

Aviation Investigation Final Report

Location: Challis, Idaho Accident Number: SEA05LA170

Date & Time: August 13, 2005, 10:30 Local Registration: N6677P

Aircraft: Piper PA-24-250 Aircraft Damage: Substantial

Defining Event: 2 Serious

Flight Conducted Under: Part 91: General aviation - Personal

Analysis

The pilot reported that shortly after takeoff, the propeller RPM became erratic and uncontrollable and he elected to return to the airport. He reported that during the descent, the airplane developed a rough running engine and eventually lost power resulting in an off airport landing. Preliminary external examination of the assembly revealed a large hole in the engines crankcase, adjacent to the number four cylinder assembly. The number four piston rod was fractured and extensive heat distress, deformation and discoloration was noted to both the number three and number four piston assemblies. A representative from Textron Lycoming reported that this type of damage is indicative of oil depravation. Further examination of the engine assembly revealed that the hydraulic pump adapter pad cover gasket was protruding from between the accessory mounting pad and its associated cover. A section of the gasket separated and was displaced from its installed position. The FAA Airworthiness Inspector overseeing the examination reported that the installed gasket was intended to be used in conjunction with a hydraulic pump, if applicable, however, this particular engine configuration does not utilize a hydraulic pump, and therefore a hydraulic pump adapter pad gasket should have been installed. Personnel at the Challis airport reported that a large puddle of oil was found in the run-up area following the airplane's pre takeoff run-up and departure.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The installation of an improper oil gasket by maintenance personnel, which resulted in a loss of engine oil and subsequent loss of engine power during the emergency descent.

Findings

Occurrence #1: AIRFRAME/COMPONENT/SYSTEM FAILURE/MALFUNCTION

Phase of Operation: CLIMB - TO CRUISE

Findings

1. (C) LUBRICATING SYSTEM, OIL GASKET - INCORRECT

2. (C) MAINTENANCE, OVERHAUL - IMPROPER - OTHER MAINTENANCE PERSONNEL

Occurrence #2: LOSS OF ENGINE POWER(PARTIAL) - MECH FAILURE/MALF

Phase of Operation: LANDING

Findings

3. (C) LUBRICATING SYSTEM, OIL GASKET - FAILURE

4. (C) FLUID, OIL - LOSS, TOTAL

Occurrence #3: FORCED LANDING

Phase of Operation: EMERGENCY DESCENT/LANDING

Occurrence #4: HARD LANDING

Phase of Operation: EMERGENCY LANDING

Findings

5. TERRAIN CONDITION - GROUND

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Factual Information

On August 13, 2005, about 1030 mountain daylight time, a Piper PA-24-250 Comanche, N6677P, sustained substantial damage following a loss of engine power and off airport forced landing near the Challis Airport (LLJ), Challis, Idaho. The airplane is owned by the pilot and was being operated as a visual flight rules (VFR) personal/pleasure flight under the provisions of 14, CFR Part 91, when the accident occurred. The private pilot and passenger received serious injuries. Visual meteorological conditions prevailed, and no flight plan was filed for the flight that originated at Challis approximately 3 minutes prior to the accident. The pilot's intended destination was Mackay, Idaho.

During a telephone conversation with the National Transportation Safety Board IIC on August 15, the pilot reported that shortly after takeoff from runway 34, the propeller RPM became erratic and uncontrollable and he elected to return to Challis. He reported that during the descent into Challis the airplane developed a rough running engine and eventually lost power. The pilot stated that he landed in a hay field, short of runway (16), resulting in substantial damage.

Personnel at the Challis airport reported that a large puddle of oil was found in the run-up area following the airplane's pre takeoff run-up and departure.

The airplane was equipped with a Lycoming O-540-A1C5 engine. Examination of the engine's maintenance records revealed that the engine had been overhauled and inspected on July 13, 2004, subsequent to a "prop strike." The records indicated that the "tach time" at overhaul was 255.6 hours, approximately 35.2 hours prior to the accident. Additional maintenance records for this accident can be found in the public docket.

On August 25, representatives from the Federal Aviation Administrations Boise, Idaho, Flight Standards District Office, (FSDO), Textron Lycoming and The New Piper Aircraft Company performed an engine examination and teardown.

Preliminary external examination of the assembly revealed a large hole in the engines crankcase, adjacent to the number four cylinder assembly. The number four piston rod was fractured and extensive heat distress, deformation and discoloration was noted to both the number three and number four piston assemblies. The representative from Textron Lycoming reported that this type of damage is indicative of oil depravation.

Further examination of the engine assembly revealed that the hydraulic pump adapter pad cover gasket was protruding from between the accessory mounting pad and its associated cover (part number 89106). A section of the gasket (part number 68315) separated and was displaced from its installed position.

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The FAA Airworthiness Inspector overseeing the examination reported that the installed gasket (Part number 68315) was intended to be used in conjunction with a hydraulic pump, if applicable, however, this particular engine configuration does not utilize a hydraulic pump, and therefore a hydraulic pump adapter pad gasket (part number 69551) should have been installed.

