



National Transportation Safety Board Aviation Incident Final Report

Location:	WEST CHICAGO, IL	Incident Number:	CHI911A120
Date & Time:	04/02/1991, 1600 CDT	Registration:	N9592B
Aircraft:	CESSNA 172RG	Aircraft Damage:	Minor
Defining Event:		Injuries:	2 None

Flight Conducted Under: Part 91: General Aviation - Instructional

Analysis

AFTER REPEATED ATTEMPTS TO LOWER THE LANDING GEAR, ONLY THE LEFT MAIN AND NOSE GEAR WOULD EXTEND. THE PILOTS ELECTED TO MAKE A WHEELS-UP LANDING. DURING THE LANDING, THE LOWER FUSELAGE AND PROPELLER TIPS RECEIVED MINOR DAMAGE. AN INVESTIGATION REVEALED THE RIGHT MAIN LANDING GEAR PIVOT ASSEMBLY (PN 2441100-1) HAD FAILED. A METALLURGICAL EXAMINATION DISCLOSED THE SPLINED SHAFT ON THE PIVOT ASSEMBLY HAD FRACTURED IN TORSIONAL OVERLOAD. AS A RESULT, MECHANICAL EXTENSION OF THE RIGHT MAIN LANDING GEAR WAS NOT POSSIBLE.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this incident to be: FAILURE OF THE SPLINED SHAFT ON THE RIGHT MAIN LANDING GEAR PIVOT ASSEMBLY. A FACTOR RELATED TO THE INCIDENT WAS INADEQUATE DESIGN OF THE LANDING GEAR PIVOT ASSEMBLY.

Findings

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

Findings

1. (C) LANDING GEAR,NORMAL RETRACTION/EXTENSION ASSEMBLY - FRACTURED
 2. GEAR EXTENSION - NOT POSSIBLE
 3. (F) ACFT/EQUIP,INADEQUATE DESIGN - PRODUCTION/DESIGN PERSONNEL
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Occurrence #2: GEAR NOT EXTENDED
Phase of Operation: LANDING

Findings

4. WHEELS UP LANDING - INTENTIONAL - PILOT IN COMMAND(CFI)

Factual Information

Pilot Information

Certificate:	Flight Instructor; Commercial	Age:	25, Male
Airplane Rating(s):	Single-engine Land; Single-engine Sea	Seat Occupied:	Right
Other Aircraft Rating(s):	None	Restraint Used:	Seatbelt, Shoulder harness
Instrument Rating(s):	Airplane	Second Pilot Present:	Yes
Instructor Rating(s):	Airplane Multi-engine; Airplane Single-engine	Toxicology Performed:	No
Medical Certification:	Class 1 Valid Medical--no waivers/lim.	Last FAA Medical Exam:	07/02/1990
Occupational Pilot:		Last Flight Review or Equivalent:	
Flight Time:	1531 hours (Total, all aircraft), 280 hours (Total, this make and model), 1430 hours (Pilot In Command, all aircraft), 25 hours (Last 90 days, all aircraft), 15 hours (Last 30 days, all aircraft), 2 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	CESSNA	Registration:	N9592B
Model/Series:	172RG 172RG	Aircraft Category:	Airplane
Year of Manufacture:		Amateur Built:	No
Airworthiness Certificate:	Normal	Serial Number:	172RG0905
Landing Gear Type:	Retractable - Tricycle	Seats:	4
Date/Type of Last Inspection:	03/20/1991, 100 Hour	Certified Max Gross Wt.:	2650 lbs
Time Since Last Inspection:	45 Hours	Engines:	1 Reciprocating
Airframe Total Time:	4567 Hours	Engine Manufacturer:	LYCOMING
ELT:	Installed, not activated	Engine Model/Series:	O-360-F1A6
Registered Owner:	AV. TRAINING ENTERPRISE OF IL.	Rated Power:	180 hp
Operator:	AV. TRAINING ENTERPRISE OF IL.	Operating Certificate(s) Held:	None
Operator Does Business As:		Operator Designator Code:	JM85

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual Conditions	Condition of Light:	Day
Observation Facility, Elevation:	DPA, 758 ft msl	Distance from Accident Site:	1 Nautical Miles
Observation Time:	1556 VDT	Direction from Accident Site:	1°
Lowest Cloud Condition:	Scattered / 2500 ft agl	Visibility	15 Miles
Lowest Ceiling:	None / 0 ft agl	Visibility (RVR):	0 ft
Wind Speed/Gusts:	10 knots /	Turbulence Type Forecast/Actual:	/
Wind Direction:	140°	Turbulence Severity Forecast/Actual:	/
Altimeter Setting:	30 inches Hg	Temperature/Dew Point:	12° C / 7° C
Precipitation and Obscuration:			
Departure Point:		Type of Flight Plan Filed:	None
Destination:		Type of Clearance:	None
Departure Time:	1430 CDT	Type of Airspace:	

Airport Information

Airport:	DUPAGE (DPA)	Runway Surface Type:	Asphalt
Airport Elevation:	758 ft	Runway Surface Condition:	Dry
Runway Used:	15	IFR Approach:	None
Runway Length/Width:	3400 ft / 100 ft	VFR Approach/Landing:	Full Stop

Wreckage and Impact Information

Crew Injuries:	2 None	Aircraft Damage:	Minor
Passenger Injuries:	N/A	Aircraft Fire:	None
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	2 None	Latitude, Longitude:	

Administrative Information

Investigator In Charge (IIC):	J. R Vallaster	Report Date:	05/28/1993
Additional Participating Persons:	THOMAS D SOERENS; WEST CHICAGO, IL		
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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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](#).