



National Transportation Safety Board Aviation Accident Final Report

Location:	Chester, IL	Accident Number:	CHI07LA018
Date & Time:	11/03/2006, 0720 CST	Registration:	N460TM
Aircraft:	Piper PA-46-310P	Aircraft Damage:	Substantial
Defining Event:		Injuries:	1 None
Flight Conducted Under:	Part 91: General Aviation - Business		

Analysis

The pilot reported that after reaching a cruising altitude of 9,000 feet the engine "missed" and the oil pressure, oil temperature, and manifold pressure began to drop. The pilot attempted to fly to the nearest airport maintaining a 500 to 800 foot per minute descent. Unable to make it to the airport, he chose a field in which to land. He stated he cleared the trees, which surrounded the field, and applied flaps to slow the airplane. The field was muddy so the pilot used the emergency gear extension to lower the landing gear so the airplane would not slide into the trees. The airplane touched down and slid approximately 25 feet prior to coming to rest. The airplane sustained substantial damage to the left wing and fuselage. An engine teardown revealed holes in the crankcase near the number four cylinder and that the engine had sustained both thermal and mechanical damage as a result of oil starvation. A hole was noted in the turbine wheel shroud on the hot section of the right turbocharger. There was no data plate, serial number, or model number present on the turbocharger. The turbocharger contained the part number 466304-0003. The oil inlet and outlet fittings were intact and showed no signs of oil leakage. This turbocharger was torn down and inspected. The inspection revealed the turbine wheel shroud had fragmented as a result of a fatigue failure. The back surface of the shaft and wheel assembly contained contact signatures from the shroud. A review of maintenance records showed that both the left and right turbochargers were installed on June 21, 1988. The data plate on the left turbocharger matched the information in the maintenance records. Without a serial number on the right turbocharger, it could not be verified that this was the same one that was installed on June 21, 1998. However, the maintenance logs provided did not contain a record of the turbocharger having been replaced after that date.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The fatigue failure of the turbocharger shroud which resulted in oil starvation to the engine. A factor was the muddy field.

Findings

Occurrence #1: LOSS OF ENGINE POWER

Phase of Operation: CRUISE

Findings

1. (C) EXHAUST SYSTEM,TURBOCHARGER - FAILURE,PARTIAL
2. (C) EXHAUST SYSTEM,TURBOCHARGER - FATIGUE
3. (C) FLUID,OIL - STARVATION

Occurrence #2: FORCED LANDING

Phase of Operation: EMERGENCY DESCENT/LANDING

Occurrence #3: IN FLIGHT COLLISION WITH TERRAIN/WATER

Phase of Operation: LANDING - FLARE/TOUCHDOWN

Findings

4. (F) TERRAIN CONDITION - MUDDY

Factual Information

On November 3, 2006, at 0720 central standard time, a Piper PA-46-310P, N460TM, collided with the terrain during an off airport forced landing in Chester, Illinois, following a loss of engine power. The pilot was not injured. The airplane sustained substantial damage. The 14 Code of Federal Regulations Part 91 personal flight was operating in visual meteorological conditions and an instrument flight rules flight plan was filed. The flight originated from Cape Girardeau, Missouri, at 0645, with an intended destination of the DuPage Airport, West Chicago, Illinois.

The pilot reported that after reaching a cruising altitude of 9,000 feet the engine "missed" and the oil pressure, oil temperature, and manifold pressure began to drop. He stated he turned on the low pressure fuel boost pump to try and increase the manifold pressure.

The pilot stated he contacted air traffic control and requested a turn to the nearest airport. He turned toward the airport and maintained a 500 to 800 foot per minute descent. Once he realized he was not going to make it to the airport he chose a field in which to land. He stated he cleared the trees, which surrounded the field, and applied flaps to slow the airplane. The field was muddy so the pilot used the emergency gear extension to lower the landing gear so the airplane would not slide into the trees. The airplane touched down and slid approximately 25 feet prior to coming to rest.

The left wing was pulled loose from the fuselage, the left and right flaps sustained impact damage, and the landing gear was destroyed.

