



# National Transportation Safety Board Aviation Accident Final Report

---

|                         |                      |                         |             |
|-------------------------|----------------------|-------------------------|-------------|
| <b>Location:</b>        | JEFFERSON, GA        | <b>Accident Number:</b> | ATL95LA058  |
| <b>Date &amp; Time:</b> | 03/03/1995, 1735 EST | <b>Registration:</b>    | N1321Q      |
| <b>Aircraft:</b>        | CESSNA 150L          | <b>Aircraft Damage:</b> | Substantial |
| <b>Defining Event:</b>  |                      | <b>Injuries:</b>        | 1 None      |

**Flight Conducted Under:** Part 91: General Aviation - Personal

---

## Analysis

THE AIRCRAFT COLLIDED WITH TREES DURING AN EMERGENCY DESCENT. ACCORDING TO THE PILOT, DURING A NON-PRECISION, INSTRUMENT APPROACH, THE ENGINE BEGAN RUNNING ROUGHLY. CARBURETOR HEAT WAS APPLIED WITHOUT EFFECT, AND THE ENGINE QUIT. A RE-START WAS ACCOMPLISHED AND THE ENGINE RAN FOR A FEW SECONDS. IT BEGAN TO RUN ROUGHLY, AGAIN, AND QUIT. THE AIRPLANE COLLIDED WITH TREES AS THE PILOT ATTEMPTED TO REACH AN OPEN FIELD. THE PILOT/OWNER STATED THAT HE REGULARLY USED AUTOMOTIVE GASOLINE TO FUEL HIS AIRPLANE. THE USE OF AUTOMOTIVE GASOLINE IS NOT APPROVED BY THE MANUFACTURER OF THE ENGINE, AND CONTINUOUS USE OF AUTOMOTIVE GASOLINE MAY LEAD TO STICKING OR CORRODED ENGINE VALVES. AN EXAMINATION OF THE AIRCRAFT ENGINE REVEALED THAT THE LOSS OF POWER WAS CAUSED BY STUCK INTAKE AND EXHAUST VALVES WHILE IN FLIGHT.

## Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: THE LOSS OF ENGINE POWER BECAUSE OF STICKING VALVES. A FACTOR WAS THE CONTINUOUS USE OF AN IMPROPER FUEL GRADE.

## Findings

---

Occurrence #1: LOSS OF ENGINE POWER(TOTAL) - MECH FAILURE/MALF

Phase of Operation: APPROACH - FAF/OUTER MARKER TO THRESHOLD (IFR)

### Findings

1. (C) ENGINE ASSEMBLY, VALVE, EXHAUST - JAMMED
2. (C) ENGINE ASSEMBLY, VALVE, INTAKE - JAMMED
3. (F) FLUID, FUEL GRADE - IMPROPER

-----

Occurrence #2: FORCED LANDING

Phase of Operation: EMERGENCY DESCENT/LANDING

-----

Occurrence #3: IN FLIGHT COLLISION WITH OBJECT

Phase of Operation: EMERGENCY DESCENT/LANDING

### Findings

4. (F) OBJECT - TREE(S)

## Factual Information

On March 3, 1995, about 1735 eastern standard time, a Cessna 150L, N1321Q, collided with trees during an emergency descent. The pilot reported that there was a loss of engine power while conducting a non-precision, instrument approach into the Jackson County Airport, runway 34, Jefferson, Georgia. The airplane was operated by the pilot under the provisions of 14 CFR Part 91, and instrument flight rules (IFR). An IFR flight plan was filed for the personal flight. There were no injuries to the instrument rated private pilot, and the airplane was substantially damaged. Origination of the flight was Dayton, Ohio, about 1255, on the same day.

According to the pilot, during the approach, the engine began running roughly. After passing the final approach fix, inbound, the engine RPMs dropped to 1400. Carburetor heat was applied without effect, and the engine quit. Atlanta Air Traffic Control Center records indicated, at 1735, the pilot notified air traffic control (ATC) that he had lost his engine. A re-start was accomplished, and the pilot notified ATC that he would complete the approach. The pilot stated that the engine ran at full power for a few seconds before it began running roughly, again, and quit. The pilot attempted a forced landing in a field 4 miles southwest of the airport. The airplane collided with trees approximately 50 yards before reaching the field. ATC notified local authorities that contact with the aircraft had been lost. Jefferson County Sheriff's Office personnel located the aircraft wreckage, and the pilot suffered no injuries.

