



National Transportation Safety Board Aviation Accident Final Report

Location:	WILLIAMSBURG, VA	Accident Number:	NYC94LA045
Date & Time:	01/02/1994, 2223 EST	Registration:	N776P
Aircraft:	CESSNA 206A	Aircraft Damage:	Substantial
Defining Event:		Injuries:	1 None

Flight Conducted Under: Part 91: General Aviation - Personal

Analysis

DURING PREFLIGHT THE PILOT CONFIRMED 11 QUARTS OF OIL IN THE ENGINE. THE PILOT DEPARTED ON A NIGHT CROSS COUNTRY FLIGHT AND CLIMBED TO A CRUISING ALTITUDE OF 4500 FEET. FIFTEEN MINUTES AFTER TAKE OFF THE ENGINE LOST POWER. AN EXPLOSION OCCURRED IN THE ENGINE COMPARTMENT AFTER THE PILOT INITIATED A TURN TO RETURN TO THE DEPARTURE AIRPORT. THE PILOT WAS APPROACHING WATER AND ELECTED NOT TO SHUT THE ENGINE DOWN. A SECOND EXPLOSION OCCURRED FOLLOWED BY A LOSS OF OIL PRESSURE. AFTER A THIRD EXPLOSION FOLLOWED BY FIRE ERUPTING FROM THE ENGINE COMPARTMENT, THE PILOT SECURED THE ENGINE AND SHUT THE FUEL OFF. DURING THE FORCED LANDING THE LEFT WING OF THE AIRPLANE STRUCK A TREE SHORT OF THE RUNWAY, AND THE AIRPLANE CAME TO REST IN A FIELD. EXAMINATION OF THE ENGINE REVEALED THAT AN EXHAUST VALVE HAD BROKEN FREE AND CREATED A HOLE IN THE PISTON. THE ENGINE WAS FOUND ABSENT OF OIL. TWO CONNECTING RODS FAILED AT THE CRANKSHAFT JOURNALS FROM A LACK OF LUBRICATION.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: an exhaust valve failure that created a hole in the piston, which allowed the complete loss of engine oil, resulting in the subsequent forced landing.

Findings

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

Findings

1. LIGHT CONDITION - DARK NIGHT
2. (C) ENGINE ASSEMBLY, VALVE, EXHAUST - FAILURE, TOTAL
3. (C) FLUID, OIL - LOSS, TOTAL

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

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

Findings

4. OBJECT - TREE(S)

Factual Information

On January 2, 1994, about 2223 eastern standard time, a Cessna 206A, N776P, piloted by Terry Brown, was substantially damaged during a forced landing near the Williamsburg Airport, Williamsburg, Virginia. The pilot was not injured. Visual meteorological conditions prevailed. A visual flight rules flight plan had been filed for the flight operating under 14 CFR 91.

In the NTSB Form 6120.1/2, the pilot stated that during his preflight he confirmed there were 11 quarts of oil in the engine. After a long warm-up due to the cold temperature, he departed the Williamsburg Airport (JGG) and climbed to 4500 feet.

About 15 minutes after take off, as he was preparing to file a flight plan, "...an instant decrease in power was noticed."

He further stated:

A turn was made to return to the A/P [airport] at JGG...there was an explosion from the front left side of the engine (all the flames came out there). I was approaching water...and did not want to shut down so [I] kept engine on line, 30-45 seconds later a second explosion took place, this time fire came out right front and oil pressure was lost. I still needed whatever I would get and kept the engine operating. The cockpit filled with smoke and the third explosion took place with fire coming out of the engine compartment. I secured the engine and fuel...I was not going to make the A/P, but remembered a road south west of JGG, and...set up a pattern, and landed. Evading wires on short final I dodged the tree on the right...over input left aileron and put the left wing into a tree...and ended up going backward nose-low."

