



National Transportation Safety Board Aviation Accident Final Report

Location:	Lafayette, IN	Accident Number:	CHI08CA035
Date & Time:	11/01/2007, 1714 EDT	Registration:	N5912Q
Aircraft:	Mooney M20E	Aircraft Damage:	Substantial
Defining Event:		Injuries:	1 None
Flight Conducted Under:	Part 91: General Aviation - Business		

Analysis

The airplane was in cruise flight at 6,500 feet when the engine began to run roughly. The pilot verified both magnetos were functioning properly, switched fuel tanks, and manipulated the throttle without any improvement in engine operation. He informed air traffic control of the loss of engine power and was subsequently cleared to land at an airport about 8 nm north of his position. The engine continued to run roughly as he maneuvered for the airport. The airplane impacted rising terrain that preceded the runway threshold. The airplane came to rest within 100 feet of the threshold. The airplane received substantial damage to the right wing and engine firewall. The nose and right main landing gear collapsed during the landing. The left main landing gear remained fully extended. Examination of the engine revealed that the number 3 cylinder had separated from the engine case. Further examination showed that the number 3 connecting rod had separated from the crankshaft. The connecting rod cap, two rod bolts, and two nuts were found separated inside the engine case. One of the rod bolts was bent and fractured approximately mid-span. One-half of this bolt remained with the rod cap. The bolt's fracture surface exhibited a cup/cone shape, consistent with an overload failure. The threaded region of this bolt was undamaged. One of the nuts had undamaged threads. The first three threads adjacent to the flat side of the remaining nut were damaged. The remaining rod bolt was intact, but the three threads from the end were damaged consistent with the damage noted on the second nut. The last engine overhaul was completed on November 19, 1972. The engine had accumulated 820 hours since that overhaul.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The improper installation of the connecting rod bolts during major overhaul, which resulted in the separation of the connecting rod from the crankshaft in flight. Contributing to the accident was the rising terrain encountered during touchdown and the subsequent landing gear collapse.

Findings

Occurrence #1: LOSS OF ENGINE POWER(PARTIAL) - NONMECHANICAL

Phase of Operation: CRUISE - NORMAL

Findings

1. (C) ENGINE ASSEMBLY,CONNECTING ROD CAP - SEPARATION
2. (C) ENGINE ASSEMBLY,CONNECTING ROD BOLT - LOOSE PART/BOLT/NUT/CLAMP/ETC
3. (C) MAINTENANCE,OVERHAUL,MAJOR - INADEQUATE - OTHER MAINTENANCE PERSONNEL

Occurrence #2: FORCED LANDING

Phase of Operation: EMERGENCY DESCENT/LANDING

Occurrence #3: HARD LANDING

Phase of Operation: EMERGENCY DESCENT/LANDING

Findings

4. (F) TERRAIN CONDITION - RISING
5. (F) LANDING GEAR - COLLAPSED

Factual Information

Pilot Information

Certificate:	Private	Age:	58, Male
Airplane Rating(s):	Multi-engine Land; Single-engine Land	Seat Occupied:	Left
Other Aircraft Rating(s):	None	Restraint Used:	Seatbelt
Instrument Rating(s):	None	Second Pilot Present:	No
Instructor Rating(s):	None	Toxicology Performed:	No
Medical Certification:	Class 3 With Waivers/Limitations	Last Medical Exam:	06/01/2006
Occupational Pilot:		Last Flight Review or Equivalent:	07/01/2006
Flight Time:	855 hours (Total, all aircraft), 46 hours (Total, this make and model), 11 hours (Last 90 days, all aircraft), 2 hours (Last 30 days, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Manufacturer:	Mooney	Registration:	N5912Q
Model/Series:	M20E	Aircraft Category:	Airplane
Year of Manufacture:		Amateur Built:	No
Airworthiness Certificate:	Utility	Serial Number:	821
Landing Gear Type:	Retractable - Tricycle	Seats:	4
Date/Type of Last Inspection:	05/01/2007, Annual	Certified Max Gross Wt.:	2575 lbs
Time Since Last Inspection:		Engines:	1 Reciprocating
Airframe Total Time:	1794.4 Hours	Engine Manufacturer:	Lycoming
ELT:	Installed, not activated	Engine Model/Series:	IO-360-A1A
Registered Owner:	G & W Aviation, LLC	Rated Power:	200 hp
Operator:	G & W Aviation, LLC	Air Carrier Operating Certificate:	None

Meteorological Information and Flight Plan

Observation Facility, Elevation:	LAF, 606 ft msl	Observation Time:	1654 EDT
Distance from Accident Site:		Condition of Light:	Day
Direction from Accident Site:		Conditions at Accident Site:	Visual Conditions
Lowest Cloud Condition:	Clear	Temperature/Dew Point:	12° C / -6° C
Lowest Ceiling:	None	Visibility	10 Miles
Wind Speed/Gusts, Direction:	5 knots, 360°	Visibility (RVR):	
Altimeter Setting:	30.25 inches Hg	Visibility (RVV):	
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	La Porte, IN (PPO)	Type of Flight Plan Filed:	None
Destination:	Springfield, TN (M91)	Type of Clearance:	VFR
Departure Time:	1600 EDT	Type of Airspace:	

Airport Information

Airport:	Purdue University Airport (LAF)	Runway Surface Type:	Asphalt
Airport Elevation:	606 ft	Runway Surface Condition:	Dry
Runway Used:	5	IFR Approach:	None
Runway Length/Width:	4225 ft / 1288 ft	VFR Approach/Landing:	Forced Landing

Wreckage and Impact Information

Crew Injuries:	1 None	Aircraft Damage:	Substantial
Passenger Injuries:	N/A	Aircraft Fire:	None
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	1 None		

Administrative Information

Investigator In Charge (IIC):	Andrew T Fox	Adopted Date:	01/31/2008
Additional Participating Persons:	Randy A Shafer; Federal Aviation Administration, Indianapolis FSDO; Indianapolis, IN		
Publish Date:			
Note:	This accident report documents the factual circumstances of this accident as described to the NTSB.		
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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