(s):	None	Toxicology Performed:	Yes
Medical Certification:	Class 3 With waivers/limitations	Last FAA Medical Exam:	January 15, 2020
Occupational Pilot:	No	Last Flight Review or Equivalent:	November 30, 2021
Flight Time:	212 hours (Total, all aircraft), 208 hours (Total, this make and model), 80 hours (Pilot In Command, all aircraft), 38 hours (Last 90 days, all aircraft), 20 hours (Last 30 days, all aircraft), 1 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Cessna	Registration:	N2118R
Model/Series:	182G	Aircraft Category:	Airplane
Year of Manufacture:	1964	Amateur Built:	
Airworthiness Certificate:	Normal	Serial Number:	18255318
Landing Gear Type:	Tricycle	Seats:	4
Date/Type of Last Inspection:	August 17, 2021 Annual	Certified Max Gross Wt.:	2800 lbs
Time Since Last Inspection:	130.3 Hrs	Engines:	1 Reciprocating
Airframe Total Time:	5604 Hrs at time of accident	Engine Manufacturer:	Continental Motors
ELT:	C91A installed	Engine Model/Series:	0-470-R
Registered Owner:	On file	Rated Power:	230 Horsepower
Operator:	On file	Operating Certificate(s) Held:	None
Operator Does Business As:	On file	Operator Designator Code:	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	Condition of Light:	Day
Observation Facility, Elevation:	K2R9,289 ft msl	Distance from Accident Site:	1.05 Nautical Miles
Observation Time:	15:15 Local	Direction from Accident Site:	173°
Lowest Cloud Condition:	Clear	Visibility	10 miles
Lowest Ceiling:	None	Visibility (RVR):	
Wind Speed/Gusts:	19 knots / 0 knots	Turbulence Type Forecast/Actual:	None / None
Wind Direction:	130°	Turbulence Severity Forecast/Actual:	N/A / N/A
Altimeter Setting:	29.67 inches Hg	Temperature/Dew Point:	37°C / 21°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	New Braunfels, TX (BAZ)	Type of Flight Plan Filed:	None
Destination:	Kenedy, TX (2R9)	Type of Clearance:	None
Departure Time:	14:52 Local	Type of Airspace:	Class G

Airport Information

Airport:	Kenedy Regional 2R9	Runway Surface Type:	Asphalt
Airport Elevation:	289 ft msl	Runway Surface Condition:	Dry
Runway Used:	16	IFR Approach:	None
Runway Length/Width:	3218 ft / 60 ft	VFR Approach/Landing:	Full stop;Straight-in

Wreckage and Impact Information

Crew Injuries:	1 Fatal	Aircraft Damage:	Destroyed
Passenger Injuries:	1 Fatal	Aircraft Fire:	None
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	2 Fatal	Latitude, Longitude:	28.84258,-97.86662

The accident site was located about 0.8 miles north of the 2R9 runway 16 approach threshold at an approximate elevation of 368 ft. This was about 0.12 miles east of the final ADS-B data point. A ground impact scar was located about 18 ft west of the airplane wreckage. The wreckage came to rest along a barbed wire fence and tree line. The fuselage and both wings

exhibited damage consistent with impact forces, and the cockpit/cabin area was compromised.

A postaccident examination confirmed that all airframe structural components were at the accident site, and no evidence of an in-flight structural failure was observed. Further examination of the primary flight control system revealed discontinuities that were consistent with impact forces. No anomalies attributable to a preimpact failure or malfunction were observed. Similarly, a postrecovery examination of the engine did not reveal any anomalies attributable to a preimpact failure or malfunction.

Examination of the flap system was unremarkable with exception of the flap extension cable for the left flap drive pulley. The swaged cable end was separated at the time of the postaccident examination with the cable disengaged from the drive pulley. The drive pulley exhibited an impression along the radius and a witness mark consistent with being formed by the extension cable end washer. The separated cable end could not be located, which precluded further examination. The opposing left flap retract cable remained engaged on the drive pulley with the swaged cable end secure. The flap actuator extension was consistent with a 40° flap extension.

