Aviation Investigation Final Report

Location:	GREENVILLE, South Carolina	**Accident Number:**	ATL95FA101
Date & Time:	May 29, 1995, 12:07 Local	**Registration:**	N31328
Aircraft:	PIPER J3C-65	**Aircraft Damage:**	Destroyed
Defining Event:		**Injuries:**	1 Fatal, 1 Minor
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

ACCORDING TO THE REAR SEAT, PILOT-RATED, PASSENGER HE HAD PERFORMED TWO TOUCH & GO LANDINGS. AFTER THE SECOND ONE, THE FRONT SEAT PILOT TOOK CONTROL OF THE AIRPLANE TO EXECUTE ANOTHER TOUCH & GO. A STEEP LEFT TURN WAS INITIATED AND ABOUT 100 TO 200 FEET ABOVE THE GROUND, THE AIRPLANE STALLED. DURING THE POST CRASH EXAMINATION OF THE AIRPLANE, THE ELEVATOR TRIM WAS FOUND IN THE NEARLY FULL NOSE UP POSITION. POST CRASH TOXICOLOGY TESTS OF THE PILOT WERE POSITIVE FOR ANTIDEPRESSANTS THAT WERE BELOW THERAPEUTIC LEVELS. TOXICOLOGY TEST RESULTS OF THE REAR SEAT, PILOT-RATED, PASSENGER WERE REQUESTED, HOWEVER, THE HOSPITAL INDICATED THAT NO TESTS WERE ACCOMPLISHED.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The pilot's failure to maintain flying speed. A factor was his failure to reposition the elevator trim.

Findings

Occurrence #1: LOSS OF CONTROL - IN FLIGHT
Phase of Operation: TAKEOFF - INITIAL CLIMB

Findings
1. (F) ELEVATOR TRIM - NOT CORRECTED - PILOT IN COMMAND

2. (C) AIRSPEED(VS) - NOT MAINTAINED - PILOT IN COMMAND
3. (C) STALL/MUSH - INADVERTENT - PILOT IN COMMAND

Occurrence #2: IN FLIGHT COLLISION WITH TERRAIN/WATER
Phase of Operation: DESCENT - UNCONTROLLED

Factual Information

HISTORY OF FLIGHT

On May 29, 1995, at 1207 eastern daylight time, a Piper J3C-65, N31328, collided with terrain following an in flight loss of control at Donaldson Center, in Greenville, South Carolina. The commercial pilot/certificated flight instructor was fatally injured, and a pilot-rated passenger had minor injuries. The aircraft was operated under the provisions of 14 CFR Part 91 by Donaldson Air Services, Inc. Visual meteorological conditions existed at the time, and no flight plan was filed for the local, personal flight. The flight originated in Greenville about 1125 on the same day.

The passenger, who was in the rear seat, reported that he had just completed two touch and go landings. The front seat pilot assumed the controls after the second landing. The front seat pilot initiated a steep, left hand turn. About 100 to 200 feet above ground level, the aircraft stalled. The aircraft collided with the ground in a right wing low, nose low attitude. The aircraft caught fire, and the rear seat pilot assisted the front seat pilot from the burning wreckage.

PERSONNEL INFORMATION

Information on the pilot-in-command, James W. Keith, is included in this report at the section titled "First Pilot Information." Information on the pilot rated passenger, Thomas E. Nix, is included in Supplement E, attached to this report.

AIRCRAFT INFORMATION

Information on the aircraft is included in this report at the section titled "Aircraft Information."

Included in the aircraft maintenance records was an FAA Form 337, Major Repair and Alteration Form, which approved the installation of an automotive gasoline supplemental type certificate (STC). The form was dated May 7, 1991. According to representatives of the owner, the aircraft had been operating on automotive gasoline at the time of the accident.

METEOROLOGICAL INFORMATION

Visual meteorological conditions existed at the time of the accident. A listing of weather observations for Donaldson Center are included as an attachment to this report. Wind gusts were not recorded during the observations closest to the time of the accident, however, gusts were recorded subsequent to the accident.

WRECKAGE AND IMPACT INFORMATION

The wreckage was located about 525 feet southeast of the side edge of runway 22, in a grassy area, at Donaldson Center (see airport diagram, attached to this report). The wreckage distribution path was about 77 feet log, beginning with impact marks on the ground, and ending at the main wreckage. A wreckage distribution diagram is included as an attachment to this report.

The aircraft came to rest in an upright attitude. The right, main landing gear assembly was separated from the airframe. The remaining landing gear remained in place. There was extensive fire damage to the left wing, inboard half of the right wing, and fuselage. The engine also received extensive fire damage. The empennage was essentially intact, except for light heat damage.

Flight control continuity was confirmed to all flight control surfaces on the airframe. The elevator trim jack screw was found in a position which corresponded to a full nose up position. The aircraft was not fitted with trailing edge flaps. The lift struts were still connected at all points, on both wings. The wooden spars on the right wing were broken in an upward direction. There was no evidence of rot or deterioration on the fracture surfaces. Except for fire damage, the left wing spar structure was intact.

