# Aviation Investigation Final Report

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| **Location:** | Olive Branch, Mississippi | **Accident Number:** | MIA03LA119 |
| **Date & Time:** | June 9, 2003, 19:25 Local | **Registration:** | N4658J |
| **Aircraft:** | Piper PA-28R-180 | **Aircraft Damage:** | Substantial |
| **Defining Event:** | | **Injuries:** | 4 Minor |
| **Flight Conducted Under:** | Part 91: General aviation - Personal | | |

## Analysis

After departure from runway 18, about 350 feet above the ground, the pilot reported that the engine "started to sputter." He could not maintain altitude and attempted a forced landing on a taxiway located perpendicular to the departure runway. The airplane struck trees and brush before it impacted with the terrain, approximately 250 feet short of the runway. Examination of the airplane's fuel at the wreckage site revealed the presence of water in the right main fuel tank using water-finding paste. The engine test run revealed that on the initial run the engine would advance to 2,200 rpm and immediately dropped to 1,200 rpm. Examination of the fuel system revealed that the number 4 fuel injector nozzle was 70 percent obstructed with debris, water was found in all the fuel injectors, and the fuel servo screen was found 30 percent obstructed with corrosion. Corrections to the discrepancies were performed, and the engine was tested again with the same results. An examination of the fuel servo revealed that the fuel diaphragm chamber contained deposits of a white milky substance consistent with water contamination in the fuel, and a service bulletin requiring the unit to be overhauled was not complied with. The airplane had flown a total of 11.18 hours since the last annual. The pilot was aware of water infiltration into the right wing fuel tank after heavy rain. The pilot stated on the day of the accident a tablespoon of water was sump from the right wing. The pilot's flight logbook records indicated the accident airplane flew on May 1, 10, and 11 before fueling on May 12, 2003, with 13.7 gallons of 100 LL aviation fuel.

## Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The pilot's operation of the airplane with known deficiencies (water contamination of the fuel) resulting in loss of engine power shortly after takeoff and damage to airframe during the subsequent forced landing.

### Findings

Occurrence #1: LOSS OF ENGINE POWER(PARTIAL) - NONMECHANICAL
Phase of Operation: TAKEOFF - INITIAL CLIMB

Findings
1. FUEL SYSTEM - CONTAMINATION
2. (C) OPERATION WITH KNOWN DEFICIENCIES IN EQUIPMENT - ATTEMPTED - PILOT IN COMMAND
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Occurrence #2: FORCED LANDING
Phase of Operation: EMERGENCY DESCENT/LANDING
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Occurrence #3: IN FLIGHT COLLISION WITH TERRAIN/WATER
Phase of Operation: EMERGENCY DESCENT/LANDING

Findings
3. TERRAIN CONDITION - HIGH VEGETATION

## Factual Information

On June 9, 2003, about 1925 central daylight time, a Piper PA-28R-180, N4658J, registered to and operated by an individual, impacted with trees during a forced landing following loss of engine power, near the Olive Branch Airport, Olive Branch, Mississippi. Visual meteorological conditions prevailed at the time and no flight plan was filed for the Title 14 CFR Part 91 personal flight. The airplane was substantially damaged. The private-rated pilot and the three passengers reported minor injuries. The flight was originating at the time and en route to Batesville, Mississippi.

According to the pilot, he departed runway 18, and was about 350 feet above the ground when the engine "started to sputter." He could not maintain altitude, elected to turn the airplane to the left, maneuvered between two buildings, and attempted to land on taxiway E, located perpendicular to the departure runway. The airplane struck trees and brush before it impacted with the terrain approximately 250 feet short of the runway. All occupants exited the aircraft without any assistance.

Under FAA supervision the airplane was recovered and taken to a ramp area for examination on a flatbed trailer. Water was found in the fuel that was retrieved from the right main fuel tank, and in the fuel strainer. This was confirmed when tested with water finding paste. The left main fuel tank was found breached and no fuel was observed. The water was removed from the airplane's fuel system and a replacement propeller was installed to facilitate an operational test run of the engine. The engine could not be operated above 1,500 rpm when tested due to a bent propeller flange on the crankshaft.

Under FAA supervision the engine was removed and taken to a facility were it was placed on a test stand along with the installation of a test propeller. On the initial run the engine was advance to 2,200 rpm and immediately dropped to 1,200 rpm. The fuel system on the engine was examined and the number 4 fuel injector nozzle was found 70 percent obstructed with debris, and water was found in all the fuel injectors. The fuel servo screen was found 30 percent obstructed with corrosion. All obstructions and water were removed from their respective systems. Again the engine was started and advanced to 2,200 rpm; however, immediately the revolutions dropped to 1,200 rpm. The process of advancing to 2,200 rpm was performed several times with the same loss of power results. The engine's fuel system components were removed, and retained for further examination.

Under NTSB supervision the fuel servo examination revealed that the fuel diaphragm chamber contained a white milky substance consistent with water contamination. The fuel servo data plate indicated the unit was a Bendix, model RSA -5AD1, part number 2524297-6. The dash 6 represented the last revision accomplished to the unit. The dash 6 revision was dated 1979. According to the component maintenance manual history of change for the RSA-5AD1model

fuel servo, the current issue for that unit should have been a dash 9 with a date of 1985. Precision Airmotive Corporation issued a service bulletin, number PRS-97, revision 1 dated November 11, 1991, for RS and RSA fuel injection system components, which stated "all fuel components" require overhaul at every engine overhaul or 10 years in service, whichever occurs first.

