Aviation Investigation Final Report

Location:	Rockvale, Tennessee	**Accident Number:**	ATL03FA111
Date & Time:	June 22, 2003, 18:58 Local	**Registration:**	N555MR
Aircraft:	Maule M-5-235C	**Aircraft Damage:**	Substantial
Defining Event:		**Injuries:**	3 Fatal
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

According to a witness, the airplane experienced a gradual loss of engine power during a go-around. As the airplane was returning to land after the go-around, other witnesses reported hearing the engine "shut off and then start back up." The witnesses then observed the airplane collide with trees and terrain, and they saw black smoke rising from the wreckage. The airplane came to rest and burned on a westerly heading approximately 0.6 nautical miles from the airstrip. Examination of the accident site revealed that the propeller, engine, cockpit, cabin, empennage, horizontal stabilizers, elevators, rudder, and vertical stabilizer remained intact by their tubular steel frames. Examination of the engine revealed it was damaged on all sides. There was no fuel found in the engine, and the carburetor heat was in the off position. Nothing was found during the course of the investigation that would have precluded the engine from producing power. The reported temperature at an airport located about 30 miles to the north of the accident site was 81-degrees Fahrenheit and the dew point was 57 degrees Fahrenheit. According to the icing probability chart, the reported weather conditions were favorable for the formation of carburetor ice; however, the investigation could not determine whether carburetor icing was present in the engine at the time of the accident.

(This report was modified on June 16, 2009)

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: Loss of engine power for undetermined reasons.

Findings

Occurrence #1: LOSS OF ENGINE POWER
Phase of Operation: GO-AROUND (VFR)

Findings
1. (C) WEATHER CONDITION - CARBURETOR ICING CONDITIONS
2. (C) CARBURETOR HEAT - NOT USED - PILOT IN COMMAND

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

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

Findings
3. OBJECT - TREE(S)

Factual Information

HISTORY OF FLIGHT

On June 22, 2003, at 1858 central daylight time, a Maule M-5-235C, N555MR, registered to and operated by the private pilot, collided with a stand of trees following a loss of engine power during a go-around at Gibson Stolport, a private airport in Rockvale, Tennessee. The personal flight was operated under the provisions of Title 14 CFR Part 91 with no flight plan filed. Visual meteorological conditions prevailed at the time of the accident. Two passengers were fatally injured. The private pilot received serious injuries, and later succumbed to them on July 6, 2003. The airplane was substantially damaged by impact and post-crash fire. The flight departed Bomar Field-Shelbyville Municipal Airport, Shelbyville, Tennessee on June 22, 2003 at about 1830.

The airplane departed Gibson Stolport in Rockvale, Tennessee earlier that morning and flew to Bomar Field, Shelbyville Municipal Airport, and was returning to Gibson Stolport when the accident occurred. Witnesses reported the engine lost power and crashed following a go-around. According to one witness, during the go-around, the airplane had a gradual loss of engine power while coming back around to land. Witnesses observing the airplane just prior to the accident reported hearing the engine "shut off and then start back up," and then witnessed the airplane impact trees and terrain. Black smoke was then seen rising from the wreckage. The airplane collided with a stand of trees and burned. The airplane came to rest on a 260-degree heading approximately 0.6 nautical miles from the airstrip.

PERSONNEL INFORMATION

A review of information on file with the Federal Aviation Administration (FAA) Airman's Certification Division, Oklahoma City, Oklahoma, revealed the pilot was issued a private pilot certificate on November 26, 1983, with ratings for airplane single engine land, and instrument airplane. A review of medical records on file with the FAA revealed the pilot held a third-class medical certificate issued on October 4, 2001, with restrictions to wear corrective lenses for near and distant vision. The pilot reported on his application for the medical certificate the he had accumulated 1,500 total flight hours. The pilot's current logbook was not located.

AIRCRAFT INFORMATION

The accident airplane was a single-engine, high-wing, monoplane, model M-5-235C, serial number 7107C, registered as N555MR. The airplane was a side-by-side, four-seat, dual-control airplane, powered by a horizontally opposed six-cylinder, carbureted, normally aspirated engine. It was certificated in the normal/standard category, and was registered to the owner/accident pilot on March 4, 1987. The last annual inspection was performed on March 1,

2003, with an engine total time in service since new of 1,900 hours.

The airplane maintenance logbooks were not recovered for examination. However, the pilot's mechanic located on the private field stated that he had conducted an annual inspection on the airplane on March 1, 2003.

METEOROLOGICAL INFORMATION

The Nashville International Airport, located about 30 miles to the north of the accident site, recorded surface weather observation at 1853 which cited the following: wind 060-degrees at 7 knots, visibility 10 statute miles, lowest cloud condition few at 16,000 feet agl, temperature 81-degrees Fahrenheit, dew point temperature 57-degees Fahrenheit, and altimeter 29.97 inches of mercury. According to the icing probability chart, weather conditions at this location were favorable for the formation of carburetor ice.

WRECKAGE AND IMPACT INFORMATION

The wreckage was located in a heavily wooded area, on a 260-degree heading and approximately 0.6 nautical miles from the Gibson Stolport airstrip. The airplane was lodged between two trees, with both wings separated but within 5 feet of the fuselage. The wings, fuselage and engine were burned by the post-crash fire.