The Lycoming O-540-A series Parts Catalog illustrates the use of gasket number 69551 when utilizing the hydraulic pump adapter pad cover.

Pilot Information

Certificate:	Private	Age:	59,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 With waivers/limitations	Last FAA Medical Exam:	February 1, 2004
Occupational Pilot:	No	Last Flight Review or Equivalent:	February 1, 2005
Flight Time:	328 hours (Total, all aircraft), 62 hours (Total, this make and model), 267 hours (Pilot In Command, all aircraft), 6 hours (Last 90 days, all aircraft), 3 hours (Last 30 days, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Piper	Registration:	N6677P
Model/Series:	PA-24-250	Aircraft Category:	Airplane
Year of Manufacture:		Amateur Built:	
Airworthiness Certificate:	Normal	Serial Number:	24-1801
Landing Gear Type:	Retractable - Tricycle	Seats:	4
Date/Type of Last Inspection:	August 1, 2004 Annual	Certified Max Gross Wt.:	2800 lbs
Time Since Last Inspection:	35 Hrs	Engines:	1 Reciprocating
Airframe Total Time:	4571 Hrs as of last inspection	Engine Manufacturer:	Lycoming
ELT:	Installed	Engine Model/Series:	O-540
Registered Owner:	Christopher James Trust	Rated Power:	250 Horsepower
Operator:		Operating Certificate(s) Held:	None

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Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	Condition of Light:	Day
Observation Facility, Elevation:	KLLJ,5072 ft msl	Distance from Accident Site:	1 Nautical Miles
Observation Time:	10:30 Local	Direction from Accident Site:	
Lowest Cloud Condition:	Clear	Visibility	10 miles
Lowest Ceiling:	None	Visibility (RVR):	
Wind Speed/Gusts:	7 knots /	Turbulence Type Forecast/Actual:	/
Wind Direction:	30°	Turbulence Severity Forecast/Actual:	/
Altimeter Setting:	30.12 inches Hg	Temperature/Dew Point:	16°C / 4°C
Precipitation and Obscuration:	No Obscuration; No Precipita	ation	
Departure Point:	Challis, ID (KLLJ)	Type of Flight Plan Filed:	None
Destination:	MACKAY, ID (U62)	Type of Clearance:	None
Departure Time:	10:30 Local	Type of Airspace:	

Airport Information

Airport:	CHALLIS U15	Runway Surface Type:	Asphalt
Airport Elevation:	5072 ft msl	Runway Surface Condition:	Dry
Runway Used:	34	IFR Approach:	Visual
Runway Length/Width:	4600 ft / 60 ft	VFR Approach/Landing:	Forced landing

Wreckage and Impact Information

Crew Injuries:	1 Serious	Aircraft Damage:	Substantial
Passenger Injuries:	1 Serious	Aircraft Fire:	None
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	2 Serious	Latitude, Longitude:	44.523056,-114.217498

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Administrative Information

Investigator In Charge (IIC): Hogenson, Dennis

Additional Participating Cliff Smart; FAA FSDO; Boise, ID

Persons: Charles Little; The New Piper Aircraft Company; Vero Beach, FL

 $Mark\ \ Platt; Textron\ Lycoming\ ; Williamsport\ ,\ PA$

Original Publish Date: March 28, 2006

Last Revision Date:

Investigation Class: Class

Note:

Investigation Docket: https://data.ntsb.gov/Docket?ProjectID=62215

The National Transportation Safety Board (NTSB) is an independent federal agency charged by Congress with investigating every civil aviation accident in the United States and significant events in other modes of transportation—railroad, transit, highway, marine, pipeline, and commercial space. We determine the probable causes of the accidents and events we investigate, and issue safety recommendations aimed at preventing future occurrences. In addition, we conduct transportation safety research studies and offer information and other assistance to family members and survivors for each accident or event we investigate. We also serve as the appellate authority for enforcement actions involving aviation and mariner certificates issued by the Federal Aviation Administration (FAA) and US Coast Guard, and we adjudicate appeals of civil penalty actions taken by the FAA.

The NTSB does not assign fault or blame for an accident or incident; rather, as specified by NTSB regulation, "accident/incident investigations are fact-finding proceedings with no formal issues and no adverse parties ... and are not conducted for the purpose of determining the rights or liabilities of any person" (Title 49 Code of Federal Regulations section 831.4). Assignment of fault or legal liability is not relevant to the NTSB's statutory mission to improve transportation safety by investigating accidents and incidents and issuing safety recommendations. In addition, statutory language prohibits the admission into evidence or use of any part of an NTSB report related to an accident in a civil action for damages resulting from a matter mentioned in the report (Title 49 United States Code section 1154(b)). A factual report that may be admissible under 49 United States Code section 1154(b) is available here.

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