



# National Transportation Safety Board Aviation Accident Final Report

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|--------------------------------|--------------------------------------|-------------------------|-------------|
| <b>Location:</b>               | Fort Pierce, FL                      | <b>Accident Number:</b> | MIA06LA058  |
| <b>Date &amp; Time:</b>        | 03/01/2006, 1240 EST                 | <b>Registration:</b>    | N511G       |
| <b>Aircraft:</b>               | Mooney M20J                          | <b>Aircraft Damage:</b> | Substantial |
| <b>Defining Event:</b>         |                                      | <b>Injuries:</b>        | 1 Minor     |
| <b>Flight Conducted Under:</b> | Part 91: General Aviation - Personal |                         |             |

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## Analysis

The pilot stated that about 8 to 10 minutes after takeoff, while still climbing, at an altitude of about 5,000 feet, the airplane lost engine power. The pilot further stated that the gauges showed about 1,000 rpm, and the manifold pressure remained at 25 inches. He turned around and returned to the airport and made attempts to restart the engine, all of which were unsuccessful. The pilot made a forced landing to a clearing short of the airport property, and the airplane incurred substantial damage. A postcrash examination of the airplane revealed that the dual magneto had detached from its mounted position, and was hanging by the ignition harness behind the engine. The magneto had not incurred any damage, and the magneto drive gear was laying in the accessory housing along with one hold-down plate. The retaining nuts, washers and lock washers were not recovered. When tested, the magneto operated on all eight distributor outputs. The impulse coupler was not damaged, and the distributor wiring was intact. There was engine continuity, proper valve action, and compression on all cylinders. Engine oil was present, and there was evidence of some oil having leaked at the back of the engine. No anomalies were noted with either the induction or fuel systems. The airplane had last received an annual inspection on August 2005 when an overhauled engine had been installed. It had accumulated 10 hours since the annual inspection.

## Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: Improper magneto installation by maintenance personnel, which resulted in the magneto detaching from the engine and subsequent loss of engine power.

## Findings

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Occurrence #1: LOSS OF ENGINE POWER

Phase of Operation: CLIMB - TO CRUISE

Findings

1. (C) MAINTENANCE, INSTALLATION - IMPROPER - OTHER MAINTENANCE PERSONNEL
2. IGNITION SYSTEM, MAGNETO - LOOSE
3. IGNITION SYSTEM, MAGNETO - SEPARATION

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Occurrence #2: FORCED LANDING

Phase of Operation: EMERGENCY DESCENT/LANDING

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Occurrence #3: IN FLIGHT COLLISION WITH OBJECT

Phase of Operation: EMERGENCY DESCENT/LANDING

Findings

4. OBJECT - TREE(S)

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Occurrence #4: ON GROUND/WATER ENCOUNTER WITH TERRAIN/WATER

Phase of Operation: EMERGENCY LANDING

Findings

5. TERRAIN CONDITION - BERM

## Factual Information

On March 1, 2006, about 1240 eastern standard time, a Mooney M-20J, N511G, registered to and operated by a private individual, as a Title 14 CFR part 91 personal flight, incurred a loss of engine power while climbing to cruise altitude, and the pilot made a forced landing in Fort Pierce Florida. Visual meteorological conditions prevailed, and no flight plan was filed. The private-rated pilot received minor injuries, and the airplane incurred substantial damage. The flight originated in Fort Pierce, Florida, the same day, about 1230.

According to the pilot, about 8 to 10 minutes after takeoff, while still climbing, at an altitude of about 5,000 feet, the airplane lost engine power. The pilot further stated that the gauges showed about 1,000 rpm, and the manifold pressure remained at 25 inches. He said he operated the throttle, and observed instruments while attempting to regain power, but he could not regain power or determine the reason for the power loss. He said he turned the airplane back towards Fort Pierce, Florida, and as it glided towards the airport, he communicated with the air traffic control tower controller, and declared an emergency. As the airplane glided toward the airport the pilot said he became less certain that he would reach it, so he selected a clearing in which to execute a forced landing. Upon reaching 900 feet, he abandoned the approach to the airport and made an approach to a clearing. While on short final to land in the clearing, the right wing of the airplane impacted the top of a pine tree, which changed the path. The airplane pancaked into the ground and bounced into an area of numerous 4-foot high sand piles, coming to rest upright on top of one of the piles.

A postcrash examination of the airplane and engine was performed by a FAA licensed mechanic, under the supervision of an FAA inspector. The examination revealed that the magneto had detached from its mounted position, and was hanging by the ignition harness behind the engine. The magneto had not been damaged, and the magneto drive gear was laying in the accessory housing along with one "hold-down" plate. The retaining nuts, washers and lock washers were not recovered. When tested, the magneto operated on all eight distributor outputs, and the impulse coupler and the distributor wiring were intact, and undamaged. There was engine continuity as well as valve action and compression on all cylinders. Engine oil was present, and there was evidence that some oil had leaked at the back of the engine. No anomalies were noted to exist with the induction or fuel systems.

The airplane and engine had last received an annual inspection in August 2005, when an overhauled engine had been installed. The airplane and engine had accumulated 10 hours since the annual inspection.