The aircraft's maintenance records reflected the last annual inspection was performed on June 23, 2002. The airplane had flown a total of 11.18 hours since the last annual. The pilot stated after heavy rain he would notice water in the fuel from the right wing tank when sumped; more so, on the day of the accident he sumped about a tablespoon of water from the right wing tank. The pilot's flight logbook records indicated the accident airplane flew on May 1, 10, and 11 before fueling on May 12, 2003, with 13.7 gallons of 100 LL aviation fuel.

Components retained by NTSB for further examination were returned to the registered aircraft owner's representative on October 28, 2003.

## Pilot Information

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| **Certificate:** | Private | **Age:** | 51,Male |
| **Airplane Rating(s):** | Single-engine land | **Seat Occupied:** | Left |
| **Other Aircraft Rating(s):** | None | **Restraint Used:** | |
| **Instrument Rating(s):** | None | **Second Pilot Present:** | No |
| **Instructor Rating(s):** | None | **Toxicology Performed:** | No |
| **Medical Certification:** | Class 3 Without waivers/limitations | **Last FAA Medical Exam:** | May 22, 2002 |
| **Occupational Pilot:** | UNK | **Last Flight Review or Equivalent:** | November 17, 2002 |
| **Flight Time:** | 353 hours (Total, all aircraft), 200 hours (Total, this make and model), 191 hours (Pilot In Command, all aircraft), 6 hours (Last 90 days, all aircraft), 3 hours (Last 30 days, all aircraft), 0 hours (Last 24 hours, all aircraft) | | |

## Aircraft and Owner/Operator Information

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| **Aircraft Make:** | Piper | **Registration:** | N4658J |
| **Model/Series:** | PA-28R-180 | **Aircraft Category:** | Airplane |
| **Year of Manufacture:** | | **Amateur Built:** | |
| **Airworthiness Certificate:** | Normal | **Serial Number:** | 30553 |
| **Landing Gear Type:** | Retractable - Tricycle | **Seats:** | 4 |
| **Date/Type of Last Inspection:** | June 23, 2003 Annual | **Certified Max Gross Wt.:** | 2500 lbs |
| **Time Since Last Inspection:** | 11.18 Hrs | **Engines:** | 1 Reciprocating |
| **Airframe Total Time:** | 4947 Hrs at time of accident | **Engine Manufacturer:** | Lycoming |
| **ELT:** | Installed, not activated | **Engine Model/Series:** | IO-360-B1E |
| **Registered Owner:** | Kinard Edward Robbins | **Rated Power:** | 180 Horsepower |
| **Operator:** | | **Operating Certificate(s) Held:** | None |

## Meteorological Information and Flight Plan

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| **Conditions at Accident Site:** | Visual (VMC) | **Condition of Light:** | Day |
| **Observation Facility, Elevation:** | OLV,402 ft msl | **Distance from Accident Site:** | 0 Nautical Miles |
| **Observation Time:** | 17:53 Local | **Direction from Accident Site:** | 0° |
| **Lowest Cloud Condition:** | Clear | **Visibility** | 10 miles |
| **Lowest Ceiling:** | None | **Visibility (RVR):** | |
| **Wind Speed/Gusts:** | 3 knots / None | **Turbulence Type Forecast/Actual:** | / |
| **Wind Direction:** | 180° | **Turbulence Severity Forecast/Actual:** | / |
| **Altimeter Setting:** | 29.95 inches Hg | **Temperature/Dew Point:** | 28°C / 14°C |
| **Precipitation and Obscuration:** | No Obscuration; No Precipitation | | |
| **Departure Point:** | Olive Branch, MS (OLV ) | **Type of Flight Plan Filed:** | None |
| **Destination:** | Batesville, MS (0M6 ) | **Type of Clearance:** | VFR flight following |
| **Departure Time:** | 19:23 Local | **Type of Airspace:** | Unknown |

## Airport Information

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| **Airport:** | Olive Branch OLV | **Runway Surface Type:** | Asphalt |
| **Airport Elevation:** | 402 ft msl | **Runway Surface Condition:** | Dry |
| **Runway Used:** | 18 | **IFR Approach:** | None |
| **Runway Length/Width:** | 6000 ft / 100 ft | **VFR Approach/Landing:** | None |

## Wreckage and Impact Information

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| **Crew Injuries:** | 1 Minor | **Aircraft Damage:** | Substantial |
| **Passenger Injuries:** | 3 Minor | **Aircraft Fire:** | None |
| **Ground Injuries:** | N/A | **Aircraft Explosion:** | None |
| **Total Injuries:** | 4 Minor | **Latitude, Longitude:** | 34.980556,-89.786666 |

## Administrative Information

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| **Investigator In Charge (IIC):** | Yurman, Alan |
| **Additional Participating Persons:** | Charles Wittington; Jackson FSDO; Jackson, MS<br>Paul Lehman; The New Piper Aircraft, Inc.; Vero Beach, FL<br>John Butler; Lycoming Engines; Arlington, TX |
| **Original Publish Date:** | June 30, 2004 |
| **Last Revision Date:** | |
| **Investigation Class:** | Class |
| **Note:** | |
| **Investigation Docket:** | https://data.ntsb.gov/Docket?ProjectID=57186 |