



Aviation Investigation Final Report

Location:	Grain Valley, Missouri	Accident Number:	CHI01LA126
Date & Time:	April 14, 2001, 09:30 Local	Registration:	N3021Z
Aircraft:	Piper PA-22-150	Aircraft Damage:	Substantial
Defining Event:		Injuries:	1 None
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

The airplane collided with the terrain and nosed over following a loss of brake pressure while taxiing for takeoff. He reported that the brakes did not work when he applied them to slow the airplane in order to turn around for takeoff after back taxiing on the runway. The airplane traveled off the side of the runway and continued downhill into a ditch where it rolled onto the right wing. The pilot stated that he applied the parking brake when the airplane was being fueled and the brakes worked properly at that time and when he performed the engine run-up. No brake fluid was found on the hangar floor where the airplane was kept, nor was there any found along the taxi route used by the airplane. The master brake cylinder was disassembled and appeared to be in working order with no leaks. The airplane was placarded in accordance with Airworthiness Directive 85-02-05 R1. The placard states, "NO BRAKING WILL OCCUR IF AIRCRAFT BRAKES ARE APPLIED WHILE PARKING BRAKE HANDLE IS PULLED AND HELD."

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The normal brake system was inoperative due to undetermined reasons. A factor associated with the accident was the ditch that the airplane encountered.

Findings

Occurrence #1: LOSS OF CONTROL - ON GROUND/WATER
Phase of Operation: TAXI - TO TAKEOFF

Findings

1. (C) LANDING GEAR,NORMAL BRAKE SYSTEM - INOPERATIVE
2. (C) LANDING GEAR,NORMAL BRAKE SYSTEM - UNDETERMINED

Occurrence #2: ON GROUND/WATER ENCOUNTER WITH TERRAIN/WATER
Phase of Operation: TAXI - TO TAKEOFF

Findings

3. (F) TERRAIN CONDITION - DITCH

Occurrence #3: NOSE OVER
Phase of Operation: TAXI - TO TAKEOFF

Factual Information

On April 14, 2001, at 0930 central daylight time, a Piper PA-22-150, N3021Z, collided with the terrain and nosed over following a loss of brake pressure while taxiing for takeoff at the East Kansas City Airport, Grain Valley, Missouri. The private pilot was not injured and the airplane was substantially damaged. The 14 CFR Part 91 personal flight was operating in visual meteorological conditions without a flight plan. The local flight was originating at the time of the accident.

The pilot reported he was back-taxiing on runway 27 when the accident occurred. He reported that the brakes did not work when he applied them to slow the airplane in order to turn around for takeoff. The airplane traveled off the side of the runway and continued downhill into a ditch where it rolled onto the right wing.

The pilot stated that he applied the parking brake when the airplane was being fueled and the brakes worked properly at that time. In addition, he reported the brakes functioned normally when he performed the engine run-up. Inspection revealed that there was no brake fluid found on the hangar floor where the airplane was kept, nor was there any found along the taxi route used by the airplane.

An Airworthiness Inspector from the Kansas City, Missouri, Federal Aviation Administration (FAA) Flight Standards District Office inspected the airplane after the accident. The inspector reported that he disassembled the master brake cylinder and appeared to be in working order with no leaks. He reported that he was unable to determine any mechanical reason as to why the brakes would not have functioned.

The airplane was placarded in accordance with Airworthiness Directive 85-02-05 R1. The placard states, "NO BRAKING WILL OCCUR IF AIRCRAFT BRAKES ARE APPLIED WHILE PARKING BRAKE HANDLE IS PULLED AND HELD."

The FAA inspector stated that it is possible for the brake pressure to bleed off enough for the airplane to operate with the parking brake applied.

Pilot Information

Certificate:	Private	Age:	58, Male
Airplane Rating(s):	Single-engine land	Seat Occupied:	Left
Other Aircraft Rating(s):	None	Restraint Used:	
Instrument Rating(s):	None	Second Pilot Present:	No
Instructor Rating(s):	None	Toxicology Performed:	No
Medical Certification:	Class 3 Valid Medical-w/ waivers/lim	Last FAA Medical Exam:	December 1, 2000
Occupational Pilot:	UNK	Last Flight Review or Equivalent:	May 10, 2000
Flight Time:	1596 hours (Total, all aircraft), 1516 hours (Total, this make and model), 1496 hours (Pilot In Command, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Piper	Registration:	N3021Z
Model/Series:	PA-22-150	Aircraft Category:	Airplane
Year of Manufacture:		Amateur Built:	
Airworthiness Certificate:	Normal	Serial Number:	22-6974
Landing Gear Type:	Tricycle	Seats:	4
Date/Type of Last Inspection:	Annual	Certified Max Gross Wt.:	2000 lbs
Time Since Last Inspection:	30 Hrs	Engines:	1 Reciprocating
Airframe Total Time:	2125 Hrs	Engine Manufacturer:	Lycoming
ELT:	Installed, not activated	Engine Model/Series:	o-320-a2b
Registered Owner:	Stephen W. Marsh	Rated Power:	150 Horsepower
Operator:		Operating Certificate(s) Held:	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	Condition of Light:	Day
Observation Facility, Elevation:	MKC,759 ft msl	Distance from Accident Site:	23 Nautical Miles
Observation Time:	09:54 Local	Direction from Accident Site:	290°
Lowest Cloud Condition:	Clear	Visibility	10 miles
Lowest Ceiling:	None	Visibility (RVR):	
Wind Speed/Gusts:	9 knots /	Turbulence Type Forecast/Actual:	/
Wind Direction:	100°	Turbulence Severity Forecast/Actual:	/
Altimeter Setting:	30.04 inches Hg	Temperature/Dew Point:	16°C / 7°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Grain Valley, MO	Type of Flight Plan Filed:	None
Destination:		Type of Clearance:	None
Departure Time:		Type of Airspace:	Class G

Airport Information

Airport:	East Kansas City 3GV	Runway Surface Type:	Asphalt
Airport Elevation:	835 ft msl	Runway Surface Condition:	Dry
Runway Used:	09	IFR Approach:	Unknown
Runway Length/Width:	4500 ft / 45 ft	VFR Approach/Landing:	Unknown

Wreckage and Impact Information

Crew Injuries:	1 None	Aircraft Damage:	Substantial
Passenger Injuries:		Aircraft Fire:	None
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	1 None	Latitude, Longitude:	39.00003,-94.200981(est)

Administrative Information

Investigator In Charge (IIC):	Sullivan, Pamela
Additional Participating Persons:	Jim Wesley; FAA; Kansas City, MO
Original Publish Date:	May 21, 2002
Last Revision Date:	
Investigation Class:	Class
Note:	The NTSB traveled to the scene of this accident.
Investigation Docket:	https://data.nts.gov/Docket?ProjectID=52140

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](#).