# Aviation Investigation Final Report

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| **Location:** | Emporia, Kansas | **Accident Number:** | DFW08LA133 |
| **Date & Time:** | May 8, 2008, 15:30 Local | **Registration:** | N385WR |
| **Aircraft:** | Piper PA-32R-300 | **Aircraft Damage:** | Substantial |
| **Defining Event:** | Loss of engine power (total) | **Injuries:** | 1 Minor |
| **Flight Conducted Under:** | Part 91: General aviation - Personal | | |

## Analysis

The pilot was on a 330-nautical-mile cross-country flight in a single-engine airplane. About 30 miles from his destination, and at an altitude of 3,500 feet, he turned on the fuel boost pump and switched fuel tanks. At about 10 miles from his destination airport the "plane got quiet." The pilot cycled the magnetos and fuel tank selector "once or twice." Unable to restart the engine, the pilot then conducted a forced landing in a field. An on-site inspection noted that fuel was present in the airplane's fuel tanks. A follow-on inspection of the airplane found no mechanical or electrical problem with the engine. However, the left inboard fuel tank appeared to have large sections of "sloshing" compound peeling from the tanks walls, blocking the fuel tank outlet. A review of maintenance records revealed that the left inboard fuel tank was treated with (sloshing compound) fuel tank sealer in February 1996. At the time of the application, the procedure was acceptable per the airplane's manufacturers service manual. The review also noted that the manufacturer's service bulletin, dated May 16, 2005, no longer recognized the compound as an approved sealer, and that the sloshing procedure should be removed from all service manuals. Additionally, the service bulletin did not contain additional instructions with regards to tanks that had been previously repaired using the sealer.

## Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: A total loss of engine power due to fuel starvation as a result of a blocked fuel outlet caused by the peeling off of a previously approved fuel tank sealer.

## Findings

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| **Aircraft** | Fuel storage - Damaged/degraded |

# Factual Information

## History of Flight

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| **Enroute-cruise** | Fuel contamination |
| **Enroute-cruise** | Loss of engine power (total) (Defining event) |
| **Emergency descent** | Off-field or emergency landing |

On May 8, 2008, approximately 1530 central daylight time, a single-engine, Piper PA-32R-300 airplane, N385WR, was substantially damaged upon impact with terrain following a loss of engine power while in cruise flight near Emporia, Kansas. The private pilot, sole occupant on board, received minor injures. The airplane was registered to TNJ Trucking, Inc. of Estherville, Iowa and operated by the pilot. Visual meteorological conditions prevailed for the 14 Code of Federal Regulations Part 91 flight.

The flight departed Tradewinds airport (KTDW), Amarillo, Texas about 13:45 for the 330-nautical mile cross country flight. In a written statement, the pilot reported after he passed Cottonwood, Kansas (and less than 30 miles from Emporia) he turned on the fuel boost pump, and switched fuel tanks. About 10 miles from Emporia and at an altitude of 3,500 feet the pilot the "plane got quiet." The pilot cycled the magnetos and fuel tank selector "once or twice." Unable to restart the engine, the pilot conducted a forced landing in a field, about 10 miles west of Emporia.

The Federal Aviation Administration (FAA) inspector, who responded to the accident site, reported that the aircraft received structural damage during the forced landing. The FAA inspector also noted that fuel was present in the airplane's fuel tanks. A follow-on inspection of the airplane found no mechanical or electrical problem with the engine. However, the left inboard fuel tank appeared to have large sections of "sloshing" compound peeling from the tanks walls blocking the fuel tank outlet.

A review of maintenance records revealed that the left inboard fuel tank was treated with Randolph 802 (sloshing compound) sealer in February 1996. At the time of the application, the procedure was acceptable per the Piper Service Manual.

The review also noted that Piper Service Bulletin 251C, dated May 16, 2005, no longer recognizes Randolph 802 as an approved sealer, and that the sloshing procedure should be removed from all Piper Service Manuals. Additionally, the service bulletin did not contain additional instructions with regards to tanks that had been previously repaired using this procedure.

## Pilot Information

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| **Certificate:** | Private | **Age:** | 44,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 2 With waivers/limitations | **Last FAA Medical Exam:** | January 10, 2007 |
| **Occupational Pilot:** | No | **Last Flight Review or Equivalent:** | October 18, 2007 |
| **Flight Time:** | 112 hours (Total, all aircraft), 56 hours (Total, this make and model), 112 hours (Pilot In Command, all aircraft), 20 hours (Last 90 days, all aircraft), 9 hours (Last 30 days, all aircraft), 2 hours (Last 24 hours, all aircraft) | | |

## Aircraft and Owner/Operator Information

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| **Aircraft Make:** | Piper | **Registration:** | N385WR |
| **Model/Series:** | PA-32R-300 | **Aircraft Category:** | Airplane |
| **Year of Manufacture:** | | **Amateur Built:** | |
| **Airworthiness Certificate:** | Normal | **Serial Number:** | 32R-7680402 |
| **Landing Gear Type:** | Retractable - Tricycle | **Seats:** | 7 |
| **Date/Type of Last Inspection:** | April 1, 2008 Annual | **Certified Max Gross Wt.:** | |
| **Time Since Last Inspection:** | | **Engines:** | 1 Reciprocating |
| **Airframe Total Time:** | 4934 Hrs as of last inspection | **Engine Manufacturer:** | LYCOMING |
| **ELT:** | Installed | **Engine Model/Series:** | TI0-540 SER |
| **Registered Owner:** | T-N-J TRUCKING INC | **Rated Power:** | 310 Horsepower |
| **Operator:** | T-N-J TRUCKING INC | **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:** | KEMP | **Distance from Accident Site:** | |
| **Observation Time:** | 15:53 Local | **Direction from Accident Site:** | |
| **Lowest Cloud Condition:** | Few / 4500 ft AGL | **Visibility** | 10 miles |
| **Lowest Ceiling:** | None | **Visibility (RVR):** | |
| **Wind Speed/Gusts:** | 5 knots / | **Turbulence Type Forecast/Actual:** | / |
| **Wind Direction:** | 190° | **Turbulence Severity Forecast/Actual:** | / |
| **Altimeter Setting:** | 29.69 inches Hg | **Temperature/Dew Point:** | 22°C / 11°C |
| **Precipitation and Obscuration:** | No Obscuration; No Precipitation | | |
| **Departure Point:** | Tradewinds, TX (KTDW) | **Type of Flight Plan Filed:** | Unknown |
| **Destination:** | Emporia, KS (KEMP) | **Type of Clearance:** | VFR flight following |
| **Departure Time:** | 13:45 Local | **Type of Airspace:** | |

## Wreckage and Impact Information

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| **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:** | 38.409988,-96.189666(est) |

## Administrative Information

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| **Investigator In Charge (IIC):** | Hatch, Craig |
| **Additional Participating Persons:** | Bobby Warren; FAA FSDO; Wichita, KS<br>Mike McClure; Piper Aircraft Company; Vero Beach, FL |
| **Original Publish Date:** | April 15, 2009 |
| **Last Revision Date:** | |
| **Investigation Class:** | Class |
| **Note:** | |
| **Investigation Docket:** | https://data.ntsb.gov/Docket?ProjectID=67971 |