



National Transportation Safety Board

Aviation Accident Data Summary

Location:	Sebastian, FL	Accident Number:	MIA03LA139
Date & Time:	07/01/2003, 1240 EDT	Registration:	N51576
Aircraft:	Samual G. DaSilva Velocity	Injuries:	1 Serious, 1 Minor
Flight Conducted Under:	Part 91: General Aviation - Personal		

Analysis

The pilot stated that about 10 minutes after takeoff during cruise flight at 1,500 feet with the passenger flying the airplane, the engine briefly "shuddered", and the rpm dropped to 2,000, then to zero. He took the controls and attempted to restore engine power but was unsuccessful. He maneuvered the airplane for a forced landing in a field, and when the flight was approximately 20 feet above ground level he recognized there were drainage ditches in the field. The airplane was landed in the field, and during the landing roll the nose landing gear collapsed after traveling into a ditch. The airplane then slid into a second ditch, and came to rest approximately 158 feet from the first ditch impact location. Examination of the engine revealed the crankshaft was fractured at the No. 3 cylinder connecting rod journal; there was no evidence of lack of lubrication or fretting on the faying surfaces of the crankcase halves. Metallurgical examination of the crankshaft revealed the fracture surface was located in the aft radius of the No. 3 connecting rod journal; fatigue progression was noted to initiate from the intersection of the radius and the journal. The fracture propagated in a plane perpendicular to the journal surface from a single origin. The fatigue initiation site did not contain scoring marks or scratches. All connecting rod journals measured 2.114 inches. The No. 3 connecting rod journal superficial macro hardness was slightly below the minimum specified limit, while the core hardness was within limits. The overall aft radius was determined to be 0.152 inch, while a localized transition radius of .015 inch at the fatigue origin location was noted. The crankshaft had been to two FAA certified repair stations (FAA CRS), the first time on December 14, 1991, and the second time on August 2, 2001. Both repair stations rejected the crankshaft due to a crack in the No. 1 main bearing area. The records from the facility that inspected the crankshaft in 2001 indicate the No. 3 connecting rod journal measured 2.1193 inches at the time it was rejected; no work was performed to it. The owner reported that following the rejection in 2001, he took the crankshaft to another FAA CRS who reportedly ground two connecting rod journals and polished the crankshaft. The owner did not have a receipt or yellow tag for the work performed to the crankshaft. The engine was assembled, and had been operated 87.8 hours since being reassembled at the time of the crankshaft failure. The president of the FAA CRS that the owner of the airplane reported last worked on the crankshaft reported he did not have any records pertaining to the accident crankshaft. He also reported that he voluntarily closed his business in August 2002, to retire.

Probable Cause

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The improper repair of the crankshaft by a FAA Certified Repair Station resulting in fatigue failure and subsequent total loss of engine power. A factor in the accident was the rough/uneven terrain encountered by the pilot during the landing roll in a field.

Findings

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

Findings

- 1. (C) ENGINE ASSEMBLY,CRANKSHAFT - FATIGUE
- 2. (C) MAINTENANCE,MAJOR REPAIR - IMPROPER - OTHER MAINTENANCE PERSONNEL

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

Occurrence #3: ON GROUND/WATER ENCOUNTER WITH TERRAIN/WATER
Phase of Operation: EMERGENCY LANDING

Findings

- 3. (F) TERRAIN CONDITION - ROUGH/UNEVEN

Pilot Information

Certificate:	Flight Instructor; Commercial	Age:	67
Airplane Rating(s):	Single-engine Land	Instrument Rating(s):	Airplane
Other Aircraft Rating(s):	None	Instructor Rating(s):	Airplane Single-engine
Flight Time:	4200 hours (Total, all aircraft), 1247 hours (Total, this make and model), 4200 hours (Pilot In Command, all aircraft), 4 hours (Last 90 days, all aircraft), 3 hours (Last 30 days, all aircraft), 1 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Samual G. DaSilva	Registration:	N51576
Model/Series:	Velocity	Engines:	1 Reciprocating
Operator:	Samuel G. DaSilva	Engine Manufacturer:	Lycoming
Operating Certificate(s) Held:	None	Engine Model/Series:	O-360-A1A
Flight Conducted Under:	Part 91: General Aviation - Personal		

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual Conditions	Condition of Light:	Day
Observation Facility, Elevation:	KVRB, 24 ft msl	Weather Information Source:	Weather Observation Facility
Lowest Ceiling:	None	Wind Speed/Gusts, Direction:	15 knots / , 130°
Temperature:	31 °C	Visibility	10 Miles
Precipitation and Obscuration:			
Departure Point:	Sebastion, FL (X26)	Destination:	St. Petersburg, FL (KPIE)

Wreckage and Impact Information

Crew Injuries:	1 Minor	Aircraft Damage:	Substantial
Passenger Injuries:	1 Serious	Aircraft Fire:	None
Ground Injuries:	N/A	Aircraft Explosion:	None
Latitude, Longitude:	27.816667, -80.683333		

Administrative Information

Investigator In Charge (IIC):	Timothy W Monville	Adopted Date:	10/28/2004
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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