



Aviation Investigation Final Report

Location:	St. George, Utah	Accident Number:	DEN03LA065
Date & Time:	April 15, 2003, 19:20 Local	Registration:	N31998
Aircraft:	Piper PA-32RT-300T	Aircraft Damage:	Substantial
Defining Event:		Injuries:	4 None
Flight Conducted Under:	Part 91: General aviation		

Analysis

The pilot made a normal straight-in approach and "crossed the fence at about 80 to 90 knots." Just before touchdown, the airplane "ballooned" and touched down "a little harder than normal." The nose gear collapsed and the airplane skidded to a halt about 1,300 feet down the runway. The nose landing gear down-lock and an exemplar down-lock were sent to NTSB's materials laboratory for examination. The examination showed the down-lock "contained a fracture that intersected the hook portion." Microscopic examination revealed "a river pattern that pointed to the inner bend area of the hook, indicating that this was the origin of the fracture. The fracture face contained features typical of overstress separation, with no evidence of a preexisting (fatigue) crack. The origin area of the fracture contained no evidence of mechanical or corrosion damage. However, contact wear was noted in the throat of the hook."

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: the pilot's improper flare technique, resulting in a hard landing that caused the nose landing gear down-lock to fail and the gear to collapse. A contributing factor was the unfavorable wind.

Findings

Occurrence #1: HARD LANDING
Phase of Operation: LANDING - FLARE/TOUCHDOWN

Findings

1. (F) WEATHER CONDITION - UNFAVORABLE WIND
2. (C) FLARE - IMPROPER - PILOT IN COMMAND

Occurrence #2: AIRFRAME/COMPONENT/SYSTEM FAILURE/MALFUNCTION
Phase of Operation: LANDING - FLARE/TOUCHDOWN

Findings

3. (C) LANDING GEAR,GEAR LOCKING MECHANISM - FAILURE,TOTAL

Factual Information

On April 15, 2003, approximately 1920 mountain daylight time, a Piper PA-32RT-300T, N31998, owned and operated by the pilot, was substantially damaged during a hard landing at St. George Municipal Airport, Utah. The private pilot, two pilot certificated passengers, and a third passenger were not injured. Visual meteorological conditions prevailed, and no flight plan had been filed for the business flight being conducted under Title 14 CFR Part 91. The flight originated at Long Beach, California, approximately 1720 Pacific daylight time.

According to the pilot, he made a normal straight-in approach to runway 34 and "crossed the fence at about 80 to 90 knots." Just before touchdown, the airplane "ballooned" and touched down "a little harder than normal." The nose gear collapsed and the airplane skidded to a halt about 1,300 feet down the runway.

The nose landing gear down-lock was removed and, along with an exemplar down-lock, was sent to NTSB's materials laboratory for examination. According to its report, the down-lock "contained a fracture that intersected the hook portion." Microscopic examination revealed "a river pattern that pointed to the inner bend area of the hook, indicating that this was the origin of the fracture. The fracture face contained features typical of overstress separation, with no evidence of a preexisting (fatigue) crack. The origin area of the fracture contained no evidence of mechanical or corrosion damage. However, contact wear was noted in the throat of the hook."

Pilot Information

Certificate:	Private	Age:	56, Male
Airplane Rating(s):	Single-engine land	Seat Occupied:	Left
Other Aircraft Rating(s):	Helicopter	Restraint Used:	
Instrument Rating(s):	None	Second Pilot Present:	Yes
Instructor Rating(s):	None	Toxicology Performed:	No
Medical Certification:	Class 2 Valid Medical--w/ waivers/lim	Last FAA Medical Exam:	November 23, 2002
Occupational Pilot:	UNK	Last Flight Review or Equivalent:	January 26, 2003
Flight Time:	407 hours (Total, all aircraft), 78 hours (Total, this make and model), 110 hours (Last 90 days, all aircraft), 7 hours (Last 24 hours, all aircraft)		

Information

Certificate:	Private	Age:	52, Male
Airplane Rating(s):	Single-engine land	Seat Occupied:	Right
Other Aircraft Rating(s):	None	Restraint Used:	
Instrument Rating(s):	None	Second Pilot Present:	Yes
Instructor Rating(s):	None	Toxicology Performed:	No
Medical Certification:	Class 2 Valid Medical-w/ waivers/lim	Last FAA Medical Exam:	May 29, 2003
Occupational Pilot:	No	Last Flight Review or Equivalent:	
Flight Time:	270 hours (Total, all aircraft), 235 hours (Pilot In Command, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Piper	Registration:	N31998
Model/Series:	PA-32RT-300T	Aircraft Category:	Airplane
Year of Manufacture:		Amateur Built:	
Airworthiness Certificate:	Normal	Serial Number:	32R7887019
Landing Gear Type:	Retractable - Tricycle	Seats:	6
Date/Type of Last Inspection:	January 15, 2003 Annual	Certified Max Gross Wt.:	3600 lbs
Time Since Last Inspection:	71 Hrs	Engines:	1 Reciprocating
Airframe Total Time:	5802 Hrs	Engine Manufacturer:	Lycoming
ELT:	Installed, not activated	Engine Model/Series:	TIO-540-S1AD
Registered Owner:	On file	Rated Power:	300 Horsepower
Operator:	On file	Operating Certificate(s) Held:	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	Condition of Light:	Day
Observation Facility, Elevation:	SGU,2941 ft msl	Distance from Accident Site:	
Observation Time:	19:35 Local	Direction from Accident Site:	
Lowest Cloud Condition:	Clear	Visibility	10 miles
Lowest Ceiling:	None	Visibility (RVR):	
Wind Speed/Gusts:	12 knots /	Turbulence Type Forecast/Actual:	/
Wind Direction:	270°	Turbulence Severity Forecast/Actual:	/
Altimeter Setting:	30 inches Hg	Temperature/Dew Point:	15°C / -6°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Long Beach, CA (LGB)	Type of Flight Plan Filed:	None
Destination:	St. George, UT (SGU)	Type of Clearance:	None
Departure Time:	17:20 Local	Type of Airspace:	Class E

Airport Information

Airport:	St. George Municipal SGU	Runway Surface Type:	Asphalt
Airport Elevation:	2941 ft msl	Runway Surface Condition:	Dry
Runway Used:	34	IFR Approach:	None
Runway Length/Width:	6606 ft / 100 ft	VFR Approach/Landing:	Full stop;Straight-in

Wreckage and Impact Information

Crew Injuries:	1 None	Aircraft Damage:	Substantial
Passenger Injuries:	3 None	Aircraft Fire:	None
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	4 None	Latitude, Longitude:	37.091388,-113.592224

Administrative Information

Investigator In Charge (IIC):	Scott, Arnold
Additional Participating Persons:	David J Rodda; FAA Flight Standards District Office; Salt Lake City , UT
Original Publish Date:	November 25, 2003
Last Revision Date:	
Investigation Class:	Class
Note:	
Investigation Docket:	https://data.nts.gov/Docket?ProjectID=56827

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](#).