



Aviation Investigation Factual Report

Location:	Roseburg, Oregon	Accident Number:	SEA05LA049
Date & Time:	February 16, 2005, 10:30 Local	Registration:	N1147D
Aircraft:	Mooney M20K	Aircraft Damage:	Substantial
Defining Event:		Injuries:	3 None
Flight Conducted Under:	Part 91: General aviation		

Factual Information

On February 16, 2005, about 1030 Pacific standard time, a Mooney M20K airplane, N1147D, sustained substantial damage following a loss of engine power and subsequent off airport forced landing approximately five miles northwest of Roseburg, Oregon. The airplane is registered to a private party in Umpqua, Oregon, and was being operated by the pilot as an instrument flight rules (IFR) cross-country flight in accordance with Title 14, CFR Part 91. The private pilot and the two passengers aboard the airplane were not injured. Visual meteorological conditions prevailed and an IFR flight plan was activated for the flight that originated from Roseburg approximately 10 minutes prior to the accident. The flight-planned destination for the flight was Lewiston, Idaho.

During a telephone conversation with the National Transportation Safety Board (IIC) on February 16, the pilot reported that shortly after takeoff, while in a climb configuration, the airplane's engine began to lose manifold pressure and engine RPM. Concurrent with the loss of engine power, the pilot noted a loss of oil pressure and elected to land the airplane, off-airport, in a wooded area near Roseburg.

Post accident examination of the engine, by personnel from the National Transportation Safety Board and Teledyne Continental Motors, revealed that the distal end of the number 5 piston pin was fractured. Further examination revealed that the inner aluminum piston pin insert fractured-off just inboard of where the pin begins to taper outward. The fracture face was flat and perpendicular to the outer surface of the steel housing. Both fracture surfaces (inner and outer) sustained extensive smearing type damage and metal loss so significant that an analysis of the fracture surfaces could not be completed.

Heavy scoring was noted to the wall of the number five cylinder assembly and piston. Extensive mechanical damage was observed to the relief area of the piston. The bottom piston ring was seized in place. The connecting rod was intact, however the piston end of the rod was discolored.

Removal and examination of the oil sump revealed that the sump contained oil, as well as a large amount of metallic type particles. The oil pickup tube and screen was intact and also contained a significant amount of metallic like particles similar to the material found in the oil sump. The metallic particles were non-magnetic.

Aircraft records indicated that the airplane was originally type certificated with a Lycoming TSIO-360 engine rated at 210 horsepower. In December 2001, the airplane was modified to accommodate an overhauled Continental TSIO-520-NB (rated at 305 horsepower) utilizing Rocket Engineering Supplemental Type Certificate (STC) SA5691NM.

Maintenance records indicated that the Continental TSIO-520-NB was overhauled prior to the installation. A logbook entry corresponding with the overhaul indicated that the total time of the engine was "unknown" and the time since major overhaul was "0".

The final assembly records for the engine overhaul indicated that "new" Superior piston pins (part number SA630046) were used for the overhaul.

The engine had accrued approximately 370 hours from the time of overhaul to the time of the accident.

Pilot Information

Certificate:	Private	Age:	66, 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:	September 1, 2004
Occupational Pilot:	No	Last Flight Review or Equivalent:	February 1, 2004
Flight Time:	3975 hours (Total, all aircraft), 3500 hours (Total, this make and model), 3818 hours (Pilot In Command, all aircraft), 3 hours (Last 90 days, all aircraft), 3 hours (Last 30 days, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Mooney	Registration:	N1147D
Model/Series:	M20K	Aircraft Category:	Airplane
Year of Manufacture:		Amateur Built:	
Airworthiness Certificate:	Normal	Serial Number:	25-0594
Landing Gear Type:	Retractable - Tricycle	Seats:	4
Date/Type of Last Inspection:	September 1, 2004 Annual	Certified Max Gross Wt.:	3130 lbs
Time Since Last Inspection:	17.6 Hrs	Engines:	1 Reciprocating
Airframe Total Time:	3617 Hrs at time of accident	Engine Manufacturer:	Continental
ELT:	Installed, activated, aided in locating accident	Engine Model/Series:	TSIO-520-NB
Registered Owner:	Scott G. Satterla	Rated Power:	310 Horsepower
Operator:	Albert G. Satterla	Operating Certificate(s) Held:	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	Condition of Light:	Day
Observation Facility, Elevation:	KRBG, 529 ft msl	Distance from Accident Site:	5 Nautical Miles
Observation Time:	10:26 Local	Direction from Accident Site:	135°
Lowest Cloud Condition:		Visibility	2 miles
Lowest Ceiling:	Overcast / 300 ft AGL	Visibility (RVR):	
Wind Speed/Gusts:	0 knots / None	Turbulence Type Forecast/Actual:	/
Wind Direction:		Turbulence Severity Forecast/Actual:	/
Altimeter Setting:	30.15 inches Hg	Temperature/Dew Point:	-1°C / -1°C
Precipitation and Obscuration:	Moderate - None - Mist		
Departure Point:	ROSEBURG, OR (OR01)	Type of Flight Plan Filed:	IFR
Destination:	LEWISTON, ID (LWS)	Type of Clearance:	IFR
Departure Time:	10:19 Local	Type of Airspace:	

Wreckage and Impact Information

Crew Injuries:	1 None	Aircraft Damage:	Substantial
Passenger Injuries:	2 None	Aircraft Fire:	None
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	3 None	Latitude, Longitude:	43.355834,-123.370552

Administrative Information

Investigator In Charge (IIC):	Hogenson, Dennis
Additional Participating Persons:	Jerry Baas; FAA FSDO; Hillsboro, OR Mike Grimes ; TCM; Mobile , AL

Report Date:	August 1, 2005
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Last Revision Date:

Investigation Class:	Class
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Note:

Investigation Docket:	https://data.nts.gov/Docket?ProjectID=61021
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