The fuel tank, mounted aft of the engine, was burned, and no residual fuel was found. There was general fire damage to the engine and cowling. The propeller remained attached to the engine. One blade exhibited aft bending at the tip. The other blade was "s" curved, with the tip bent forward. There were chordwise scratches on both blade surfaces.

MEDICAL AND PATHOLOGICAL INFORMATION

An autopsy of the first pilot was not performed due to the nature of his injuries, and due to the wishes of the family. Toxicology testing was performed at the Greenville Memorial Hospital, according to standard procedures. A copy of the toxicological report was provided by the Greenville County Coroner. The report indicated that the tests were positive for butalbital, serum 3.0 ug/ml; amitriptyline 12 ng/ml; and nortriptyline 10 ng/ml (total tricyclics 22 ng/ml). The report also indicated that the positive drugs were below the therapeutic level. The coroner stated that he discussed the case with the trauma center doctors who stated that the opiates (butabital) were the result of morphine given at the trauma center. The tricyclic, antidepressants, were not administered at the trauma center.

Hospital records of toxicology tests accomplished on the pilot-rated passenger, were requested. The hospital responded that there was "nothing for '95."

TESTS AND RESEARCH

The engine was removed from the airframe, and transported to a local aviation technical college for examination. The crankshaft was rotated by hand; all cylinders except the number

three cylinder showed evidence of compression. Impact damage was noted on the cylinder; the intake valve push rod and shroud had been crushed. The cylinder was removed, and the intake valve was found to be not seated. The intake valve was then removed. There was no evidence of deposits on the intake valve stem and guide. The dimensions of stem and guide were found to be within acceptable tolerances. The cylinder was replaced, and the engine was prepared for a test run.

There was fire damage to the magnetos and spark plug wiring harness; only one magneto would operate when tested. The carburetor had fire and heat damage and was replaced with an operable unit. The engine was then mounted on a test stand.

The carburetor bowl was filled with fuel, and the engine was started by hand. The engine ran successfully until the fuel was used from the carburetor. This procedure was repeated, and the engine again ran successfully.

ADDITIONAL INFORMATION

The aircraft wreckage was released to Donaldson Aircraft Services, Inc.

Pilot Information

Certificate:	Commercial; Flight instructor	**Age:**	56,Male
Airplane Rating(s):	Single-engine land; Multi-engine land	**Seat Occupied:**	Front
Other Aircraft Rating(s):	None	**Restraint Used:**	
Instrument Rating(s):	Airplane	**Second Pilot Present:**	Yes
Instructor Rating(s):	Airplane multi-engine; Airplane single-engine	**Toxicology Performed:**	Yes
Medical Certification:	Class 2 Valid Medical--w/ waivers/lim	**Last FAA Medical Exam:**	December 1, 1994
Occupational Pilot:	UNK	**Last Flight Review or Equivalent:**	
Flight Time:	7000 hours (Total, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	PIPER	**Registration:**	N31328
Model/Series:	J3C-65 J3C-65	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	3265
Landing Gear Type:	Tailwheel	**Seats:**	2
Date/Type of Last Inspection:	October 14, 1994 Annual	**Certified Max Gross Wt.:**	1220 lbs
Time Since Last Inspection:	91 Hrs	**Engines:**	1 Reciprocating
Airframe Total Time:	7398 Hrs	**Engine Manufacturer:**	CONTINENTAL
ELT:	Not installed	**Engine Model/Series:**	A-65-8F
Registered Owner:	DONALDSON AIR SERVICES, INC.	**Rated Power:**	65 Horsepower
Operator:		**Operating Certificate(s) Held:**	None
Operator Does Business As:		**Operator Designator Code:**	

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	7A1 ,955 ft msl	**Distance from Accident Site:**	
Observation Time:	12:15 Local	**Direction from Accident Site:**	
Lowest Cloud Condition:	Scattered / 1800 ft AGL	**Visibility**	10 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	6 knots /	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	240°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	30 inches Hg	**Temperature/Dew Point:**	23°C / 18°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	(7A1)	**Type of Flight Plan Filed:**	None
Destination:		**Type of Clearance:**	None
Departure Time:	00:00 Local	**Type of Airspace:**	Class G

Airport Information

Airport:	DONALDSON CENTER 7A1	**Runway Surface Type:**	Concrete
Airport Elevation:	955 ft msl	**Runway Surface Condition:**	Dry
Runway Used:	22	**IFR Approach:**	None
Runway Length/Width:	8000 ft / 150 ft	**VFR Approach/Landing:**	Touch and go

Wreckage and Impact Information

Crew Injuries:	1 Fatal	**Aircraft Damage:**	Destroyed
Passenger Injuries:	1 Minor	**Aircraft Fire:**	On-ground
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	1 Fatal, 1 Minor	**Latitude, Longitude:**	34.770454,-82.37918(est)

Administrative Information

Investigator In Charge (IIC):	Hicks, Ralph
Additional Participating Persons:	LEWIS W BLACKWELL; W. COLUMBIA , SC JAMES R COKER; W. COLUMBIA , SC
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Last Revision Date:	
Investigation Class:	Class
Note:	
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=3482