



National Transportation Safety Board Aviation Accident Final Report

Location:	TULSA, OK	Accident Number:	FTW00LA163
Date & Time:	06/01/2000, 0200 CDT	Registration:	N7271W
Aircraft:	Piper PA-28-180	Aircraft Damage:	Substantial
Defining Event:		Injuries:	4 Serious, 1 Minor
Flight Conducted Under:	Part 91: General Aviation - Personal		

Analysis

The private pilot stated that the airplane's preflight inspection and pre-takeoff engine run-up did not reveal any anomalies. The night cross-country flight departed from runway 01L and the airplane was climbing through 1,100 feet msl (463 feet agl) when the pilot noticed a hot smell and, subsequently, the engine lost total power. The pilot attempted to find a landing area and the pilot-rated passenger, who was a certified flight instructor (CFI), attempted to re-start the engine; however, the engine did not re-start. The pilot then relinquished control of the airplane to the CFI and a forced landing was executed. During the forced landing, the airplane impacted a tree and came to a stop upright. A pilot-rated witness added that he heard the airplane's engine 'missing badly,' during the initial takeoff climb. The airframe and engine logbooks were examined and no open maintenance discrepancies were noted. The reason for the loss of engine power was not determined during the airframe examination or engine test run.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: the loss of engine power for an undetermined reason. A contributing factor was the lack of suitable terrain for the forced landing.

Findings

Occurrence #1: LOSS OF ENGINE POWER
Phase of Operation: TAKEOFF - INITIAL CLIMB

Findings

1. (C) REASON FOR OCCURRENCE UNDETERMINED

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

Occurrence #3: IN FLIGHT COLLISION WITH TERRAIN/WATER
Phase of Operation: EMERGENCY DESCENT/LANDING

Findings

2. (F) TERRAIN CONDITION - NONE SUITABLE
3. TERRAIN CONDITION - GROUND

Factual Information

On June 1, 2000, at 0200 central daylight time, a Piper PA-28-180, N7271W, was substantially damaged when it impacted terrain following a loss of engine power after takeoff from the Richard Lloyd Jones Jr. Airport, Tulsa, Oklahoma. The private pilot and three passengers sustained serious injuries and one passenger sustained minor injuries. The airplane was registered to and operated by a private individual. Night visual meteorological conditions prevailed for the 14 Code of Federal Regulations Part 91 personal flight, and a flight plan was not filed. The cross-country flight was originating at the time of the accident and was destined for the Meadow Lake Airport, Colorado Springs, Colorado.

According to the private pilot, on May 31, 2000, he flew the airplane from Colorado Springs to Tulsa, arrived at 2355, and experienced no anomalies with the airplane during the flight. He met his brother, who was a certified flight instructor (CFI), and his brother's three children upon arrival and prepared for a return flight to Colorado Springs. On June 1, 2000, at 0130 he topped off the fuel tanks with 38.24 gallons of 100LL type fuel from a self-serve fuel pump, added oil to bring the oil level to 6 quarts, and preflighted the airplane. He then loaded his brother and the children into the airplane, taxied to runway 01L, performed a run-up, noted no anomalies, and departed.

The pilot reported that the airplane was climbing through 1,100 feet msl (462 feet agl) when "he noticed a hot smell and felt that something was wrong," subsequently, the engine lost total power. The pilot searched for a location to land and the CFI completed the emergency procedures for an engine re-start; however, the engine did not re-start. A witness, who was pilot-rated, added that during the initial takeoff climb the engine began "missing badly." The pilot relinquished control of the airplane to the CFI and a forced landing was executed. During the forced landing, the airplane contacted a tree and came to a stop upright between a highway and a riverbank. Both wings separated from the airframe and the fuselage was buckled.

A sample of fuel was captured from the right wing fuel tank. It was blue and free of contaminants. A fuel sample from the left wing fuel tank could not be captured due to the integrity of the tank having been compromised during impact. A fuel sample from the self-serve pump reservoir was sent to BP Oil Company, Cleveland, Ohio, for testing. According to the test report, the test was accomplished in accordance with ASTM D-910 and the sample met "all BP Oil manufacturing specifications."

According to the airframe logbook, the airframe underwent its last annual inspection on May 4, 1999, at a total time of 2,638.00 flight hours. The Textron Lycoming O-360-A3A engine (serial number L-2012-36) underwent its last 100-hour inspection on May 4, 1999, at a total time of 2,638.00 hours and 1,475.00 hours since overhaul. The airplane had accumulated a total of 2679.57 flight hours and the engine had accumulated a total of 1516.57 hours since overhaul, at the time of the accident. Additionally, no open maintenance discrepancies were found in the airframe and engine logbooks.

The airplane and engine were examined at Air Salvage of Dallas, Lancaster, Texas, by the NTSB Investigator-In-Charge, an FAA inspector, a representative from Textron Lycoming, and a representative from The New Piper Aircraft. The cockpit was examined and the ignition key was found separated in the ignition and was at the BOTH position. The flaps were in the retracted position and the cockpit fuel selector was found in the left tank position. The throttle was found in the idle cutoff position, the mixture was in the full rich position, and the

carburetor heat control was in the OFF position. The fuel boost pump switch was in the OFF position.

The fuel lines from each wing root to the gascolator were pressurized. The fuel selector was rotated through the RH, LH, and BOTH positions, and air was observed coming through the line into the gascolator at each position. The left wing and right wing fuel caps were tight, the seals were not compromised, and each of the fuel vents was clear. The electric fuel pump was damaged by impact. The pump did not operate when an electrical current was supplied via a test bench stand. The pump's fuel screen was removed and observed to be free of contaminants.

