Aviation Investigation Final Report

Location:	Lufkin, Texas	**Accident Number:**	CEN21LA071
Date & Time:	December 2, 2020, 08:42 Local	**Registration:**	N48DK
Aircraft:	Cessna 551	**Aircraft Damage:**	Substantial
Defining Event:	Runway excursion	**Injuries:**	3 None
Flight Conducted Under:	Part 91: General aviation - Business		

Analysis

After a 30-minute uneventful instrument flight rules (IFR) flight, the business jet landed in the rain on the 4,311ft-long runway. The pilot reported, and runway skid marks corroborated, that the airplane touched down about 1,000 ft from the approach end of the runway. The pilot reported braking action was initially normal and the anti-skid system cycled twice before it stopped working and he was unable to slow the airplane using the emergency brakes. The airplane continued off the departure end of the runway where it traveled through wet grass and a fence before coming to rest with the landing gear collapsed. A video of the airplane during the landing roll indicated there was a significant amount of water on the runway.

No mechanical anomalies were found with the brake/antiskid systems during the postaccident examination of the airplane. Marks on the runway indicated functionality of the antiskid system. Stopping performance calculations estimated the distance required to stop the airplane on the runway was about 4,127 ft. The runway length remaining after the airplane touched down was about 3,311 ft. The pilot was aware of the runway length and weather conditions prior to departure and reported that he should have not accepted the trip.

Probable Cause and Findings

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

The pilot's decision to land on a runway that did not provide enough length to stop the airplane given the wet surface conditions, resulting in a runway excursion.

Findings

Personnel issues	Decision making/judgment - Pilot
Environmental issues	Wet surface - Contributed to outcome

Factual Information

History of Flight

Landing-landing roll	Runway excursion (Defining event)

On December 2, 2020, about 0842 central standard time, a Cessna 551, N48DK, was substantially damaged when it was involved in an accident near Lufkin, Texas. The pilot and two passengers were not injured. The airplane was operated as a Title 14 *Code of Federal Regulations* Part 91 business flight.

The pilot stated that after an uneventful IFR flight from Austin, Texas, he entered the RNAV 16 approach to runway 16 at the Angelina County Airport (LFK), Lufkin, Texas. His intention was a full stop landing. After breaking out of the clouds during the approach, he cancelled his flight plan and landed on runway 16. It was raining at the time of the landing.

The pilot reported the airplane touched down about 1,000 ft down the runway. He reported that braking was initially normal with the anti-skid system cycling twice before it seemed to stop working. He continued to report that turning off the anti-skid and applying emergency braking did not slow the airplane. The airplane exited the departure end of the runway where it traveled through the wet grass and contacted a fence and a small ditch. The pilot and passengers evacuated the airplane after it came to a stop.

On scene inspection of the accident site revealed that the nose and main landing gear collapsed after departing the runway, and both wings sustained structural damage. A video of the accident showed that runway 16 had a significant amount of water on it at the time the airplane landed. The video shows the airplane's landing roll and the excursion.

Skid marks observed at the departure end of runway 16 were traced back to the approach end of the runway. It was estimated that the airplane touched down about 1,000 ft beyond the approach end of runway 16 as reported by the pilot. The marks, which corresponded with the tread on the airplane's tires, lasted about 2,600 ft. The skid marks exhibited modulations in color and rubber displacement consistent with antiskid system functionality.

Examination of the wheel brakes on both main landing gear did not reveal any mechanical anomalies. Examination of the tires did not reveal any abnormal flat spots. The tread depth on the tires varied between 2 to 3 tenths of a inch. Tire pressures could not be obtained since all of the tires were ruptured during the excursion sequence. No mechanical anomalies were found with the antiskid system. The cannon plug connectors containing the antiskid transducer wires were examined and the pins and connectors were clean and free of corrosion. Pneumatic pressures on the brake accumulators were normal.

