



National Transportation Safety Board Aviation Accident Final Report

Location:	Grand Rapids, MI	Accident Number:	CHI03LA063
Date & Time:	02/01/2003, 0800 EST	Registration:	N5677X
Aircraft:	Beech A36	Aircraft Damage:	Substantial
Defining Event:		Injuries:	2 None
Flight Conducted Under:	Part 91: General Aviation - Instructional		

Analysis

The airplane received substantial damage during a high speed pull-up while recovering from an unusual attitude after a loss of control during an instrument training flight in actual instrument meteorological conditions. The ceiling was reported to be overcast at 700 feet above ground level. The airplane subsequently returned to the departure airport. The certified flight instructor who was on-board the airplane reported that pre-departure checks of the flight instruments were normal. He said that, during the flight the gyroscopic flight instrument became unusable. A postaccident examination revealed that the turn coordinator circuit breaker was in the open position. Further testing revealed no detectable defects in the gyroscopic flight instruments and instrument pressure system.

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 aircraft control which resulted in the overload of the aircraft. Spatial disorientation, an inoperative turn coordinator, and the pilot's misinterpretation of the flight instruments were contributing factors.

Findings

Occurrence #1: LOSS OF CONTROL - IN FLIGHT

Phase of Operation: CRUISE

Findings

1. (F) ELECTRICAL SYSTEM,CIRCUIT BREAKER - DISENGAGED
2. (F) FLIGHT/NAV INSTRUMENTS,TURN AND BANK INDICATOR - INOPERATIVE
3. (F) WEATHER CONDITION - LOW CEILING
4. (C) FLIGHT/NAVIGATION INSTRUMENT(S) - MISJUDGED - PILOT IN COMMAND(CFI)
5. (C) AIRCRAFT CONTROL - NOT MAINTAINED - PILOT IN COMMAND(CFI)
6. (F) SPATIAL DISORIENTATION - PILOT IN COMMAND(CFI)

Occurrence #2: ABRUPT MANEUVER

Phase of Operation: DESCENT - UNCONTROLLED

Findings

7. (C) AIRFRAME - OVERLOAD
8. (C) PULL-UP - ABRUPT - PILOT IN COMMAND(CFI)
9. (F) AIRSPEED - HIGH - PILOT IN COMMAND(CFI)

Factual Information

On February 01, 2003, about 0800 eastern standard time, a Beech A36, N5677X, piloted by a certified flight instructor (CFI) and dual student, sustained substantial damage during a recovery from an unusual attitude after a loss of control during instrument flight. The non-instrument rated dual student held a private pilot certificate with a single engine land rating. The 14 CFR Part 91 training flight was operated in instrument meteorological conditions (IMC) with an instrument flight plan. No injuries were reported. The flight originated from the Gerald R. Ford International Airport (GRR), Grand Rapids, Michigan, about 10 minutes prior to the loss of control. The destination has not been determined.

The weather reporting station located at the departure airport recorded the ceiling and visibility as overcast ceiling at 700 feet above ground level, and 7 statute miles respectively. The report was taken about 4 minutes prior to the accident.

The CFI reported that prior to departure checks of the engine and flight instruments were normal. He stated that the takeoff was uneventful. Shortly after takeoff the airplane entered IMC. The CFI said he noticed that the airplane was in a 30 degree bank and he applied right aileron to correct. He said that a subsequent scan of the turn coordinator showed wings level. He said that another scan of the attitude indicator showed a bank angle in excess of 60 degrees. The CFI stated that he assumed control of the airplane and determined that the gyroscopic instruments were not usable. According to the CFI, the airplane exited IMC in an unusual, high speed, nose down, left bank attitude and he used right aileron and up elevator to recover. The CFI regained control below the overcast and returned to the departure airport. The airplane was substantially damaged due to the pull up during recovery.

A postaccident examination of the airplane was conducted. The wings, horizontal stabilizer skins were wrinkled. Further examination revealed that the wing and horizontal stabilizer spars were damaged. During the examination, the turn coordinator circuit breaker was found in the open position. A run up and taxi test confirmed that the primary and backup instrument pressure systems were operational. The pressure gyroscopic instruments functioned without noticeable defect during the test. Additionally, the turn coordinator circuit breaker was reset and no noticeable defects in operation were found during the test.

