



# Aviation Investigation Final Report

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<b>Location:</b>	Wallace, North Carolina	<b>Accident Number:</b>	MIA08LA188
<b>Date &amp; Time:</b>	September 9, 2008, 10:30 Local	<b>Registration:</b>	N21MY
<b>Aircraft:</b>	Mooney M20C	<b>Aircraft Damage:</b>	Substantial
<b>Defining Event:</b>	Loss of engine power (partial)	<b>Injuries:</b>	1 Minor
<b>Flight Conducted Under:</b>	Part 91: General aviation - Personal		

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## Analysis

The pilot reportedly performed a preflight inspection of the airplane using the airplane's checklist, and also performed an engine run-up before takeoff; no discrepancies were noted. The pilot applied power to take off and no discrepancies were noted. A witness reported hearing the engine running smooth but perceived it to be operating at a reduced power setting (estimated 60 percent power) during the takeoff roll. He advised the pilot on the common traffic advisory frequency to apply full power but he didn't respond. The witness saw the airplane become airborne just short of midfield, but noted that it was slow leaving the runway. Additionally, the airplane remained in ground effect for most of the remaining runway and climbed no higher than 100 feet above ground level. The pilot stated that when the flight was at that altitude, he experienced a sudden loss of engine power. He continued straight ahead past the departure end of the runway and executed a forced landing into the tops of trees. During recovery of the airplane, green colored foam and red colored lanyard material was found wedged against the engine baffling behind the propeller spinner bulkhead. No blockage of the air induction filter was noted. Following recovery of the airplane, a replacement propeller was installed and the engine was started and operated to full power as indicated by the tachometer with no discrepancies noted. Following the engine run, red colored lanyard consistent with that used as a streamer for the engine cowling ram air inlet plugs was found on top of the engine cylinders.

## Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The pilot's failure to abort the takeoff when the engine failed to develop full power. Contributing to the accident was the pilot's failure to remove the intake plugs prior to takeoff.

## Findings

<b>Aircraft</b>	(general) - Incorrect use/operation
<b>Aircraft</b>	(general) - Not specified
<b>Personnel issues</b>	Lack of action - Pilot
<b>Personnel issues</b>	Preflight inspection - Pilot

## Factual Information

### History of Flight

<b>Takeoff</b>	Loss of engine power (partial) (Defining event)
<b>Initial climb</b>	Collision with terr/obj (non-CFIT)

On September 9, 2008, about 1030 eastern daylight time, a Mooney M20C, N21MY, registered to and operated by a private individual, collided with trees during takeoff from Henderson Field Airport (ACZ), Wallace, North Carolina. Visual meteorological conditions prevailed at the time and no flight plan was filed for the 14 Code of Federal Regulations (CFR) Part 91 personal flight from ACZ to Norfolk International Airport (ORF), Norfolk, Virginia. The airplane was substantially damaged and the commercial-certificated pilot, the sole occupant, sustained minor injuries. The flight originated about 1 minute earlier.

The pilot stated that the fuel tanks were filled after landing the night before, and the airplane was then secured. He installed the pitot tube cover but did not install the cabin cover or the engine cowling plugs. The next morning he obtained a preflight weather briefing and preflighted the airplane using a checklist. After starting the engine he taxied to runway 27, and performed an engine run-up; no discrepancies were reported. He reviewed the before takeoff checklist and applied power with no engine discrepancies noted. He rotated at 63 knots, and when the flight was at 100 feet above ground level (agl), he noticed a sudden loss of engine power. He confirmed all throttle controls were full forward and the auxiliary fuel pump was on. He was unable to maintain altitude and executed a forced landing into the tops of trees that were ahead and past the departure end of the runway. The airplane then descended and impacted the ground. He advised the FAA inspector-in-charge that prior to tree contact, he looked at the fuel pressure gauge and noted the reading was below the green arc.