## Pilot Information

|                                  |  |  |                            |
|----------------------------------|--|--|----------------------------|
| <b>Certificate:</b>              | Private  | <b>Age:</b>                              | 65, 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>                   | Seatbelt, Shoulder harness |
| <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  | <b>Last FAA Medical Exam:</b>            | 05/01/2004                 |
| <b>Occupational Pilot:</b>       |  | <b>Last Flight Review or Equivalent:</b> |                            |
| <b>Flight Time:</b>              | 1212 hours (Total, all aircraft), 465 hours (Total, this make and model), 1170 hours (Pilot In Command, all aircraft), 1 hours (Last 90 days, all aircraft), 1 hours (Last 30 days, all aircraft), 1 hours (Last 24 hours, all aircraft) |  |                            |

## Aircraft and Owner/Operator Information

|                                      |  |                                       |                 |
|--------------------------------------|--|---------------------------------------|-----------------|
| <b>Aircraft Make:</b>                | Mooney   | <b>Registration:</b>                  | N511G           |
| <b>Model/Series:</b>                 | M20J   | <b>Aircraft Category:</b>             | Airplane        |
| <b>Year of Manufacture:</b>          |  | <b>Amateur Built:</b>                 | No              |
| <b>Airworthiness Certificate:</b>    | Normal   | <b>Serial Number:</b>                 | 24-1207         |
| <b>Landing Gear Type:</b>            | Retractable - Tricycle                                 | <b>Seats:</b>                         | 4               |
| <b>Date/Type of Last Inspection:</b> | 08/01/2005, Annual                                     | <b>Certified Max Gross Wt.:</b>       | 2740 lbs        |
| <b>Time Since Last Inspection:</b>   | 10 Hours   | <b>Engines:</b>                       | 1 Reciprocating |
| <b>Airframe Total Time:</b>          | 3525 Hours 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>           | IO-360-3B6D     |
| <b>Registered Owner:</b>             | Alton F. Robertson                                     | <b>Rated Power:</b>                   | 200 hp          |
| <b>Operator:</b>                     | Alton F. Robertson                                     | <b>Operating Certificate(s) Held:</b> | None            |

## Meteorological Information and Flight Plan

|                                  |                       |   |                  |
|----------------------------------|-----------------------|---|------------------|
| Conditions at Accident Site:     | Visual Conditions     | Condition of Light:                     | Day              |
| Observation Facility, Elevation: | FPR, 23 ft msl        | Distance from Accident Site:            | 1 Nautical Miles |
| Observation Time:                | 1453 EST              | Direction from Accident Site:           | 170°             |
| Lowest Cloud Condition:          | Few / 3000 ft agl     | Visibility                              | 10 Miles         |
| Lowest Ceiling:                  | None                  | Visibility (RVR):                       |                  |
| Wind Speed/Gusts:                | 7 knots /             | Turbulence Type<br>Forecast/Actual:     | /                |
| Wind Direction:                  | 240°                  | Turbulence Severity<br>Forecast/Actual: | /                |
| Altimeter Setting:               | 30.12 inches Hg       | Temperature/Dew Point:                  | 25° C / 9° C     |
| Precipitation and Obscuration:   |                       |   |                  |
| Departure Point:                 | Fort Pierce, FL (FPR) | Type of Flight Plan Filed:              | None             |
| Destination:                     |                       | Type of Clearance:                      | None             |
| Departure Time:                  | 1230 EST              | Type of Airspace:                       |                  |

## Airport Information

|                      |                                      |                           |                |
|----------------------|--------------------------------------|---------------------------|----------------|
| Airport:             | St. Lucie County International (FPR) | Runway Surface Type:      | Asphalt        |
| Airport Elevation:   | 23 ft                                | Runway Surface Condition: | Dry            |
| Runway Used:         | 32                                   | IFR Approach:             | None           |
| Runway Length/Width: | 4756 ft / 100 ft                     | VFR Approach/Landing:     | Forced Landing |

## Wreckage and Impact Information

|                     |         |                      |                       |
|---------------------|---------|----------------------|-----------------------|
| Crew Injuries:      | 1 Minor | Aircraft Damage:     | Substantial           |
| Passenger Injuries: | N/A     | Aircraft Fire:       | None                  |
| Ground Injuries:    | N/A     | Aircraft Explosion:  | None                  |
| Total Injuries:     | 1 Minor | Latitude, Longitude: | 27.490278, -80.368333 |

## Administrative Information

|                                   |  |              |            |
|-----------------------------------|--|--------------|------------|
| Investigator In Charge (IIC):     | John W Lovell  | Report Date: | 08/29/2006 |
| Additional Participating Persons: | Michael Cichanowski; FAA FSDO; Orlando, FL   |              |            |
| Publish Date:                     |  |              |            |
| 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 <a href="mailto:pubinq@ntsb.gov">pubinq@ntsb.gov</a> , or at 800-877-6799. Dockets released after this date are available at <a href="http://dms.nts.gov/pubdms/">http://dms.nts.gov/pubdms/</a> . |              |            |

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The Independent Safety Board Act, as codified at 49 U.S.C. Section 1154(b), precludes the admission into evidence or use of any part of an NTSB report related to an incident or accident in a civil action for damages resulting from a matter mentioned in the report. A factual report that may be admissible under 49 U.S.C. § 1154(b) is available [here](#).