



National Transportation Safety Board Aviation Accident Final Report

Location:	Robbinsville, NJ	Accident Number:	IAD05LA001
Date & Time:	10/02/2004, 1430 EDT	Registration:	N5507V
Aircraft:	Piper PA-34-200T	Aircraft Damage:	Substantial
Defining Event:		Injuries:	1 None
Flight Conducted Under:	Part 91: General Aviation - Personal		

Analysis

During the takeoff roll, and at an indicated airspeed of about 70 to 75 knots, the pilot felt the nose of the airplane dip and then rise off the ground. The pilot pushed the control yoke forward to level the airplane; it contacted the runway, and then skidded to a stop. The landing gear collapsed. Examination of the airplane revealed that the stabilator trim rod forward attachment hardware and the aft attachment nut were not installed. Photographs of the stabilator trim tab attachment point showed that it was visible and not obscured by any cowlings or coverings. The loss of the forward attachment hardware would result in an abnormal response, or "lightening," of the stabilator control. About 60 flight hours and 11 months prior to the accident, a repair station had removed, repaired, and reinstalled the stabilator trim tab.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The repair station's improper installation of the stabilator trim tab. A factor was the pilot's inadequate preflight inspection of the airplane.

Findings

Occurrence #1: AIRFRAME/COMPONENT/SYSTEM FAILURE/MALFUNCTION
Phase of Operation: TAKEOFF - ROLL/RUN

Findings

1. MISCELLANEOUS,BOLT/NUT/FASTENER/CLAMP/SPRING - NOT SECURED
2. STABILATOR TRIM - IMPROPER - OTHER MAINTENANCE PERSONNEL
3. (C) MAINTENANCE,INSTALLATION - IMPROPER - OTHER MAINTENANCE PERSONNEL
4. (F) AIRCRAFT PREFLIGHT - INADEQUATE - PILOT IN COMMAND

Occurrence #2: LOSS OF CONTROL - ON GROUND/WATER
Phase of Operation: TAKEOFF - ROLL/RUN

Occurrence #3: IN FLIGHT COLLISION WITH TERRAIN/WATER
Phase of Operation: TAKEOFF

Occurrence #4: GEAR COLLAPSED
Phase of Operation: TAKEOFF

Factual Information

On October 2, 2004, at 1430 eastern daylight time, a Piper PA-34-200T, N5507V, was substantially damaged during the takeoff roll at Trenton-Robbinsville Airport (N87), Robbinsville, New Jersey. The certificated private pilot was not injured. Visual meteorological conditions prevailed, and no flight plan had been filed for the local personal flight, conducted under 14 CFR Part 91.

In a written statement the pilot stated that during the takeoff roll, and at an indicated airspeed of about 70 to 75 knots, she felt the nose of the airplane dip and then rise off the ground. She pushed the control yoke forward to level the airplane, it contacted the runway, and then skidded to a stop.

Examination of the wreckage by a Federal Aviation Administration (FAA) inspector revealed that the airplane's left main landing gear was sheared off at the strut, and the right main and nose landing gear were collapsed. The left main landing gear axle nut was separated from the axle and was found on the runway with the cotter key still attached.

Further examination revealed that the stabilator trim rod forward attachment hardware was not installed. The bolt and associated nut were not recovered. The stabilator trim rod aft attachment bolt was in place, but the nut was not installed, nor was it recovered.

Examination of photographs taken by the FAA inspector of the trim rod attachment point revealed that the trim rod attachment point was visible on the underside of the stabilator trim tab, and was not obscured by any cowlings or coverings.

According to the New Piper Aircraft Customer Care Team, with the stabilator trim set at a neutral position and the forward stabilator trim rod attachment bolt not installed, the stabilator would not perform as expected by the pilot. As airspeed increased, the lift force and hinge moment produced by the trim tab would result in a "lightening" of the stabilator control. "Normal" pilot effort would result in an unexpected over-rotation.

Examination of the airplane's maintenance log revealed that the airplane had undergone an annual inspection about 60 flight hours and 11 months prior to the accident. A review of the repair station's work order describing the services performed to the airplane revealed that the stabilator trim tab had been removed, repaired, and reinstalled.

Pilot Information

Certificate:	Private	Age:	60, Male
Airplane Rating(s):	Multi-engine Land; 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:	07/03/2003
Occupational Pilot:		Last Flight Review or Equivalent:	01/10/2004
Flight Time:	1833 hours (Total, all aircraft), 716 hours (Total, this make and model), 1714 hours (Pilot In Command, all aircraft), 30 hours (Last 90 days, all aircraft), 12 hours (Last 30 days, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Piper	Registration:	N5507V
Model/Series:	PA-34-200T	Aircraft Category:	Airplane
Year of Manufacture:		Amateur Built:	No
Airworthiness Certificate:	Normal	Serial Number:	34-7770232
Landing Gear Type:	Retractable - Tricycle	Seats:	6
Date/Type of Last Inspection:	12/17/2003, Annual	Certified Max Gross Wt.:	4570 lbs
Time Since Last Inspection:	60 Hours	Engines:	2 Reciprocating
Airframe Total Time:	4147 Hours as of last inspection	Engine Manufacturer:	Lycoming
ELT:	Installed, activated, did not aid in locating accident	Engine Model/Series:	IO-360
Registered Owner:	Eugenia M. Singer	Rated Power:	200 hp
Operator:	Eugenia M. Singer	Operating Certificate(s) Held:	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual Conditions	Condition of Light:	Day
Observation Facility, Elevation:	TTN, 213 ft msl	Distance from Accident Site:	11 Nautical Miles
Observation Time:	1453 EDT	Direction from Accident Site:	315°
Lowest Cloud Condition:	Thin Overcast / 2300 ft agl	Visibility	10 Miles
Lowest Ceiling:	Overcast / 2300 ft agl	Visibility (RVR):	
Wind Speed/Gusts:	9 knots /	Turbulence Type Forecast/Actual:	/
Wind Direction:	160°	Turbulence Severity Forecast/Actual:	/
Altimeter Setting:	30.13 inches Hg	Temperature/Dew Point:	18° C / 15° C
Precipitation and Obscuration:			
Departure Point:	Robbinsville, NJ (N87)	Type of Flight Plan Filed:	None
Destination:		Type of Clearance:	None
Departure Time:	1430 EDT	Type of Airspace:	Class G

Airport Information

Airport:	Trenton-Robbinsville Airport (N87)	Runway Surface Type:	Asphalt
Airport Elevation:	119 ft	Runway Surface Condition:	Unknown
Runway Used:	11	IFR Approach:	None
Runway Length/Width:	4275 ft / 80 ft	VFR Approach/Landing:	None

Wreckage and Impact Information

Crew Injuries:	1 None	Aircraft Damage:	Substantial
Passenger Injuries:	N/A	Aircraft Fire:	None
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	1 None	Latitude, Longitude:	40.213889, -74.601667

Administrative Information

Investigator In Charge (IIC):	Robert L Pearce	Report Date:	02/24/2005
Additional Participating Persons:	Dave Grasso; FAA/FSDO; Philadelphia, PA		
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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