



# Aviation Investigation Final Report

<b>Location:</b>	COLUMBIA, South Carolina	<b>Incident Number:</b>	ATL88IA074
<b>Date &amp; Time:</b>	October 5, 1987, 20:04 Local	<b>Registration:</b>	N1936Y
<b>Aircraft:</b>	MOONEY M-20E	<b>Aircraft Damage:</b>	Minor
<b>Defining Event:</b>		<b>Injuries:</b>	2 None
<b>Flight Conducted Under:</b>	Part 91: General aviation - Personal		

## Analysis

DURING TAKEOFF THE PROPELLER STUDS FAILED AND THE PROPELLER DEPARTED THE ACFT. FAA INCIDENT RPT STATED THAT PROPELLER HAD BEEN OVERHAULED AND REPLACED 32 HOURS PRIOR TO THE SEPARATION. METALLURGICAL EXAM OF THE PROPELLER STUDS REVEALED FATIGUE FAILURE OF THE STUDS THROUGH THE THREADED AREA WITH NO DAMAGE TO THE THREADS. FATIGUE FAILURE OF PROP STUDS OCCURRED AS A RESULT OF VIBRATION DUE TO INADEQUATE TORQUING OF THE MOUNTING NUTS.

## Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this incident to be:

### Findings

Occurrence #1: AIRFRAME/COMPONENT/SYSTEM FAILURE/MALFUNCTION  
Phase of Operation: TAKEOFF - ROLL/RUN

#### Findings

1. (C) PROPELLER SYSTEM/ACCESSORIES - SEPARATION
2. (C) MAINTENANCE, INSTALLATION - IMPROPER - OTHER MAINTENANCE PERSONNEL

## Factual Information

### Pilot Information

<b>Certificate:</b>	Private	<b>Age:</b>	54, Male
<b>Airplane Rating(s):</b>	Single-engine land	<b>Seat Occupied:</b>	Left
<b>Other Aircraft Rating(s):</b>	None	<b>Restraint Used:</b>	
<b>Instrument Rating(s):</b>	None	<b>Second Pilot Present:</b>	No
<b>Instructor Rating(s):</b>	None	<b>Toxicology Performed:</b>	No
<b>Medical Certification:</b>	None None	<b>Last FAA Medical Exam:</b>	
<b>Occupational Pilot:</b>	UNK	<b>Last Flight Review or Equivalent:</b>	
<b>Flight Time:</b>	1200 hours (Total, all aircraft), 600 hours (Total, this make and model)		

### Aircraft and Owner/Operator Information

<b>Aircraft Make:</b>	MOONEY	<b>Registration:</b>	N1936Y
<b>Model/Series:</b>	M-20E M-20E	<b>Aircraft Category:</b>	Airplane
<b>Year of Manufacture:</b>		<b>Amateur Built:</b>	
<b>Airworthiness Certificate:</b>	Normal	<b>Serial Number:</b>	243
<b>Landing Gear Type:</b>	Retractable - Tricycle	<b>Seats:</b>	4
<b>Date/Type of Last Inspection:</b>	Annual	<b>Certified Max Gross Wt.:</b>	2575 lbs
<b>Time Since Last Inspection:</b>	32 Hrs	<b>Engines:</b>	1 Reciprocating
<b>Airframe Total Time:</b>	3059 Hrs	<b>Engine Manufacturer:</b>	LYCOMING
<b>ELT:</b>		<b>Engine Model/Series:</b>	IO-360-A1A
<b>Registered Owner:</b>	WALTER WILDER, JR.	<b>Rated Power:</b>	200 Horsepower
<b>Operator:</b>	WALTER WILDER, JR.	<b>Operating Certificate(s) Held:</b>	None
<b>Operator Does Business As:</b>		<b>Operator Designator Code:</b>	

## Meteorological Information and Flight Plan

<b>Conditions at Accident Site:</b>	Visual (VMC)	<b>Condition of Light:</b>	Day
<b>Observation Facility, Elevation:</b>	CAE ,236 ft msl	<b>Distance from Accident Site:</b>	
<b>Observation Time:</b>	20:00 Local	<b>Direction from Accident Site:</b>	
<b>Lowest Cloud Condition:</b>	Clear	<b>Visibility</b>	15 miles
<b>Lowest Ceiling:</b>	None	<b>Visibility (RVR):</b>	
<b>Wind Speed/Gusts:</b>	3 knots /	<b>Turbulence Type Forecast/Actual:</b>	/
<b>Wind Direction:</b>	190°	<b>Turbulence Severity Forecast/Actual:</b>	/
<b>Altimeter Setting:</b>	29 inches Hg	<b>Temperature/Dew Point:</b>	16°C
<b>Precipitation and Obscuration:</b>	No Obscuration; No Precipitation		
<b>Departure Point:</b>		<b>Type of Flight Plan Filed:</b>	None
<b>Destination:</b>		<b>Type of Clearance:</b>	VFR
<b>Departure Time:</b>	20:04 Local	<b>Type of Airspace:</b>	Class D;Class E

## Airport Information

<b>Airport:</b>	COLUMBIA METRO CAE	<b>Runway Surface Type:</b>	Asphalt
<b>Airport Elevation:</b>	236 ft msl	<b>Runway Surface Condition:</b>	Dry
<b>Runway Used:</b>	29	<b>IFR Approach:</b>	None
<b>Runway Length/Width:</b>	8602 ft / 150 ft	<b>VFR Approach/Landing:</b>	None

## Wreckage and Impact Information

<b>Crew Injuries:</b>	1 None	<b>Aircraft Damage:</b>	Minor
<b>Passenger Injuries:</b>	1 None	<b>Aircraft Fire:</b>	None
<b>Ground Injuries:</b>	N/A	<b>Aircraft Explosion:</b>	None
<b>Total Injuries:</b>	2 None	<b>Latitude, Longitude:</b>	33.989673,-81.079048(est)

## Administrative Information

<b>Investigator In Charge (IIC):</b>	Hicks, Preston
<b>Additional Participating Persons:</b>	JOE EPPERSON; WASHINGTON , DC BILL NEELEY; COLUMBIA , SC
<b>Original Publish Date:</b>	July 10, 1989
<b>Last Revision Date:</b>	
<b>Investigation Class:</b>	<a href="#">Class</a>
<b>Note:</b>	
<b>Investigation Docket:</b>	<a href="https://data.nts.gov/Docket?ProjectID=7627">https://data.nts.gov/Docket?ProjectID=7627</a>

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