The engine was torn down and inspected. This inspection revealed that both halves of the crankcase contained holes in line with the number four cylinder. The crankshaft and counterweight assembly showed signs of thermal and mechanical damage at the number four and five connecting rod journals. The number four and five connecting rod journals also showed signs of thermal and mechanical damage. The oil transfer passages were not blocked and the oil transfer collar was intact. The number four connecting rod exhibited thermal and mechanical damage and was fractured through the base of the I-beam. Only fragments of the number four connecting rod cap, rod bolts, nuts, and bearing were found. The number five connecting rod assembly also sustained thermal damage.

A hole was noted in the turbine wheel shroud on the hot section of the right turbocharger. There was no data plate, serial number, or model number present on the turbocharger. The turbocharger did contain the part number 466304-0003. The oil inlet and outlet fittings were intact and showed no signs of oil leakage. This turbocharger was sent to Kelly Aerospace for teardown and inspection. The inspection revealed the turbine wheel shroud had fragmented as a result of a fatigue failure. The back surface of the shaft and wheel assembly contained contact signatures from the shroud.

The airplane had been operated in Australia under the registration of VH-BTZ. Maintenance records showed that both the left and right turbochargers were installed on June 21, 1988, at an aircraft total time of 1,527.9 hours and that the mandatory life limit on the turbochargers was 2,000 hours. The total airframe time at the time of the accident was about 2,830 hours. The data plate on the left turbocharger matched the information in the maintenance records. Without a serial number on the right turbocharger, it could not be verified that this was the same one that was installed on June 21, 1998. However, the maintenance logs provided did not

contain a record of the turbocharger having been replaced after that date.

Pilot Information

Certificate:	Private	Age:	45, 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):	None	Toxicology Performed:	No
Medical Certification:	Class 3 Without Waivers/Limitations	Last FAA Medical Exam:	11/01/2004
Occupational Pilot:		Last Flight Review or Equivalent:	05/01/2006
Flight Time:	749 hours (Total, all aircraft), 63 hours (Total, this make and model), 547 hours (Pilot In Command, all aircraft), 31 hours (Last 90 days, all aircraft), 21 hours (Last 30 days, all aircraft), 1 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Piper	Registration:	N460TM
Model/Series:	PA-46-310P	Aircraft Category:	Airplane
Year of Manufacture:		Amateur Built:	No
Airworthiness Certificate:	Normal	Serial Number:	46-8408021
Landing Gear Type:	Retractable - Tricycle	Seats:	6
Date/Type of Last Inspection:	04/01/2006, Annual	Certified Max Gross Wt.:	4100 lbs
Time Since Last Inspection:	74 Hours	Engines:	1 Reciprocating
Airframe Total Time:	2831 Hours at time of accident	Engine Manufacturer:	Continental
ELT:	Installed, activated, did not aid in locating accident	Engine Model/Series:	TSIO-520-BE
Registered Owner:	RKA Investments, LLC	Rated Power:	300 hp
Operator:	Robert W. Rollins	Operating Certificate(s) Held:	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual Conditions	Condition of Light:	Day
Observation Facility, Elevation:	SAR, 538 ft msl	Distance from Accident Site:	18 Nautical Miles
Observation Time:	0745 CST	Direction from Accident Site:	20°
Lowest Cloud Condition:	Clear	Visibility	10 Miles
Lowest Ceiling:	None	Visibility (RVR):	
Wind Speed/Gusts:	/	Turbulence Type Forecast/Actual:	/
Wind Direction:		Turbulence Severity Forecast/Actual:	/
Altimeter Setting:	30.51 inches Hg	Temperature/Dew Point:	0° C / -3° C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Cape Girardeau, MO (CGI)	Type of Flight Plan Filed:	IFR
Destination:	West Chicago, IL (DPA)	Type of Clearance:	IFR
Departure Time:	0645 CST	Type of Airspace:	

Wreckage and Impact Information

Crew Injuries:	1 None	Aircraft Damage:	Substantial
Passenger Injuries:	N/A	Aircraft Fire:	None
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	1 None	Latitude, Longitude:	37.920000, -89.734722

Administrative Information

Investigator In Charge (IIC):	Pamela S Sullivan	Report Date:	02/28/2008
Additional Participating Persons:	Kerry J Gambrel; FAA; Springfield, 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 pubinquiry@ntsb.gov , or at 800-877-6799. Dockets released after this date are available at http://dms.nts.gov/pubdms/ .		

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