According to the airport manager, who helped the pilot fill the fuel tanks the night before, and who also witnessed the entire flight, the pilot taxied to the approach end of runway 27 but he did not hear an engine run-up before takeoff. He noticed the pilot had the first notch of flaps extended, and during the takeoff roll, he perceived the engine was not developing full power though it was running smooth with no missing or sputtering. He advised the pilot on the common traffic advisory frequency (CTAF) to apply full power but he didn't respond. The airplane rotated short of midfield down the 3,850 foot-long runway, and was slow to leave the runway. The airplane remained in ground effect for most of the remaining runway, and climbed no higher than 60-80 feet on runway heading. The witness further reported he did not see any smoke trailing the airplane during the flight.

Examination of the accident site and wreckage by the FAA-IIC several hours after the accident revealed the airplane came to rest with the empennage approximately 30 degrees past vertical, with the engine and right wing contacting the ground. Although the FAA-IIC did not smell fuel

while on-scene, first responders reported smelling fuel. The fuel selector was positioned to the right tank, and the auxiliary fuel pump switch was found in the off position. No breach of either fuel tank was noted; however, fuel had leaked from the right tank fuel vent. The landing gear was down and locked, and the mixture and propeller controls were full forward, while the throttle control was approximately 3/4 full forward.

During recovery of the airplane, green colored foam and red lanyard material were noted wedged against the engine baffling behind the propeller spinner bulkhead. No blockage of the air induction filter was noted. Following recovery of the airplane, a replacement propeller was installed, and the engine was started and operated to full power as indicated by the tachometer using only the engine-driven fuel pump; no discrepancies were noted. Additionally, the electric fuel pumped operated satisfactorily providing fuel pressure to the normal operating range prior to starting the engine. Following the engine run, red colored lanyard was noted on top of the cylinders. The lanyard material was consistent with material used as streamers for ram air inlet plugs. The recovered foam material was torn and ripped.

There were no reported discrepancies from the pilots of airplanes fueled from the same source as the accident airplane.

### Pilot Information

<b>Certificate:</b>	Commercial	<b>Age:</b>	80, Male
<b>Airplane Rating(s):</b>	Single-engine land; Single-engine sea; Multi-engine land	<b>Seat Occupied:</b>	Left
<b>Other Aircraft Rating(s):</b>	None	<b>Restraint Used:</b>	
<b>Instrument Rating(s):</b>	Airplane	<b>Second Pilot Present:</b>	No
<b>Instructor Rating(s):</b>	None	<b>Toxicology Performed:</b>	No
<b>Medical Certification:</b>	Class 3 With waivers/limitations	<b>Last FAA Medical Exam:</b>	November 7, 2007
<b>Occupational Pilot:</b>	No	<b>Last Flight Review or Equivalent:</b>	February 24, 2007
<b>Flight Time:</b>	3666 hours (Total, all aircraft), 2900 hours (Total, this make and model), 3631 hours (Pilot In Command, all aircraft), 14 hours (Last 90 days, all aircraft), 7 hours (Last 30 days, all aircraft)		

## Aircraft and Owner/Operator Information

<b>Aircraft Make:</b>	Mooney	<b>Registration:</b>	N21MY
<b>Model/Series:</b>	M20C	<b>Aircraft Category:</b>	Airplane
<b>Year of Manufacture:</b>		<b>Amateur Built:</b>	
<b>Airworthiness Certificate:</b>	Normal	<b>Serial Number:</b>	2522
<b>Landing Gear Type:</b>	Retractable - Tricycle	<b>Seats:</b>	4
<b>Date/Type of Last Inspection:</b>	June 2, 2008 Annual	<b>Certified Max Gross Wt.:</b>	2575 lbs
<b>Time Since Last Inspection:</b>		<b>Engines:</b>	1 Reciprocating
<b>Airframe Total Time:</b>	3921.37 Hrs as of last inspection	<b>Engine Manufacturer:</b>	LYCOMING
<b>ELT:</b>	Installed, activated, did not aid in locating accident	<b>Engine Model/Series:</b>	O&VO-360 SER
<b>Registered Owner:</b>	CONLEY RAYMOND G	<b>Rated Power:</b>	180 Horsepower
<b>Operator:</b>	CONLEY RAYMOND G	<b>Operating Certificate(s) Held:</b>	None

