Aviation Investigation Final Report

Location:	St. George, Utah	**Accident Number:**	LAX07LA114
Date & Time:	March 17, 2007, 18:00 Local	**Registration:**	N74503
Aircraft:	Mooney M20B	**Aircraft Damage:**	Substantial
Defining Event:		**Injuries:**	2 None
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

Ten minutes after takeoff the airplane's engine started running rough, and the airplane collided with terrain during a forced landing into an open area. The pilot leveled the airplane at 6,500 feet for cruise and the engine started running rough and backfiring. The engine would run sporadically rough then smooth out. The pilot executed emergency procedures, switched fuel tanks, and switched on the boost pump, but there was no change in the engine's rough-running condition. He decided to return to the airport, and configured the airplane for best glide. He setup for a 2-mile final to runway 34. The pilot determined that he was not going to make the runway, and force landed the airplane in a clear area by a river bed. An examination of the engine determined that the right magneto contained engine oil. The seal between the engine accessory drive and the magneto was hard, loose fitting, and covered with engine oil. Examination of the engine maintenance logbook revealed that the engine had been manufactured new on February 8, 1979, and installed on the airplane April 13, 1979. A 9-year gap where no maintenance was recorded on the engine occurred between October 1992 (engine total time of 1302.9 hours) and July 2002 (engine total time of 1322.39 hours). A 100-hour inspection was recorded as being completed on July 2, 2002. The most recent 100-hour inspection was performed on June 22, 2006, at 1,439.1 hours total time. There is no record of an engine or magneto overhaul. Lycoming Service Instruction No. 1009AS states that engines that do not accumulate the hourly period of time between overhauls specified (2,000 hours for the O-360-A1D) are recommended to be overhauled in the twelfth year. Teledyne Continental Ignition systems Service Bulletin, SB643B, for all TCM and Bendix magnetos states that the magnetos must be overhauled or replaced at the expiration of 5 years since the date of original manufacture or last overhaul, or 4 years since the date the magneto was placed in service, which ever occurs first with out regard to accumulated operating hours.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: Oil contamination of the right magneto. Factors were the airplane owner's failure to comply with manufacturer's service bulletins and overhaul porcedures.

Findings

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

Findings
1. (C) IGNITION SYSTEM,MAGNETO - CONTAMINATION,OTHER THAN WATER
2. (F) MAINTENANCE,SERVICE BULLETIN/LETTER - NOT COMPLIED WITH - OWNER/PILOT MECHANIC
3. (F) MAINTENANCE,OVERHAUL - NOT PERFORMED - OWNER/PILOT MECHANIC

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

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

Findings
4. TERRAIN CONDITION - ROUGH/UNEVEN

Factual Information

On March 17, 2007, at 1800 mountain daylight time, a Mooney M20B, N74503, experienced a partial loss of engine power after takeoff and forced landed near St. George Municipal Airport, St. George, Utah. The private pilot operated the airplane under the provisions of 14 CFR Part 91. The pilot and single passenger were not injured, and the airplane sustained substantial damage. Visual meteorological conditions prevailed, and no flight plan had been filed. The flight originated at St. George airport at 1745, and was en route to Blackfoot, Idaho.

The pilot stated to the National Transportation Safety Board investigator that 10 minutes after takeoff he leveled the airplane at 6,500 feet for cruise; the engine started running rough and backfiring. The engine would run sporadically rough then smooth out. The pilot executed emergency procedures, switched fuel tanks, and switched on the boost pump, but there was no change in the engine's rough running condition. He decided to return to St. George airport, and configured the airplane for best glide. He setup for a 2-mile final to runway 34. The pilot determined that he was not going to make the runway, and force landed the airplane in a clear area by a river bed.

The next day a Federal Aviation Administration inspector examined the engine and determined that the right magneto contained engine oil. The seal between the engine accessory drive and the magneto was hard, loose fitting, and covered with engine oil. Examination of the engine maintenance logbook revealed that the engine had been manufactured new on February 8, 1979, and installed on the airplane April 13, 1979. A 9-year gap where no maintenance was recorded on the engine occurred between October 1992 (engine total time of 1302.9 hours) and July 2002 (engine total time of 1322.39 hours). A 100-hour inspection was recorded as being completed on July 2, 2002. The most recent 100-hour inspection was performed on June 22, 2006, at 1,439.1 hours total time. There is no record of an engine or magneto overhaul.

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Pilot Information

Certificate:	Private	**Age:**	50,Male
Airplane Rating(s):	Single-engine land	**Seat Occupied:**	
Other Aircraft Rating(s):		**Restraint Used:**	
Instrument Rating(s):	Airplane	**Second Pilot Present:**	No
Instructor Rating(s):	None	**Toxicology Performed:**	No
Medical Certification:	Class 3	**Last FAA Medical Exam:**	December 1, 2006
Occupational Pilot:		**Last Flight Review or Equivalent:**	
Flight Time:	462 hours (Total, all aircraft), 325 hours (Total, this make and model), 419 hours (Pilot In Command, all aircraft), 68 hours (Last 90 days, all aircraft), 42 hours (Last 30 days, all aircraft), 3 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Mooney	**Registration:**	N74503
Model/Series:	M20B	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	1814
Landing Gear Type:	Retractable - Tricycle	**Seats:**	4
Date/Type of Last Inspection:	June 1, 2006 Annual	**Certified Max Gross Wt.:**	2450 lbs
Time Since Last Inspection:		**Engines:**	1 Reciprocating
Airframe Total Time:	3958.5 Hrs at time of accident	**Engine Manufacturer:**	Lycoming
ELT:	Installed, not activated	**Engine Model/Series:**	O-360-A1D
Registered Owner:	Steve Laflin	**Rated Power:**	180 Horsepower
Operator:		**Operating Certificate(s) Held:**	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	KSGU	**Distance from Accident Site:**	2 Nautical Miles
Observation Time:	19:35 Local	**Direction from Accident Site:**	10°
Lowest Cloud Condition:	Clear	**Visibility**	10 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	14 knots /	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	260°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	29.9 inches Hg	**Temperature/Dew Point:**	28°C / -6°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	St. George, UT (KSGU)	**Type of Flight Plan Filed:**	None
Destination:	Blackfoot, ID (KU02)	**Type of Clearance:**	VFR
Departure Time:	17:45 Local	**Type of Airspace:**	

Airport Information

Airport:	St. George KSGU	**Runway Surface Type:**	
Airport Elevation:		**Runway Surface Condition:**	
Runway Used:		**IFR Approach:**	None
Runway Length/Width:		**VFR Approach/Landing:**	Forced landing

Wreckage and Impact Information

Crew Injuries:	1 None	**Aircraft Damage:**	Substantial
Passenger Injuries:	1 None	**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	2 None	**Latitude, Longitude:**	37.040554,-113.60083

Administrative Information

Investigator In Charge (IIC):	McKenny, Van
Additional Participating Persons:	Eric McRae; Federal Aviation Administration; Salt Lake City, UT
Original Publish Date:	July 25, 2007
Last Revision Date:	
Investigation Class:	Class
Note:	
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=65452