The engine was examined. The propeller was rotated and continuity was confirmed to the accessory drive gears. A differential compression check was accomplished and revealed that the number 1 cylinder had a reading of 75/80, the number 3 cylinder had a reading of 70/80, the number 2 cylinder had a reading of 50/80, and the number 4 cylinder had a reading of 22/80. The left magneto was timed at 24 degrees and the right magneto was timed at 20 degrees, both within manufacturers specifications. The air filter was displaced aft and its element was pushed aft into the intake hose, which was collapsed. The propeller was removed and the propeller seal was loose and small oil leakage was noted. The oil dipstick was removed and there were 4 quarts of oil indicated on the dipstick. The oil filter was removed, examined, and found to be free of contaminants. The carburetor was damaged at impact; however, its one piece venturi remained in place. Additionally, there was no blockage of intake or exhaust tubes.

The engine was sent to the Textron Lycoming manufacturing plant in Williamsport, Pennsylvania, to be test run. According to the test run report from Textron Lycoming, upon initial examination the "engine rotation, continuity, and borescope inspections were normal," and "the internal timing was set correctly." The report noted that the right magneto distributor block, #2 bottom ignition lead terminal was found corroded with the spring missing. Each ignition harness lead fired when tested, except for the #2 and #4 bottom leads. The engine was then placed in a test cell. The engine was started and run at the manufacturer's required test points, for a duration of 25 minutes. The engine displayed "normal" acceleration during this period. The rated rpm was found to be 120 rpms low. The left magneto displayed an 80-rpm drop and the right magneto displayed a 417-rpm drop at 2200 rpms. According to the test run report, "the low rated rpm and high right magneto rpm drop are consistent with the corrosion found on the distributor block of the right magneto and the ignition leads that would not spark when tested."

The two front seats of the airplane were equipped with shoulder harnesses and lap belts. The two rear seats in the airplane were equipped with lap belts only. The pilot reported that the two front seat occupants were not wearing the shoulder harnesses at the time of the accident, due to an "unsafe fit." He reported that two of the children in the right rear seat were sharing a lap belt and the remaining child was using her own lap belt. He stated that all lap belts were secured during loading of the airplane. However, the children passengers were interviewed by an FAA inspector following the accident and they reported that they were not wearing the lap belts. One of the children stated that the lap belt was "broken" and she was told to "just leave the seatbelt off," and another child reported that when she could not find the seatbelt she was told "not to worry about it."

Pilot Information

Certificate:	Private	Age:	40, Male
Airplane Rating(s):	Single-engine Land	Seat Occupied:	Left
Other Aircraft Rating(s):	None	Restraint Used:	Seatbelt
Instrument Rating(s):	None	Second Pilot Present:	Yes
Instructor Rating(s):	None	Toxicology Performed:	No
Medical Certification:	Class 3 Valid Medical--no waivers/lim.	Last FAA Medical Exam:	05/17/2000
Occupational Pilot:		Last Flight Review or Equivalent:	
Flight Time:	240 hours (Total, all aircraft), 151 hours (Total, this make and model), 205 hours (Pilot In Command, all aircraft), 24 hours (Last 90 days, all aircraft), 24 hours (Last 30 days, all aircraft), 4 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Piper	Registration:	N7271W
Model/Series:	PA-28-180 PA-28-180	Aircraft Category:	Airplane
Year of Manufacture:		Amateur Built:	No
Airworthiness Certificate:	Normal	Serial Number:	28-1107
Landing Gear Type:	Tricycle	Seats:	5
Date/Type of Last Inspection:	05/04/1999, Annual	Certified Max Gross Wt.:	2400 lbs
Time Since Last Inspection:	42 Hours	Engines:	1 Reciprocating
Airframe Total Time:	2680 Hours	Engine Manufacturer:	Lycoming
ELT:	Installed, not activated	Engine Model/Series:	O-360-A3A
Registered Owner:	CLAIRE CHEATHAM	Rated Power:	180 hp
Operator:	CLAIRE CHEATHAM	Operating Certificate(s) Held:	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual Conditions	Condition of Light:	Night/Bright
Observation Facility, Elevation:	RVS, 638 ft msl	Distance from Accident Site:	1 Nautical Miles
Observation Time:	0153 CST	Direction from Accident Site:	180°
Lowest Cloud Condition:	Clear / 0 ft agl	Visibility	9 Miles
Lowest Ceiling:	None / 0 ft agl	Visibility (RVR):	0 ft
Wind Speed/Gusts:	4 knots /	Turbulence Type Forecast/Actual:	/
Wind Direction:	180°	Turbulence Severity Forecast/Actual:	/
Altimeter Setting:	29 inches Hg	Temperature/Dew Point:	24° C / 21° C
Precipitation and Obscuration:			
Departure Point:	(RVS)	Type of Flight Plan Filed:	None
Destination:	COLORADO SPGS, CO (00V)	Type of Clearance:	
Departure Time:	0200 CDT	Type of Airspace:	Class E

Airport Information

Airport:	RICHARD LLOYD JONES JR (RVS)	Runway Surface Type:	Asphalt
Airport Elevation:	638 ft	Runway Surface Condition:	
Runway Used:	1L	IFR Approach:	
Runway Length/Width:	5101 ft / 100 ft	VFR Approach/Landing:	Forced Landing

Wreckage and Impact Information

Crew Injuries:	2 Serious	Aircraft Damage:	Substantial
Passenger Injuries:	2 Serious, 1 Minor	Aircraft Fire:	None
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	4 Serious, 1 Minor	Latitude, Longitude:	

Administrative Information

Investigator In Charge (IIC):	JASON A RAGOGNA	Report Date:	07/02/2001
Additional Participating Persons:	WAYNE E COOK; OKLAHOMA CITY, OK		
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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