Examination of the accident site revealed that the propeller, engine, cockpit, cabin, empennage, horizontal stabilizers, elevators, rudder and vertical stabilizer remained intact by their tubular steel frames. All of the airplane’s fabric and aluminum skin had been burned by the post-crash fire. The instrument panel and lower cabin floor and cabin and cockpit seats were damaged. The fuel selector valve was not located. The flight control system from the control tube at the control column, aft to the rod end bearing in the center fuselage, were damaged. The control cables and rod end bearings extending outboard to the left and right wings, ailerons, and bell cranks were damaged. The control cables and rod end bearings extending aft to the rudder and left and right elevators were damaged.

Examination of the engine revealed the engine was damaged on all sides. The dual magneto was damaged by fire. The spark plugs, except for the #4 bottom spark plug, displayed a color consistent with "normal" combustion when compared to the Champion Spark Plug Wear Guide. The #4 bottom spark plug was oil fouled, and the #2 bottom spark plug was oil wet. The ignition harness was damaged. The rear of the accessory housing and oil sump was fire destroyed. The oil suction screen was recovered from the ground at the crash site. It was clean, but fire damaged. The oil filter was fire damaged. The oil cooler hoses were destroyed by fire. The intake manifold was intact. The exhaust and the exhaust flame cones were intact. The oil pump was removed and found to be heat seized. Once the pump was removed, the engine could be rotated by the propeller. The engine crankshaft continuity was confirmed from the propeller attach point to the rear accessory drive gears. Compression and suction were obtained on all cylinders. Valve train continuity was established through to the valves on all of

the cylinders. The cylinders were borescoped and no defects were noted. The carburetor air box heat gate was open and the carburetor was intact. The engine-driven fuel pump and the vacuum pump were fire damaged. There was no fuel found in the engine.

Examination of the propeller found it to be intact and mounted on the crankshaft flange. The propeller was marked as blade "A", and blade "B". Blade "A", from mid-span to the tip, was twisted. The blade was bent aft at about mid-span. The blade stops were not broken. Blade "B" displayed aft bending about 10-inches inboard from the tip and was twisted. The blade stops were broken. The propeller governor was set at mid-range. The screen on the propeller governor was found to be clear of contaminants.

MEDICAL AND PATHOLOGICAL INFORMATION

The pilot survived the crash and was hospitalized for about two weeks before succumbing to his burn injuries on July 6, 2003. No autopsy or toxicology was performed on the pilot.

ADDITIONAL INFORMATION

The wreckage of N555MR, was released to the Adjuster for Phoenix Aviation on March 8, 2004.

(This report was modified on June 16, 2009)

Pilot Information

Certificate:	Private	**Age:**	62,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 Valid Medical--w/ waivers/lim	**Last FAA Medical Exam:**	October 4, 2001
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	
Flight Time:	1500 hours (Total, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Maule	**Registration:**	N555MR
Model/Series:	M-5-235C	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	7107C
Landing Gear Type:	Tailwheel	**Seats:**	4
Date/Type of Last Inspection:	March 1, 2003 Annual	**Certified Max Gross Wt.:**	2300 lbs
Time Since Last Inspection:		**Engines:**	1 Reciprocating
Airframe Total Time:	1900 Hrs at time of accident	**Engine Manufacturer:**	Lycoming
ELT:	Installed, not activated	**Engine Model/Series:**	O-540-J1A5D
Registered Owner:	Robert B. Gibson	**Rated Power:**	235 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:	KBNA,599 ft msl	**Distance from Accident Site:**	22 Nautical Miles
Observation Time:	18:53 Local	**Direction from Accident Site:**	360°
Lowest Cloud Condition:	Few / 16000 ft AGL	**Visibility**	10 miles
Lowest Ceiling:		**Visibility (RVR):**	
Wind Speed/Gusts:	7 knots /	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	60°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	29.96 inches Hg	**Temperature/Dew Point:**	27°C / 14°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Shelbyville, TN (SYI)	**Type of Flight Plan Filed:**	None
Destination:	Rockvale, TN (TN68)	**Type of Clearance:**	None
Departure Time:	18:30 Local	**Type of Airspace:**	Class E

Airport Information

Airport:	Gibson Stolport TN68	**Runway Surface Type:**	Grass/turf
Airport Elevation:	805 ft msl	**Runway Surface Condition:**	Dry
Runway Used:	18	**IFR Approach:**	None
Runway Length/Width:	1500 ft / 120 ft	**VFR Approach/Landing:**	Forced landing;Go around;Traffic pattern

Wreckage and Impact Information

Crew Injuries:	1 Fatal	**Aircraft Damage:**	Substantial
Passenger Injuries:	2 Fatal	**Aircraft Fire:**	On-ground
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	3 Fatal	**Latitude, Longitude:**	35.766944,-86.558052

Administrative Information

Investigator In Charge (IIC):	Wilson, Ralph
Additional Participating Persons:	Bryan Sword; FAA Nashville, Tn FSDO; Nashville, TN John B Butler; Textron Lycoming Engines; Arlington, TX
Original Publish Date:	October 27, 2005
Last Revision Date:	
Investigation Class:	Class
Note:	The NTSB traveled to the scene of this accident.
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=57313