



National Transportation Safety Board Aviation Accident Final Report

Location:	Newark, OH	Accident Number:	IAD01LA035
Date & Time:	03/01/2001, 1255 EST	Registration:	N3738Y
Aircraft:	Cessna 210	Aircraft Damage:	Substantial
Defining Event:		Injuries:	2 None
Flight Conducted Under:	Part 91: General Aviation - Personal		

Analysis

During a descent the pilot noted "extreme pressure" was required to pull back on the controls to level the airplane. The pilot was unable to maintain altitude and continued on a straight-in approach for the airport. During the landing flare, the pilot could not pull the control yoke "far enough to roundout," and the airplane landed hard on the nosewheel, and came to rest off the side of the runway. A flight control check after the accident revealed that the flight controls could only be deflected aft to the "level flight" position. The horizontal situational indicator (HSI) was then removed from the instrument panel, and the flight controls could be deflected to their full aft position. Examination of the control stop on the control column tube, revealed significant chaffing marks and black paint transfer on its upper surface. Examination of the rear casing of the HSI revealed similar chaffing marks and an indentation consistent with the shape of the control column stop, on the lower edge of the instrument. Additionally, five shock mounts were installed on the instrument panel, of which the lower right and lower center shock mounts were broken, and the upper left shock mount was not attached. Examination of the shock mounts revealed they were fractured through their elastomeric center sections on one end of the mount, and large gaping cracks were noted on the opposite end of the mounts. A large number of smaller circumferential cracks were also observed through the center section of the mounts. The maintenance logbooks revealed that the HSI was installed in the airplane on August 17, 1994, by an avionics facility, to replace the original directional gyro (DG) instrument. According to the Cessna 210 Service Manual, "The service life of shock-mounted instruments is directly related to adequate shock-mounting of the panel. If removal of the shock-mounted panel is necessary, check mounts for deterioration and replace as necessary." Detailed examination of the shock mounts revealed they were the original shock mounts installed in the airplane in December 1963.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: Improper maintenance, which resulted in the failure of the instrument panel shock mounts.

Findings

Occurrence #1: AIRFRAME/COMPONENT/SYSTEM FAILURE/MALFUNCTION
Phase of Operation: DESCENT - NORMAL

Findings

1. FLIGHT CONTROL,ELEVATOR - OBSTRUCTED
 2. FLIGHT/NAV INSTRUMENTS - SHIFTED
 3. (C) MAINTENANCE - IMPROPER - OTHER MAINTENANCE PERSONNEL
-

Occurrence #2: HARD LANDING
Phase of Operation: LANDING - FLARE/TOUCHDOWN

Findings

4. FLARE - NOT POSSIBLE

Factual Information

On March 1, 2001, at 1255 eastern standard time, a Cessna 210, N3738Y, was substantially damaged during landing at the Newark-Heath Airport (VTA), Newark, Ohio. The certificated private pilot and passenger were not injured. Visual meteorological conditions prevailed for the personal flight which originated from the Ronald Reagan Washington National Airport (DCA), Washington, D.C., at 0930. No flight plan was filed for the flight conducted under 14 CFR Part 91.

In a written statement, the pilot stated:

"I departed DCA, VFR, at approximately 9:30 EST on March 1, 2001. I was cleared to 8,500 feet, eventually on course to KVTA. At 8,500 feet the air was smooth. I had VFR flight following until approximately 35 miles out of KVTA, I was told to squawk 1200, and change to the local frequency."

"I started to reduce power in anticipation of going to a lower altitude, and eventually to land. I descended to 6,500 feet and we were feeling some occasional turbulence. I continued to reduce my power to continue the descent. When I reached 4,500 feet, I started to level off. When I leveled off, the plane felt somewhat nose heavy, and it seemed to me that no matter what I would do, I could not make the plane climb. It was taking two hands to pull on the yoke to stop the descent. I turned the trim tab to full nose up, and that seemed to help relieve the control pressures a little bit, but it was still taking extreme pressure to try and stop the descent."

"I monitored the ASOS for VTA and found that the winds were from 250, at approximately 15 knots. With the controls not feeling exactly right, I decided to come straight in for runway 27, instead of flying a pattern. I called out my intentions for a straight in approach when I was approximately 7 miles out..."

"As we got closer to the runway, I was descending faster than normal due to the controls not feeling correct. As we approached trees on final it appeared that we would not clear them, so I added power to stop the descent and we leveled off above the treetops. Once we were beyond the trees, I reduced power in anticipation of landing. When we were above the runway, and it was time to flare, I could not get the yoke to come back far enough to roundout. We hit the runway very hard on the nose wheel, porpoised back into the air approximately 30 feet, at that point, I tried applying power to make the next impact less, but the plane did not respond, it came back down, bounced again, we bounced one more time on the grass between the runway and taxiway, at which point the nose wheel broke off, and we skidded across the taxiway until we stopped on the grass at the other side, nose down."

The airplane was examined by a Federal Aviation Administration (FAA) inspector. A flight control continuity check performed by the inspector revealed that the control column could only be deflected aft to the "level flight" position.

The inspector removed the horizontal situational indicator (HSI) from the instrument panel, and was then able to deflect the flight controls to their full aft position. Examination of the control stop on the control column tube, revealed significant chaffing marks and black paint transfer on its upper surface. Examination of the rear casing of the HSI revealed similar chaffing marks and an indentation consistent with the shape of the control column stop, on the lower edge of the instrument. Additionally, the inspector reported that five shock mounts were

installed on the instrument panel, of which the lower right and lower center shock mounts were broken, and the upper left shock mount was not attached.

