



National Transportation Safety Board Aviation Accident Final Report

Location:	NORTH PLATTE, NE	Accident Number:	CHI98LA178
Date & Time:	05/28/1998, 1300 CDT	Registration:	N888AA
Aircraft:	Cessna 414	Aircraft Damage:	Destroyed
Defining Event:		Injuries:	3 Minor
Flight Conducted Under:	Part 135: Air Taxi & Commuter - Non-scheduled		

Analysis

The airplane had just taken off and was at approximately 300 agl when the right engine 'had a sudden and catastrophic failure.' The right propeller stopped spinning with the blades in the low-pitch position. The pilot initiated a right turn back toward the airport, but the airplane would not maintain altitude. The pilot rolled out of the turn, but the descent continued until the airplane struck the trees. Examination of the airplane's right engine revealed that the crankshaft was broken at the number 3 short cheek, just forward of the number two cylinder piston rod. The number two crankshaft bearing was broken and melted. The oil feed line to the number two bearing was blocked by a piece of the broken bearing. The Single Engine Climb Data table in the Cessna 414 Pilot's Operating Handbook indicates that an airplane weighing 5,680 pounds, with gear and flaps retracted and the inoperative propeller in feather, operating at a density altitude of 5,055 feet, will have a best climb indicated airspeed of 115 knots. The rate of climb will be 308 feet per minute.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: the slipped number two bearing in the airplane's right engine, which blocked the bearing's oil feed line, causing the bearing and the crankshaft to overheat and fracture. A factor contributing to this accident was the trees.

Findings

Occurrence #1: LOSS OF ENGINE POWER(TOTAL) - MECH FAILURE/MALF
Phase of Operation: TAKEOFF - INITIAL CLIMB

Findings

1. (C) ENGINE ASSEMBLY,BEARING - SLIPPED
2. (C) FLUID,OIL - STARVATION
3. (C) ENGINE ASSEMBLY,BEARING - FRACTURED
4. (C) ENGINE ASSEMBLY,CRANKSHAFT - FRACTURED
5. ENGINE ASSEMBLY,CRANKCASE - FRACTURED

Occurrence #2: IN FLIGHT COLLISION WITH OBJECT
Phase of Operation: EMERGENCY DESCENT/LANDING

Findings

6. (F) OBJECT - TREE(S)

Occurrence #3: IN FLIGHT COLLISION WITH TERRAIN/WATER
Phase of Operation: DESCENT - UNCONTROLLED

Factual Information

On May 28, 1998, at 1300 central daylight time (cdt), a Cessna 414, N888AA, operated by an airline transport pilot, was destroyed when on initial climb, the airplane's right engine lost power. The airplane subsequently struck some trees and impacted the terrain in an inverted attitude. Visual meteorological conditions prevailed at the time of the accident. The flight was being conducted under 14 CFR Part 135. An IFR flight plan was on file. The pilot and two passengers on board the airplane sustained minor injuries. The cross-country flight originated at North Platte, Nebraska.

In his written statement, the pilot said that he had just taken off and was at approximately 300 feet above ground level (agl) when the right engine "had a sudden and catastrophic failure." Before he could complete his emergency checklist, the right propeller stopped spinning with the blades in the low-pitch position. The pilot said that he initiated a right turn back toward the airport, but noted that the airplane would not maintain altitude. The pilot rolled out of the turn, but the descent continued. The airplane struck the trees. The pilot said that on impact he was knocked unconscious and could not remember anything after realizing that the airplane was going to hit the trees.

A Federal Aviation Administration (FAA) inspector examined the wreckage at the accident site. The accident site was located in a wooded area on the north bank of the North Platte River, approximately 3/4 of a mile south of the North Platte Regional Airport, North Platte, Nebraska. The airplane rested inverted on the ground and was oriented on a 200-degree heading. Several nearby trees, aft of the wreckage, were broken and damaged. The nose of the airplane was crushed inward and aft to the forward pressure bulkhead. The airplane's cabin and aft fuselage remained intact. The left wing was broken aft beginning outboard of the engine nacelle. The outboard portion of the left wing was located just right of the fuselage. It showed numerous areas of aft crushing and denting along the entire length of the leading edge. Both wing sections remained attached by the engine and aileron flight control cables. The left engine had separated from the nacelle and was located 33 feet south of the fuselage. The airplane's left propeller was broken off at the flange and rested just 48 feet forward of the fuselage. It showed torsional bending and chordwise scratches. The airplane's right wing was broken off at the wing root. It was found resting 58 feet aft of the fuselage. The right engine was broken out of the nacelle, but remained attached by the engine control cables. The right propeller was broken at the flange. One of the three blades was broken out of the hub. All three blades showed little damage. The airplane's empennage was bent downward. The vertical stabilizer and rudder were bent aft and broken. Flight control continuity was confirmed. Examination of the airplane's left engine revealed no anomalies.

