



Aviation Investigation Final Report

Location:	Tacoma, Washington	Accident Number:	SEA06CA018
Date & Time:	November 2, 2005, 17:00 Local	Registration:	N1959P
Aircraft:	Piper PA-24-250	Aircraft Damage:	Substantial
Defining Event:		Injuries:	3 None
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

After making contact with the tower, and being cleared for a left base entry, the pilot completed his before landing check and lowered the landing gear. He then tried to call the tower to report he was entering the base leg, but realized that his radio was not transmitting. The aircraft subsequently experienced a complete loss of electrical power, and the pilot was therefore unable to confirm the gear was down and locked, as the green Gear Down lights were unable to illuminate. The pilot then flew low over the runway until he felt the main wheels touch the runway surface, and then he executed a go-around. After completing the go-around, the pilot went around the pattern and executed what he thought was going to be a normal full stop landing. But just after the aircraft touched down, the landing gear folded back up into the wheel wells, and the aircraft skidded down the runway on its belly. The investigation later determined that the gear had not fully extended because of the loss of electrical power. It was also determined that although the aircraft's battery and alternator were capable of operating normally, the voltage regulating system had malfunctioned, thus allowing the battery to become almost fully discharged. The pilot did not use the emergency gear extension system/sequence to make sure of the position and condition of the landing gear, but instead trusted the gear to be fully down and locked just because he felt the tires touch the runway surface during the low pass.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The collapse of the landing gear due to the pilot's failure to use the emergency gear extension system after his aircraft experienced a complete loss of electrical power. Factors include the

malfunction of the voltage regulating system, which lead to the almost total discharge of the battery.

Findings

Occurrence #1: AIRFRAME/COMPONENT/SYSTEM FAILURE/MALFUNCTION
Phase of Operation: CRUISE

Findings

1. (F) ELECTRICAL SYSTEM - MALFUNCTION

Occurrence #2: GEAR COLLAPSED
Phase of Operation: LANDING - ROLL

Findings

2. (C) GEAR EXTENSION - NOT VERIFIED - PILOT IN COMMAND

Factual Information

On November 2, 2005, approximately 1700 Pacific standard time, a Piper PA-24-250, N1959P, experienced a collapse of all three landing gear during the landing roll at Tacoma Narrows Airport, Tacoma, Washington. The private pilot and his two passengers were not injured, but the aircraft, which is owned and operated by the pilot, sustained substantial damage. The 14 CFR Part 91 personal pleasure flight, which departed Pierce County Airport, Puyallup, Washington, about 15 minutes prior to the accident, was being operated in visual meteorological conditions. No flight plan had been filed.

According to the pilot, after making contact with Tacoma Narrows Tower, and being cleared for a left base entry, he completed his before landing check and lowered the landing gear. He then tried to call the tower to report he was entering the base leg, but realized that his radio was not transmitting. The aircraft subsequently experienced a complete loss of electrical power, and the pilot was therefore unable to confirm the gear was down and locked, as the green Gear Down lights were unable to illuminate. The pilot then flew low over the runway until he felt the main wheels touch the runway surface, and then he executed a go-around. After completing the go-around, the pilot went around the pattern and executed what he thought was going to be a normal full stop landing. But just after the aircraft touched down, the landing gear folded back up into the wheel wells, and the aircraft skidded down the runway on its belly. The investigation later determined that the gear had not fully extended because of the loss of electrical power. It was also determined that although the aircraft's battery and alternator were capable of operating normally, the voltage regulating system had malfunctioned, thus allowing the battery to become almost fully discharged.

During the investigation, the pilot told the Investigator-In-charge that he now realized that he should not have trusted the gear to be fully down and locked just because he felt the tires touch the runway surface, but instead should have used the emergency gear extension system/sequence to make sure of their position and condition.

Pilot Information

Certificate:	Private	Age:	66, Male
Airplane Rating(s):	Single-engine land; Multi-engine land	Seat Occupied:	
Other Aircraft Rating(s):	None	Restraint Used:	
Instrument Rating(s):	Airplane	Second Pilot Present:	
Instructor Rating(s):		Toxicology Performed:	No
Medical Certification:	Class 3	Last FAA Medical Exam:	April 1, 2005
Occupational Pilot:		Last Flight Review or Equivalent:	
Flight Time:	769 hours (Total, all aircraft), 98 hours (Total, this make and model)		

Aircraft and Owner/Operator Information

Aircraft Make:	Piper	Registration:	N1959P
Model/Series:	PA-24-250	Aircraft Category:	Airplane
Year of Manufacture:		Amateur Built:	
Airworthiness Certificate:	Normal	Serial Number:	24419
Landing Gear Type:	Retractable - Tricycle	Seats:	
Date/Type of Last Inspection:		Certified Max Gross Wt.:	
Time Since Last Inspection:		Engines:	1 Reciprocating
Airframe Total Time:		Engine Manufacturer:	Lycoming
ELT:		Engine Model/Series:	O-540-A1A5
Registered Owner:	Ronald G. Moore	Rated Power:	
Operator:		Operating Certificate(s) Held:	None
Operator Does Business As:	Comanche Air, Inc.	Operator Designator Code:	

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	Condition of Light:	Day
Observation Facility, Elevation:		Distance from Accident Site:	
Observation Time:		Direction from Accident Site:	
Lowest Cloud Condition:		Visibility	
Lowest Ceiling:		Visibility (RVR):	
Wind Speed/Gusts:	/	Turbulence Type Forecast/Actual:	/
Wind Direction:		Turbulence Severity Forecast/Actual:	/
Altimeter Setting:		Temperature/Dew Point:	
Precipitation and Obscuration:			
Departure Point:	Spanaway, WA (1S0)	Type of Flight Plan Filed:	None
Destination:	Tacoma, WA (TIW)	Type of Clearance:	None
Departure Time:		Type of Airspace:	

Wreckage and Impact Information

Crew Injuries:	1 None	Aircraft Damage:	Substantial
Passenger Injuries:	2 None	Aircraft Fire:	None
Ground Injuries:	N/A	Aircraft Explosion:	
Total Injuries:	3 None	Latitude, Longitude:	47.268054,-122.578056

Administrative Information

Investigator In Charge (IIC): Anderson, Orrin

Additional Participating Persons:

Original Publish Date: March 28, 2006

Last Revision Date:

Investigation Class: [Class](#)

Note: This accident report documents the factual circumstances of this accident as described to the NTSB.

Investigation Docket: <https://data.nts.gov/Docket?ProjectID=62860>

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](#).