Aviation Investigation Final Report

Location:	Douglas, Wyoming	**Accident Number:**	DEN04LA107
Date & Time:	July 20, 2004, 16:00 Local	**Registration:**	N7736K
Aircraft:	Cessna P210N	**Aircraft Damage:**	Substantial
Defining Event:		**Injuries:**	4 None
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

According to the pilot, while in cruise flight at 22,000 feet msl, the engine "quit." The pilot stated that the propeller continued to "windmill," and at that time he noted approximately 50 gallons of fuel remaining. The pilot's attempts to restart the engine were unsuccessful. He declared an emergency and was diverted to a nearby airport. On final approach to runway 28, the airplane's left main landing gear struck a fence post. The airplane landed approximately 200 feet short of the runway threshold and its left main landing gear collapsed. The airplane veered left of the runway centerline and came to a stop in the grass. The impact buckled the left wing tip and left horizontal stabilizer. An examination of the engine revealed a 7/8-inch by 3/8-inch hole in the top of the crankcase, just forward of the number 1 cylinder. Further examination revealed the engine crankshaft was fractured at the number 2 rod journal. The crankshaft exhibited thermal discoloration and impact marks at the number 2, 3, 4, and 5 rod journals. Rotational scoring and thermal discoloration was observed on the crankshaft's number 2 main bearing. The number 2 bearing was fragmented and fretting was observed on the crankcase halves at the number 2 bearing through bolts. The engine maintenance records indicated on November 17, 2003, at 2,845.0 hours, during the airplane's most recent 100-hour inspection, the number 2 cylinder was replaced. At the time of the accident, the total time was 3,083.0 hours.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be:

the failure of the engine's crankshaft due to the rotation of the engine's number two bearing, which resulted in the oil starvation of the crankshaft's number 2 main journal. Contributing factors include the engine's improper maintenance, and the in-flight collision with a fence post during a forced landing.

Findings

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

Findings
1. (F) MAINTENANCE - IMPROPER - OTHER PERSON
2. (F) ENGINE ASSEMBLY,BEARING - SHIFTED
3. (F) FLUID,OIL - STARVATION
4. (C) ENGINE ASSEMBLY,CRANKSHAFT - FAILURE

Occurrence #2: FORCED LANDING
Phase of Operation: DESCENT - EMERGENCY

Occurrence #3: IN FLIGHT COLLISION WITH OBJECT
Phase of Operation: EMERGENCY LANDING

Findings
5. (F) OBJECT - FENCE POST

Occurrence #4: IN FLIGHT COLLISION WITH TERRAIN/WATER
Phase of Operation: EMERGENCY LANDING

Findings
6. TERRAIN CONDITION - OPEN FIELD
7. TERRAIN CONDITION - GRASS

Factual Information

On July 20 2004, at 1600 mountain daylight time, a Cessna P210N, N7736K, operated by a commercial pilot, was substantially damaged during a forced landing at Converse County Airport (DGW), Douglas, Wyoming. Visual meteorological conditions prevailed at the time of the accident. The personal cross-country flight was being conducted under the provisions of Title 14 CFR Part 91 on an instrument flight rules (IFR) flight plan. The pilot and three passengers were not injured. The flight to Provo, Utah, originated at Rapid City, South Dakota, approximately 1400.

According to the pilot, while in cruise flight at 22,000 feet msl, the engine "quit." The pilot stated that the propeller continued to "windmill," and at that time he noted approximately 50 gallons of fuel remaining. The pilot's attempts to restart the engine were unsuccessful. He declared an emergency and was diverted to Douglas. He broke out of the clouds at approximately 14,000 feet agl. On final approach to runway 28, the airplane's left main landing gear struck a fence post and the airplane impacted terrain approximately 200 feet short of the runway threshold. The airplane drifted to the left of the runway centerline and came to a stop in the grass. The impact collapsed the airplane's left main landing gear assembly, and buckled the left wing tip and left horizontal stabilizer.