## Meteorological Information and Flight Plan

<b>Conditions at Accident Site:</b>	Visual (VMC)	<b>Condition of Light:</b>	Day
<b>Observation Facility, Elevation:</b>	DPL,136 ft msl	<b>Distance from Accident Site:</b>	17 Nautical Miles
<b>Observation Time:</b>	10:21 Local	<b>Direction from Accident Site:</b>	13°
<b>Lowest Cloud Condition:</b>	Clear	<b>Visibility</b>	10 miles
<b>Lowest Ceiling:</b>	None	<b>Visibility (RVR):</b>	
<b>Wind Speed/Gusts:</b>	/ None	<b>Turbulence Type Forecast/Actual:</b>	/
<b>Wind Direction:</b>		<b>Turbulence Severity Forecast/Actual:</b>	/
<b>Altimeter Setting:</b>	30.09 inches Hg	<b>Temperature/Dew Point:</b>	27°C / 25°C
<b>Precipitation and Obscuration:</b>			
<b>Departure Point:</b>	Wallace, NC (ACZ )	<b>Type of Flight Plan Filed:</b>	VFR
<b>Destination:</b>	Norfolk, VA (ORF )	<b>Type of Clearance:</b>	None
<b>Departure Time:</b>	10:29 Local	<b>Type of Airspace:</b>	

## Wreckage and Impact Information

<b>Crew Injuries:</b>	1 Minor	<b>Aircraft Damage:</b>	Substantial
<b>Passenger Injuries:</b>	N/A	<b>Aircraft Fire:</b>	None
<b>Ground Injuries:</b>	N/A	<b>Aircraft Explosion:</b>	None
<b>Total Injuries:</b>	1 Minor	<b>Latitude, Longitude:</b>	34.716945,-78.015556

## Administrative Information

<b>Investigator In Charge (IIC):</b>	Monville, Timothy
<b>Additional Participating Persons:</b>	Hazen R Rowe; FAA/FSDO; Greensboro, NC
<b>Original Publish Date:</b>	May 6, 2009
<b>Last Revision Date:</b>	
<b>Investigation Class:</b>	<a href="#">Class</a>
<b>Note:</b>	
<b>Investigation Docket:</b>	<a href="https://data.ntsb.gov/Docket?ProjectID=68896">https://data.ntsb.gov/Docket?ProjectID=68896</a>

The National Transportation Safety Board (NTSB) is an independent federal agency charged by Congress with investigating every civil aviation accident in the United States and significant events in other modes of transportation—railroad, transit, highway, marine, pipeline, and commercial space. We determine the probable causes of the accidents and events we investigate, and issue safety recommendations aimed at preventing future occurrences. In addition, we conduct transportation safety research studies and offer information and other assistance to family members and survivors for each accident or event we investigate. We also serve as the appellate authority for enforcement actions involving aviation and mariner certificates issued by the Federal Aviation Administration (FAA) and US Coast Guard, and we adjudicate appeals of civil penalty actions taken by the FAA.

The NTSB does not assign fault or blame for an accident or incident; rather, as specified by NTSB regulation, “accident/incident investigations are fact-finding proceedings with no formal issues and no adverse parties ... and are not conducted for the purpose of determining the rights or liabilities of any person” (Title 49 *Code of Federal Regulations* section 831.4). Assignment of fault or legal liability is not relevant to the NTSB’s statutory mission to improve transportation safety by investigating accidents and incidents and issuing safety recommendations. In addition, statutory language prohibits the admission into evidence or use of any part of an NTSB report related to an accident in a civil action for damages resulting from a matter mentioned in the report (Title 49 *United States Code* section 1154(b)). A factual report that may be admissible under 49 *United States Code* section 1154(b) is available [here](#).