Subsequent to the taxi testing, the artificial horizon indicator (AHI) was removed for further examination. Bench testing of the AHI was performed by a certified repair station under the supervision of a Federal Aviation Administration official. The testing of the AHI revealed that the unit was in an airworthy condition.

Flight Instructor Information

Certificate:	Commercial	Age:	37, Male
Airplane Rating(s):	Multi-engine Land; Single-engine Land	Seat Occupied:	Right
Other Aircraft Rating(s):	None	Restraint Used:	Seatbelt, Shoulder harness
Instrument Rating(s):	Airplane	Second Pilot Present:	Yes
Instructor Rating(s):	Airplane Multi-engine; Airplane Single-engine; Instrument Airplane	Toxicology Performed:	No
Medical Certification:	Class 1 Valid Medical--no waivers/lim.	Last FAA Medical Exam:	10/23/2001
Occupational Pilot:		Last Flight Review or Equivalent:	
Flight Time:	1230 hours (Total, all aircraft), 16 hours (Total, this make and model), 1160 hours (Pilot In Command, all aircraft), 87 hours (Last 90 days, all aircraft), 25 hours (Last 30 days, all aircraft), 0 hours (Last 24 hours, all aircraft)		

Pilot Information

Certificate:		Age:	
Airplane Rating(s):		Seat Occupied:	
Other Aircraft Rating(s):		Restraint Used:	
Instrument Rating(s):		Second Pilot Present:	Yes
Instructor Rating(s):		Toxicology Performed:	
Medical Certification:		Last FAA Medical Exam:	
Occupational Pilot:		Last Flight Review or Equivalent:	
Flight Time:			

Aircraft and Owner/Operator Information

Aircraft Make:	Beech	Registration:	N5677X
Model/Series:	A36	Aircraft Category:	Airplane
Year of Manufacture:		Amateur Built:	No
Airworthiness Certificate:	Utility	Serial Number:	EZ797
Landing Gear Type:	Retractable - Tricycle	Seats:	6
Date/Type of Last Inspection:	12/02/2002, Annual	Certified Max Gross Wt.:	3650 lbs
Time Since Last Inspection:	14 Hours	Engines:	1 Reciprocating
Airframe Total Time:		Engine Manufacturer:	Continental
ELT:		Engine Model/Series:	IO 550B
Registered Owner:	Hole Shot Racing Inc.	Rated Power:	300 hp
Operator:	Larry L. Brown	Operating Certificate(s) Held:	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Instrument Conditions	Condition of Light:	Day
Observation Facility, Elevation:	GRR, 793 ft msl	Distance from Accident Site:	
Observation Time:	0756 EDT	Direction from Accident Site:	
Lowest Cloud Condition:	Unknown	Visibility	7 Miles
Lowest Ceiling:	Overcast / 700 ft agl	Visibility (RVR):	
Wind Speed/Gusts:	9 knots /	Turbulence Type Forecast/Actual:	/
Wind Direction:	300°	Turbulence Severity Forecast/Actual:	/
Altimeter Setting:	29.89 inches Hg	Temperature/Dew Point:	0°C / -1°C
Precipitation and Obscuration:			
Departure Point:	Grand Rapids, MI (GRR)	Type of Flight Plan Filed:	IFR
Destination:	Unknown	Type of Clearance:	IFR
Departure Time:	0750 EST	Type of Airspace:	Class D

Airport Information

Airport:	Gerald R. Ford International (KGRR)	Runway Surface Type:	
Airport Elevation:		Runway Surface Condition:	
Runway Used:		IFR Approach:	Unknown
Runway Length/Width:		VFR Approach/Landing:	Unknown

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:	42.880833, -85.522778

Administrative Information

Investigator In Charge (IIC):	John M Brannen	Report Date:	09/30/2003
Additional Participating Persons:	Don Finney; FAA-Grand Rapids, Michigan-FSDO; Grand Rapids, MI		
Publish Date:			
Investigation Docket:	NTSB accident and incident dockets serve as permanent archival information for the NTSB's investigations. Dockets released prior to June 1, 2009 are publicly available from the NTSB's Record Management Division at pubinq@ntsb.gov , or at 800-877-6799. Dockets released after this date are available at http://dms.nts.gov/pubdms/ .		

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