Examination of the airplane's right engine revealed that the crankshaft was broken at the number 3 short cheek, just forward of the number two cylinder piston rod. The number two crankshaft bearing was broken and melted. The oil feed line to the number two bearing was blocked by a piece of the broken bearing.

The Single Engine Climb Data table in the Cessna 414 Pilot's Operating Handbook indicates that an airplane weighing 5,680 pounds, with gear and flaps retracted and the inoperative propeller in feather, operating at a density altitude of 5,055 feet, will have a best climb indicated airspeed of 115 knots. The rate of climb will be 308 feet per minute.

Pilot Information

Certificate:	Airline Transport; Flight Instructor	Age:	33, 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):	Airplane Multi-engine; Airplane Single-engine; Instrument Airplane	Toxicology Performed:	No
Medical Certification:	Class 2 Valid Medical--no waivers/lim.	Last FAA Medical Exam:	01/23/1998
Occupational Pilot:	Last Flight Review or Equivalent:		
Flight Time:	2353 hours (Total, all aircraft), 312 hours (Total, this make and model), 2298 hours (Pilot In Command, all aircraft), 103 hours (Last 90 days, all aircraft), 40 hours (Last 30 days, all aircraft), 2 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Cessna	Registration:	N888AA
Model/Series:	414 414	Aircraft Category:	Airplane
Year of Manufacture:		Amateur Built:	No
Airworthiness Certificate:	Normal	Serial Number:	414-0468
Landing Gear Type:	Retractable - Tricycle	Seats:	8
Date/Type of Last Inspection:	03/24/1998, Continuous Airworthiness	Certified Max Gross Wt.:	6500 lbs
Time Since Last Inspection:	84 Hours	Engines:	2 Reciprocating
Airframe Total Time:	6159 Hours	Engine Manufacturer:	Continental
ELT:	Installed, not activated	Engine Model/Series:	TSIO-520-J
Registered Owner:	SILVERHAWK SECURITY SPEC. INC.	Rated Power:	300 hp
Operator:	SILVERHAWK SECURITY SPEC. INC.	Operating Certificate(s) Held:	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual Conditions	Condition of Light:	Day
Observation Facility, Elevation:	LBF, 2778 ft msl	Distance from Accident Site:	1 Nautical Miles
Observation Time:	1256 CDT	Direction from Accident Site:	360°
Lowest Cloud Condition:	Clear / 0 ft agl	Visibility	10 Miles
Lowest Ceiling:	None / 0 ft agl	Visibility (RVR):	0 ft
Wind Speed/Gusts:	12 knots /	Turbulence Type Forecast/Actual:	/
Wind Direction:	70°	Turbulence Severity Forecast/Actual:	/
Altimeter Setting:	29 inches Hg	Temperature/Dew Point:	28° C / 13° C
Precipitation and Obscuration:			
Departure Point:	(LBF)	Type of Flight Plan Filed:	IFR
Destination:	KEARNEY, NE (EAR)	Type of Clearance:	IFR
Departure Time:	1300 CDT	Type of Airspace:	Class E

Airport Information

Airport:	NORTH PLATTE MUNICIPAL (LBF)	Runway Surface Type:	
Airport Elevation:		Runway Surface Condition:	
Runway Used:	0	IFR Approach:	None
Runway Length/Width:		VFR Approach/Landing:	None

Wreckage and Impact Information

Crew Injuries:	1 Minor	Aircraft Damage:	Destroyed
Passenger Injuries:	2 Minor	Aircraft Fire:	None
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	3 Minor	Latitude, Longitude:	

Administrative Information

Investigator In Charge (IIC):	DAVID C BOWLING	Report Date:	02/15/2001
Additional Participating Persons:	ROBERT V BOTTOM; LINCOLN, NE FRED LEEPER; WICHITA, KS FRED FIHE; MOBILE, AL		
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 pubin@ntsb.gov , or at 800-877-6799. Dockets released after this date are available at http://dms.nts.gov/pubdms/ .		

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