An engine examination was performed by a Federal Aviation Administration (FAA) Inspector and a representative of Teledyne Continental Motors on January 11, 1994, at the JGG Airport. The Teledyne representative report stated:

The engine failure was induced by the failure of the #2 cylinder exhaust valve. This valve dropped into the cylinder and the severe hammering opened a hole in the piston. Combustion gases evacuated the oil through the breather and the #4 and #5 connecting rods failed at the crankshaft journals after lubrication failure. The relative damage to the connecting rods suggest the connecting rod of the #5 cylinder (right front) failed first followed by the connecting rod of the #4 cylinder (middle left)...The exhaust valve, which may have been replaced at an engine overhaul 440 hours earlier, was a Superior valve, P/N SA 6438737-7998....

Pilot Information

Certificate:	Commercial	Age:	50, Male
Airplane Rating(s):	Multi-engine Land; Single-engine Land	Seat Occupied:	Left
Other Aircraft Rating(s):	Helicopter	Restraint Used:	Seatbelt
Instrument Rating(s):	Airplane; Helicopter	Second Pilot Present:	No
Instructor Rating(s):	None	Toxicology Performed:	No
Medical Certification:	Class 2 Valid Medical--w/ waivers/lim.	Last FAA Medical Exam:	04/23/1993
Occupational Pilot:		Last Flight Review or Equivalent:	
Flight Time:	11067 hours (Total, all aircraft), 365 hours (Total, this make and model), 9050 hours (Pilot In Command, all aircraft), 150 hours (Last 90 days, all aircraft), 70 hours (Last 30 days, all aircraft), 1 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	CESSNA	Registration:	N776P
Model/Series:	206A 206A	Aircraft Category:	Airplane
Year of Manufacture:		Amateur Built:	No
Airworthiness Certificate:	Normal	Serial Number:	U206-0568
Landing Gear Type:	Tricycle	Seats:	4
Date/Type of Last Inspection:	08/21/1993, Annual	Certified Max Gross Wt.:	3600 lbs
Time Since Last Inspection:	51 Hours	Engines:	1 Reciprocating
Airframe Total Time:	6766 Hours	Engine Manufacturer:	CONTINENTAL
ELT:	Installed, not activated	Engine Model/Series:	TSIO-520-C
Registered Owner:	MARY C. BURCH	Rated Power:	285 hp
Operator:	MARY C. BURCH	Operating Certificate(s) Held:	

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual Conditions	Condition of Light:	Night/Dark
Observation Facility, Elevation:	RIC, 168 ft msl	Distance from Accident Site:	32 Nautical Miles
Observation Time:	2151 EST	Direction from Accident Site:	300°
Lowest Cloud Condition:	Unknown / 0 ft agl	Visibility	7 Miles
Lowest Ceiling:	Overcast / 6500 ft agl	Visibility (RVR):	0 ft
Wind Speed/Gusts:	4 knots /	Turbulence Type Forecast/Actual:	/
Wind Direction:	360°	Turbulence Severity Forecast/Actual:	/
Altimeter Setting:	30 inches Hg	Temperature/Dew Point:	6°C / 1°C
Precipitation and Obscuration:			
Departure Point:		Type of Flight Plan Filed:	None
Destination:	ENTERPRISE, AL (END)	Type of Clearance:	None
Departure Time:	2145 EST	Type of Airspace:	Class G

Airport Information

Airport:	WILLIAMSBURG-JAMESTOWN (JGG)	Runway Surface Type:	
Airport Elevation:	49 ft	Runway Surface Condition:	Soft
Runway Used:	0	IFR Approach:	
Runway Length/Width:		VFR Approach/Landing:	Forced Landing

Wreckage and Impact Information

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

Administrative Information

Investigator In Charge (IIC):	ROBERT L PEARCE	Report Date:	11/18/1994
Additional Participating Persons:	EDWARD L HALL; RICHMOND, VA GEORGE M HOLLINGSWORTH; RESTON, VA		
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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