To determine the estimated landing distance, the Cessna 551 Airplane Flight Manual performa nce tables were used. The length of runway 16 was 4,311 ft. Video and tire mark evidence showed that the airplane touched down about 1,000 ft down the runway, leaving about 3,311 ft to stop. The calculated estimated stopping distance for the airplane at the time of the accident was about 4,127 ft, due to the wet runway conditions.

The pilot reported on National Transportation Safety Board Form 6120 that he was aware of the weather conditions. He reviewed lessons learned from this accident, which included turning down the flight because of the weather and runway length available to stop the airplane.

Pilot Information

Certificate:	Airline transport	**Age:**	75,Male
Airplane Rating(s):	Single-engine land; Multi-engine land	**Seat Occupied:**	Left
Other Aircraft Rating(s):	None	**Restraint Used:**	3-point
Instrument Rating(s):	Airplane	**Second Pilot Present:**	
Instructor Rating(s):	Airplane multi-engine; Airplane single-engine; Instrument airplane	**Toxicology Performed:**	
Medical Certification:	Class 2 With waivers/limitations	**Last FAA Medical Exam:**	January 7, 2020
Occupational Pilot:	Yes	**Last Flight Review or Equivalent:**	February 1, 2020
Flight Time:	(Estimated) 17772 hours (Total, all aircraft), 2000 hours (Total, this make and model), 28 hours (Last 90 days, all aircraft), 11 hours (Last 30 days, all aircraft), 2 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Cessna	**Registration:**	N48DK
Model/Series:	551	**Aircraft Category:**	Airplane
Year of Manufacture:	1978	**Amateur Built:**	
Airworthiness Certificate:	None	**Serial Number:**	551-0095
Landing Gear Type:	Retractable - Tricycle	**Seats:**	8
Date/Type of Last Inspection:	July 2, 2020 100 hour	**Certified Max Gross Wt.:**	14100 lbs
Time Since Last Inspection:		**Engines:**	2 Turbo fan
Airframe Total Time:	9395 Hrs at time of accident	**Engine Manufacturer:**	P&W
ELT:	Installed, not activated	**Engine Model/Series:**	JT15D-4
Registered Owner:	Aviation Star S	**Rated Power:**	2500 Lbs thrust
Operator:	Aviation Star S	**Operating Certificate(s) Held:**	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Instrument (IMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	KLFK,316 ft msl	**Distance from Accident Site:**	0 Nautical Miles
Observation Time:	08:53 Local	**Direction from Accident Site:**	300°
Lowest Cloud Condition:	Clear	**Visibility**	6 miles
Lowest Ceiling:	Broken / 900 ft AGL	**Visibility (RVR):**	
Wind Speed/Gusts:	6 knots / None	**Turbulence Type Forecast/Actual:**	None / None
Wind Direction:	100°	**Turbulence Severity Forecast/Actual:**	N/A / N/A
Altimeter Setting:	30.15 inches Hg	**Temperature/Dew Point:**	9°C / 7°C
Precipitation and Obscuration:	Moderate - None - Rain		
Departure Point:	Austin, TX (AUS)	**Type of Flight Plan Filed:**	IFR
Destination:	Lufkin, TX	**Type of Clearance:**	IFR
Departure Time:	07:59 Local	**Type of Airspace:**	Class E

Airport Information

Airport:	Angelina County Airport LFK	**Runway Surface Type:**	Asphalt
Airport Elevation:	295 ft msl	**Runway Surface Condition:**	Wet
Runway Used:	16	**IFR Approach:**	RNAV
Runway Length/Width:	4311 ft / 100 ft	**VFR Approach/Landing:**	Full stop

Wreckage and Impact Information

Crew Injuries:	1 None	**Aircraft Damage:**	Substantial
Passenger Injuries:	2 None	**Aircraft Fire:**	None
Ground Injuries:		**Aircraft Explosion:**	None
Total Injuries:	3 None	**Latitude, Longitude:**	31.14,-94.45(est)

Administrative Information

Investigator In Charge (IIC):	Lemishko, Alexander
Additional Participating Persons:	Robert McGee; FAA FSDO; Houston, TX
Original Publish Date:	February 7, 2023
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=102361