On the accident airplane, the wing flaps were extended and retracted by an electric actuator controlled by a switch in the cockpit. The actuator was installed in the right wing and was directly connected to the right drive pulley. The left flap drive pulley and push-pull tube were connected to the right drive pulley via two cables: an extension cable and a retraction cable. Separation of the extension cable may prevent extension of the left wing flap and allow the left flap to retract from the selected flap position, depending on aerodynamic forces. Conversely, separation of the retraction cable may prevent full retraction of the left flap.

Medical and Pathological Information

The 32-year-old pilot reported a history of depression and anxiety on her application for an airman medical certificate. Following a detailed evaluation of her underlying condition and response to medication, in August 2021 the FAA granted the pilot an Authorization for Special Issuance of a time-limited third-class medical certificate. The pilot met subsequent requirements to maintain her third-class medical certification and, as of the accident date, her most recent certificate had not expired. The most recent psychiatric evaluation documentation in the pilot's FAA file was from December 2021 to January 2022. This documentation characterized the pilot's depression and anxiety as mild and well-controlled on a stable dose of sertraline since February 2020, without any adverse side effects or cognitive problems. The

pilot was recommended for continued medical certification, and the documentation was reviewed favorably by the FAA. However, the accident occurred before a new medical certificate was required.

An autopsy of the pilot was performed by Central Texas Autopsy, as authorized by a Karnes County justice of the peace. According to the pilot's autopsy report, her cause of death was blunt force injuries, and her manner of death was accident. The mid portion of the pilot's left anterior descending coronary artery was found to be 75% narrowed by plaque. Visual examination of the heart was otherwise unremarkable, and the autopsy did not identify other significant natural disease.

According to the autopsy report, sertraline was detected at 380 ng/mL and the sertraline metabolite desmethylsertraline was detected at 1100 ng/mL. The FAA Forensic Sciences Laboratory also tested postmortem specimens from the pilot. This testing detected sertraline at 93 ng/mL and desmethylsertraline at 234 ng/mL in cavity blood. Both sertraline and desmethylsertraline were also detected in liver tissue.

Sertraline is a prescription antidepressant medication of the selective serotonin reuptake inhibitor class. Desmethylsertraline is a metabolite of sertraline. Sertraline commonly is used to treat depression and may also be used to treat a variety of other conditions. Major depression can cause cognitive impairment, with potential adverse effects on reaction, memory, attention, problem solving, and task switching. In contrast, sertraline has low potential to cause cognitive or psychomotor impairment and may improve such impairment in individuals with major depression. Sertraline's side effects may include dizziness and drowsiness, and the drug typically carries a warning that users should not drive, operate heavy machinery, or do other dangerous activities until they know how the drug affects them. A pilot on sertraline (not in combination with other psychiatric drugs) may be considered for FAA medical certification via Special Issuance, depending on evaluation of the individual pilot's condition and response to treatment.

Tests and Research

Further review of ADS-B data determined that the airplane's calibrated airspeed stabilized at about 90 knots during the final 90 seconds of the available data and decreased to about 80 knots at the end of the available data. The calculated airplane bank angle approached 30° left wing down near the end of the available data. Airplane vertical speeds during the final 90

seconds of data ranged from level (0 ft per minute [fpm]) to about -830 fpm, which were within the performance capabilities of the airplane.

Published aerodynamic stall speeds in straight-and-level flight were 56 knots (64 mph) and 48 knots (55 mph) with the wing flaps retracted and extended 40°, respectively. In a 30° bank while maintaining a constant altitude, the aerodynamic stall speeds increased to 60 knots (69 mph) and 51 knots (59 mph) with the flaps retracted and extended 40°, respectively.

Administrative Information

Investigator In Charge (IIC):	Sorensen, Timothy
Additional Participating Persons:	Thomas Ballard; FAA Flight Standards; San Antonio, TX Peter Basile; Textron Aviaiton; Wichita, KS
Original Publish Date:	July 5, 2024
Last Revision Date:	
Investigation Class:	Class 3
Note:	
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=105199

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 <u>here</u>.