The lower right and lower center shock mounts were examined at the Safety Board Materials Laboratory, on August 31, 2001. According to the Materials Laboratory factual report, each mount consisted of an elastomeric center section bonded to a stub plate with an attached threaded rod. Both mounts were fractured through their elastomeric center sections in a crescent-shaped region. The crescent region on both mounts intersected the exterior surface of the elastomeric section on multiple planes adjacent to the stub plate and progressed into the elastomeric section at an angle of about 80 degrees. Additionally noted on both mounts was a large gaping crack located on the end of the mount opposite from the fracture. Detailed examination also revealed the presence of a large number of smaller circumferential cracks located throughout the center section.

Examination of the maintenance logbooks revealed that the HSI was installed in the airplane on August 17, 1994, by an avionics facility, to replace the original directional gyro (DG) instrument. The HSI was installed about 3/4-inch above the control column, and was measured to be 9-inches long.

The distance between the HSI and the control column measured after the accident was about 1/2-inch.

According to the Cessna Model 210 Service Manual, "The service life of shock-mounted instruments is directly related to adequate shock-mounting of the panel. If removal of the shock-mounted panel is necessary, check mounts for deterioration and replace as necessary."

Detailed examination of the shock mounts revealed they were the original shock mounts installed in the airplane in December, 1963.

The pilot reported 736 hours of total flight experience, 250 of which were in make and model.

Pilot Information

Certificate:	Private	Age:	42, Male
Airplane Rating(s):	Single-engine Land	Seat Occupied:	Left
Other Aircraft Rating(s):	None	Restraint Used:	Seatbelt, Shoulder harness
Instrument Rating(s):	Airplane	Second Pilot Present:	No
Instructor Rating(s):	None	Toxicology Performed:	No
Medical Certification:	Class 3 Valid Medical--w/ waivers/lim.	Last FAA Medical Exam:	10/13/1999
Occupational Pilot:		Last Flight Review or Equivalent:	09/25/2000
Flight Time:	736 hours (Total, all aircraft), 250 hours (Total, this make and model), 639 hours (Pilot In Command, all aircraft), 14 hours (Last 90 days, all aircraft), 9 hours (Last 30 days, all aircraft), 2 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Cessna	Registration:	N3738Y
Model/Series:	210	Aircraft Category:	Airplane
Year of Manufacture:		Amateur Built:	No
Airworthiness Certificate:	Normal	Serial Number:	21058238
Landing Gear Type:	Retractable - Tricycle	Seats:	4
Date/Type of Last Inspection:	02/02/2001, Annual	Certified Max Gross Wt.:	3100 lbs
Time Since Last Inspection:	12 Hours	Engines:	1 Reciprocating
Airframe Total Time:	3304 Hours at time of accident	Engine Manufacturer:	Continental
ELT:	Installed, not activated	Engine Model/Series:	IO-520
Registered Owner:	Lighthouse Aviation LLC	Rated Power:	285 hp
Operator:	Julianne Hartlaub	Operating Certificate(s) Held:	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual Conditions	Condition of Light:	Day
Observation Facility, Elevation:	VTA, 884 ft msl	Distance from Accident Site:	
Observation Time:	1254 EST	Direction from Accident Site:	
Lowest Cloud Condition:	Clear	Visibility	10 Miles
Lowest Ceiling:	None	Visibility (RVR):	
Wind Speed/Gusts:	17 knots / 22 knots	Turbulence Type Forecast/Actual:	/
Wind Direction:	260°	Turbulence Severity Forecast/Actual:	/
Altimeter Setting:	29.93 inches Hg	Temperature/Dew Point:	4°C / -7°C
Precipitation and Obscuration:			
Departure Point:	Washington, DC (DCA)	Type of Flight Plan Filed:	None
Destination:	Newark, OH (VTA)	Type of Clearance:	VFR
Departure Time:	0930 EST	Type of Airspace:	Class G

Airport Information

Airport:	Newark Heath Airport (VTA)	Runway Surface Type:	Asphalt
Airport Elevation:	884 ft	Runway Surface Condition:	Dry
Runway Used:	27	IFR Approach:	Unknown
Runway Length/Width:	4648 ft / 75 ft	VFR Approach/Landing:	Full Stop; Straight-in

Wreckage and Impact Information

Crew Injuries:	1 None	Aircraft Damage:	Substantial
Passenger Injuries:	1 None	Aircraft Fire:	None
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	2 None	Latitude, Longitude:	40.024444, -82.461667

Administrative Information

Investigator In Charge (IIC):	JILL M ANDREWS	Report Date:	05/13/2003
Additional Participating Persons:	Lee Thiel; Federal Aviation Administration; Columbus, OH		
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/ .		

The National Transportation Safety Board (NTSB), established in 1967, is an independent federal agency mandated by Congress through the Independent Safety Board Act of 1974 to investigate transportation accidents, determine the probable causes of the accidents, issue safety recommendations, study transportation safety issues, and evaluate the safety effectiveness of government agencies involved in transportation. The NTSB makes public its actions and decisions through accident reports, safety studies, special investigation reports, safety recommendations, and statistical reviews.

The Independent Safety Board Act, as codified at 49 U.S.C. Section 1154(b), precludes the admission into evidence or use of any part of an NTSB report related to an incident or accident in a civil action for damages resulting from a matter mentioned in the report. A factual report that may be admissible under 49 U.S.C. § 1154(b) is available [here](#).