On February 14, 2005, the engine was examined at Teledyne Continental Motors, Inc., in Mobile, Alabama. The examination revealed a 7/8-inch by 3/8-inch hole in the top of the crankcase, just forward of the number 1 cylinder. Further examination revealed that the number 2, 3, 4, 5, and 6 piston rods were fractured. The engine crankshaft was fractured at the number 2 rod journal. The crankshaft exhibited thermal discoloration and impact marks at the number 2, 3, 4, and 5 rod journals. Rotational scoring and thermal discoloration was observed on each main bearing. The crankshaft's number 2 main bearing was fragmented. Fretting was observed on the crankcase halves at the number 2 bearing through bolts. Fretting was also observed on the number 3 and 4 bearing through bolts.

According to the airplane's engine maintenance records, on May 31, 2000, at an airframe total time of 2,380.0 hours, a top overhaul was completed on all 6 cylinders. On November 17, 2003, at 2,845.0 hours, during the airplane's most recent 100-hour inspection, the engine's number 2 cylinder was replaced. At the time of the accident, the total airframe time was 3,083.0 hours.

Pilot Information

Certificate:	Private	**Age:**	55,Male
Airplane Rating(s):	Single-engine land	**Seat Occupied:**	Left
Other Aircraft Rating(s):	None	**Restraint Used:**	
Instrument Rating(s):	Airplane	**Second Pilot Present:**	No
Instructor Rating(s):	None	**Toxicology Performed:**	No
Medical Certification:	Class 3 Valid Medical--no waivers/lim.	**Last FAA Medical Exam:**	June 21, 2004
Occupational Pilot:	Yes	**Last Flight Review or Equivalent:**	June 14, 2004
Flight Time:	1114 hours (Total, all aircraft), 281 hours (Total, this make and model), 1030 hours (Pilot In Command, all aircraft), 74 hours (Last 90 days, all aircraft), 33 hours (Last 30 days, all aircraft), 5 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Cessna	**Registration:**	N7736K
Model/Series:	P210N	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	P21000420
Landing Gear Type:	Retractable - Tricycle	**Seats:**	6
Date/Type of Last Inspection:	November 17, 2003 Annual	**Certified Max Gross Wt.:**	4000 lbs
Time Since Last Inspection:	238 Hrs	**Engines:**	1 Reciprocating
Airframe Total Time:	3083 Hrs at time of accident	**Engine Manufacturer:**	Continental
ELT:	Installed	**Engine Model/Series:**	TSIO520-P6B
Registered Owner:	Randy C. Brooks	**Rated Power:**	310 Horsepower
Operator:		**Operating Certificate(s) Held:**	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	KDGW,4929 ft msl	**Distance from Accident Site:**	0 Nautical Miles
Observation Time:	15:53 Local	**Direction from Accident Site:**	
Lowest Cloud Condition:	Scattered / 75 ft AGL	**Visibility**	10 miles
Lowest Ceiling:	Broken / 110 ft AGL	**Visibility (RVR):**	
Wind Speed/Gusts:	6 knots / 0 knots	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	330°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	30.06 inches Hg	**Temperature/Dew Point:**	23°C / 17°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Rapid City , SD (RAP)	**Type of Flight Plan Filed:**	IFR
Destination:	Provo, UT (PVU)	**Type of Clearance:**	IFR
Departure Time:	14:00 Local	**Type of Airspace:**	Class E

Airport Information

Airport:	Converse County Airport DGW	**Runway Surface Type:**	Asphalt
Airport Elevation:	4929 ft msl	**Runway Surface Condition:**	Dry
Runway Used:	28	**IFR Approach:**	None
Runway Length/Width:	6750 ft / 100 ft	**VFR Approach/Landing:**	Forced landing

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:**	42.749061,-105.390792(est)

Administrative Information

Investigator In Charge (IIC):	Bowling, David
Additional Participating Persons:	Mike Maglione; Federal Aviation Administration; Casper , CO
Original Publish Date:	July 7, 2005
Last Revision Date:	
Investigation Class:	Class
Note:	
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=59693