



Aviation Investigation Final Report

Location:	New Smyrna Beach, Florida	Accident Number:	ERA24LA092
Date & Time:	January 20, 2024, 15:43 Local	Registration:	N321EP
Aircraft:	TEXTRON AVIATION INC 172	Aircraft Damage:	Substantial
Defining Event:	Sys/Comp malf/fail (non-power)	Injuries:	2 None
Flight Conducted Under:	Part 91: General aviation - Instructional		

Analysis

Prior to start-up, the student pilot performed a preflight inspection while the flight instructor reviewed the airplane maintenance discrepancy sheet. The flight instructor noted that the airplane had recently been written up for inconsistent right brake pressure. Maintenance personnel resolved the discrepancy by tightening the pilot side brake pedal and returned the airplane to service. Everything appeared visually normal during the subsequent preflight inspection, and the student and instructor performed an engine runup with no braking problems noted. During the subsequent taxi to the runway, while attempting to negotiate a turn, the right brake was not effective despite both the student and the instructor applying brake pedal pressure. The airplane went off the taxiway and ultimately struck a tree resulting in substantial damage to the horizontal stabilizer. A review of photographs taken by an FAA inspector of the disassembled braking system components revealed that the right brake master cylinder o-ring appeared worn and possibly had a flat spot. It is possible that the wear/flat-spot of the o-ring could have allowed fluid to bypass it, which would have resulted in the inconsistent brake operation described by the pilots.

Probable Cause and Findings

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

A failure of the right brake during taxi, which resulted in a taxiway excursion and collision with a tree.

Findings

Environmental issues	Tree(s) - Effect on equipment
Aircraft	Brake - Failure

Factual Information

History of Flight

Taxi-from runway	Sys/Comp malf/fail (non-power) (Defining event)
Taxi-to runway	Collision with terr/obj (non-CFIT)

Flight instructor Information

Certificate:	Commercial; Flight instructor	Age:	23,Female
Airplane Rating(s):	Single-engine land; Multi-engine land	Seat Occupied:	Right
Other Aircraft Rating(s):	None	Restraint Used:	3-point
Instrument Rating(s):	Airplane	Second Pilot Present:	Yes
Instructor Rating(s):	Airplane single-engine; Instrument airplane	Toxicology Performed:	
Medical Certification:	Class 3 Without waivers/limitations	Last FAA Medical Exam:	January 30, 2019
Occupational Pilot:	Yes	Last Flight Review or Equivalent:	October 23, 2023
Flight Time:	701.7 hours (Total, all aircraft), 437.2 hours (Total, this make and model), 606.3 hours (Pilot In Command, all aircraft), 166.7 hours (Last 90 days, all aircraft), 48 hours (Last 30 days, all aircraft)		

Student pilot Information

Certificate:	None	Age:	22,Female
Airplane Rating(s):	None	Seat Occupied:	Left
Other Aircraft Rating(s):	None	Restraint Used:	3-point
Instrument Rating(s):	None	Second Pilot Present:	Yes
Instructor Rating(s):	None	Toxicology Performed:	
Medical Certification:	Class 1 Without waivers/limitations	Last FAA Medical Exam:	September 29, 2023
Occupational Pilot:	No	Last Flight Review or Equivalent:	
Flight Time:	33.6 hours (Total, all aircraft), 33.6 hours (Total, this make and model), 31.6 hours (Last 90 days, all aircraft), 10.3 hours (Last 30 days, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	TEXTRON AVIATION INC	Registration:	N321EP
Model/Series:	172 S	Aircraft Category:	Airplane
Year of Manufacture:	2021	Amateur Built:	
Airworthiness Certificate:	Normal	Serial Number:	172S12622
Landing Gear Type:	Tricycle	Seats:	4
Date/Type of Last Inspection:	January 6, 2024 100 hour	Certified Max Gross Wt.:	2550 lbs
Time Since Last Inspection:	45 Hrs	Engines:	1 Reciprocating
Airframe Total Time:	4005 Hrs at time of accident	Engine Manufacturer:	Lycoming
ELT:	C126 installed, not activated	Engine Model/Series:	IO-360-L2A
Registered Owner:	EPIC AVIATION INC	Rated Power:	180 Horsepower
Operator:	EPIC AVIATION INC	Operating Certificate(s) Held:	Pilot school (141)

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	Condition of Light:	Day
Observation Facility, Elevation:	EVB,10 ft msl	Distance from Accident Site:	0 Nautical Miles
Observation Time:	10:47 Local	Direction from Accident Site:	343°
Lowest Cloud Condition:	Few / 3000 ft AGL	Visibility	10 miles
Lowest Ceiling:	Indefinite (V V)	Visibility (RVR):	
Wind Speed/Gusts:	16 knots / 24 knots	Turbulence Type Forecast/Actual:	None / None
Wind Direction:	40°	Turbulence Severity Forecast/Actual:	N/A / N/A
Altimeter Setting:	30.48 inches Hg	Temperature/Dew Point:	12°C / 4°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	New Smyrna Beach, FL	Type of Flight Plan Filed:	None
Destination:	New Smyrna Beach, FL	Type of Clearance:	None
Departure Time:		Type of Airspace:	Unknown

Airport Information

Airport:	NEW SMYRNA BEACH MUNI EVB	Runway Surface Type:	
Airport Elevation:	10 ft msl	Runway Surface Condition:	Dry
Runway Used:		IFR Approach:	None
Runway Length/Width:		VFR Approach/Landing:	None

Wreckage and Impact Information

Crew Injuries:	2 None	Aircraft Damage:	Substantial
Passenger Injuries:	N/A	Aircraft Fire:	None
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	2 None	Latitude, Longitude:	29.049145,-80.948108(est)

Administrative Information

Investigator In Charge (IIC):	Enders, Ryan
Additional Participating Persons:	Joseph Gramzinski; FAA/FSDO; Orlando, FL
Original Publish Date:	April 4, 2024
Last Revision Date:	
Investigation Class:	Class 4
Note:	The NTSB did not travel to the scene of this accident.
Investigation Docket:	https://data.nts.gov/Docket?ProjectID=193688

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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](#).