



National Transportation Safety Board Aviation Accident Final Report

Location:	TWISP, WA	Accident Number:	SEA95LA087
Date & Time:	05/01/1995, 1030 PDT	Registration:	N2548Y
Aircraft:	CESSNA 172	Aircraft Damage:	Substantial
Defining Event:		Injuries:	1 Minor

Flight Conducted Under: Part 91: General Aviation - Personal

Analysis

AFTER SEVERAL TOUCH-AND-GO LANDINGS, THE PRIVATE PILOT MADE A FULL STOP LANDING, TAXIED BACK, AND TOOK OFF AGAIN. NO PROBLEMS WERE REPORTED DURING THE TAKEOFF. THE PILOT ENTERED THE TRAFFIC PATTERN AND ATTEMPTED ANOTHER LANDING. THE PILOT STATED THAT SHE IMMEDIATELY LOST DIRECTIONAL CONTROL OF THE AIRPLANE AFTER THE NOSE LANDING GEAR SETTLED ONTO THE RUNWAY. THE AIRPLANE VEERED OFF THE LEFT SIDE OF THE RUNWAY, SKIDDED INTO THE DIRT, NOSED OVER, AND WAS SUBSTANTIALLY DAMAGED. EXAMINATION OF THE NOSE LANDING GEAR ASSEMBLY REVEALED THAT THE CENTER SCISSOR BOLT WAS MISSING AND THE NOSE GEAR WAS COCKED TO ONE SIDE. THE BOLT WAS FOUND ON THE RUNWAY ABOUT 800 FEET FROM THE WRECKAGE. EXAMINATION OF THE BOLT REVEALED THAT NO COTTER KEY HAD BEEN INSTALLED TO SECURE THE NUT.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: THE IMPROPER INSTALLATION OF A NOSE LANDING GEAR ASSEMBLY BOLT (NO COTTER KEY INSTALLED) BY UNKNOWN MAINTENANCE PERSONNEL. THIS LED TO A FAILURE OF THE NOSE LANDING GEAR STEERING AND SUBSEQUENT NOSEOVER DURING LANDING ROLLOUT.

Findings

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

Findings

1. (C) LANDING GEAR,NOSE GEAR ASSEMBLY - LOOSE PART/BOLT/NUT/CLAMP/ETC
2. LANDING GEAR,NOSE GEAR ASSEMBLY - DISABLED
3. (C) MAINTENANCE,INSTALLATION - IMPROPER - UNKNOWN

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

Findings

4. DIRECTIONAL CONTROL - NOT POSSIBLE - PILOT IN COMMAND

Occurrence #3: NOSE OVER
Phase of Operation: LANDING - ROLL

Factual Information

On May 1, 1995, about 1035 hours Pacific daylight time, N2548Y, a Cessna 172, registered to Methow Valley Flyers, Inc., Twisp, Washington, nosed over during landing at the Twisp Airport and was substantially damaged. The private pilot, the sole occupant, received minor injuries. Visual meteorological conditions prevailed and no flight plan had been filed. The personal flight was conducted under 14 CFR 91.

The pilot stated that she performed several touch-and-go landings at another airport without any reported problems. She then flew to Twisp Municipal Airport to practice more landings. She entered the traffic pattern and landed uneventfully on runway 28. She then back taxied the airplane for another takeoff.

According to the pilot:

The takeoff roll seemed normal. I flew the pattern, touched down just beyond the displaced threshold as I'd planned, lowered the nose gear, and couldn't control the direction of the plane.... It veered onto the left and skidded into the dirt. The nose wheel stopped. The rest of the plane kept going and flipped over.

According to an FAA certified airframe and powerplant mechanic who was visiting the area at the time of the accident, the nose gear was cocked 90 degrees to one side. Further examination revealed that the nose landing gear assembly center scissor bolt was missing. The bolt secures the connection of the two scissor castings of the nose gear assembly.

The bolt was later found about 1,000 feet from the threshold of the departure end of the runway, and 800 feet prior to the final resting site of the wreckage. According to the mechanic, the bolt did not exhibit any mechanical abnormalities. Closer inspection of the bolt revealed that the cotter key was missing, and the cotter key hole was filled with grease, oil residue, and dirt. The mechanic further stated that no cotter key appeared to have been installed on the bolt.

Pilot Information

Certificate:	Private	Age:	62, Female
Airplane Rating(s):	Single-engine Land	Seat Occupied:	Left
Other Aircraft Rating(s):	None	Restraint Used:	Seatbelt, Shoulder harness
Instrument Rating(s):	None	Second Pilot Present:	No
Instructor Rating(s):	None	Toxicology Performed:	No
Medical Certification:	Class 3 Valid Medical--w/ waivers/lim.	Last FAA Medical Exam:	03/29/1994
Occupational Pilot:		Last Flight Review or Equivalent:	
Flight Time:	133 hours (Pilot In Command, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	CESSNA	Registration:	N2548Y
Model/Series:	172 172	Aircraft Category:	Airplane
Year of Manufacture:		Amateur Built:	No
Airworthiness Certificate:	Normal; Utility	Serial Number:	17249848
Landing Gear Type:	Tricycle	Seats:	4
Date/Type of Last Inspection:	09/18/1994, Annual	Certified Max Gross Wt.:	2400 lbs
Time Since Last Inspection:	54 Hours	Engines:	1 Reciprocating
Airframe Total Time:	3234 Hours	Engine Manufacturer:	CONTINENTAL
ELT:	Installed, activated, did not aid in locating accident	Engine Model/Series:	O-300
Registered Owner:	METHOW VALLEY FLYERS, INC.	Rated Power:	145 hp
Operator:	METHOW VALLEY FLYERS, INC.	Operating Certificate(s) Held:	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual Conditions	Condition of Light:	Day
Observation Facility, Elevation:	EAT, 1245 ft msl	Distance from Accident Site:	37 Nautical Miles
Observation Time:	1034 PDT	Direction from Accident Site:	10°
Lowest Cloud Condition:	Clear / 0 ft agl	Visibility	10 Miles
Lowest Ceiling:	None / 0 ft agl	Visibility (RVR):	0 ft
Wind Speed/Gusts:	5 knots /	Turbulence Type Forecast/Actual:	/
Wind Direction:	310°	Turbulence Severity Forecast/Actual:	/
Altimeter Setting:	29 inches Hg	Temperature/Dew Point:	11° C / 2° C
Precipitation and Obscuration:			
Departure Point:		Type of Flight Plan Filed:	None
Destination:		Type of Clearance:	None
Departure Time:	1030 PDT	Type of Airspace:	Class G

Airport Information

Airport:	TWISP MUNICIPAL (2S0)	Runway Surface Type:	Asphalt
Airport Elevation:	1597 ft	Runway Surface Condition:	Dry
Runway Used:	28	IFR Approach:	None
Runway Length/Width:	2700 ft / 40 ft	VFR Approach/Landing:	Traffic Pattern

Wreckage and Impact Information

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

Administrative Information

Investigator In Charge (IIC):	JEFFREY B GUZZETTI	Report Date:	12/19/1995
Additional Participating Persons:	HAROLD HUTCHINS; RENTON, WA		
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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