The pilot stated that he had last purchased fuel in Dayton, Ohio, where the aircraft was topped off with automotive gasoline. He also indicated that he regularly used automotive gasoline to fuel the airplane. According to the engine manufacturer, the use of automotive fuels in any of their aircraft engines is not recommended or authorized. Teledyne Continental Motors (TCM) authorizes only the use of fuels recommended in the engine operating manuals. The minimum fuel grade approved for use in the O-200 model engine is 80 octane. According to TCM, all Continental aircraft engines are to be operated only on aviation fuel. The continuous use of automotive fuel can lead to sticking or corroded valves due to the absence of lead in the fuel. Lead is used to lubricate the valve in the valve guide in normal operation. Lead also cushions the valves as they are closed on the valve seat by the valve springs. Insufficient lubrication can lead to scuffing and scoring of engine valves.

According to the pilot, he had experienced similar engine problems on a previous flight from Jackson County Airport, on February 26, 1995, to Dayton, Ohio. The pilot recalled that after climbing to 8200 feet, the engine began to lose power. The engine RPMs dropped from 2500 to 1500. The pilot applied carburetor heat, and the engine began to increase RPMs and run normal. The pilot stated that he believed he had corrected the problem, and that he was able to complete the remainder of the flight without any further problems.

An examination of the engine showed evidence of severe scoring and scratching on all engine valves. The exhaust valves also showed coking on the stem that operated in the valve guide. The examination concluded that the loss of power was due to stuck valves while in flight.

The Pilot/Operator Aircraft Accident Report, NTSB Form 6120.4, filled out by the pilot was never received. He declined to fill out a second report.

## Pilot Information

|                                  |   |  |                            |
|----------------------------------|---|--|----------------------------|
| <b>Certificate:</b>              | Private   | <b>Age:</b>                              | 47, 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 Valid Medical--no waivers/lim.  | <b>Last FAA Medical Exam:</b>            | 09/20/1994                 |
| <b>Occupational Pilot:</b>       |   | <b>Last Flight Review or Equivalent:</b> |                            |
| <b>Flight Time:</b>              | 786 hours (Total, all aircraft), 700 hours (Total, this make and model), 704 hours (Pilot In Command, all aircraft) |  |                            |

## Aircraft and Owner/Operator Information

|                                      |                          |                                       |                 |
|--------------------------------------|--------------------------|---------------------------------------|-----------------|
| <b>Aircraft Make:</b>                | CESSNA                   | <b>Registration:</b>                  | N1321Q          |
| <b>Model/Series:</b>                 | 150L 150L                | <b>Aircraft Category:</b>             | Airplane        |
| <b>Year of Manufacture:</b>          |                          | <b>Amateur Built:</b>                 | No              |
| <b>Airworthiness Certificate:</b>    |                          | <b>Serial Number:</b>                 | 15072621        |
| <b>Landing Gear Type:</b>            | Tricycle                 | <b>Seats:</b>                         | 2               |
| <b>Date/Type of Last Inspection:</b> | 08/06/1994, Annual       | <b>Certified Max Gross Wt.:</b>       | 1600 lbs        |
| <b>Time Since Last Inspection:</b>   |                          | <b>Engines:</b>                       | 1 Reciprocating |
| <b>Airframe Total Time:</b>          |                          | <b>Engine Manufacturer:</b>           | CONTINENTAL     |
| <b>ELT:</b>                          | Installed, not activated | <b>Engine Model/Series:</b>           | O-200-A         |
| <b>Registered Owner:</b>             | WILL, CLIFFORD S.        | <b>Rated Power:</b>                   | 100 hp          |
| <b>Operator:</b>                     | WILL, CLIFFORD S.        | <b>Operating Certificate(s) Held:</b> | None            |

## Meteorological Information and Flight Plan

|                                  |                                |                                      |                  |
|----------------------------------|--------------------------------|--------------------------------------|------------------|
| Conditions at Accident Site:     | Instrument Conditions          | Condition of Light:                  | Day              |
| Observation Facility, Elevation: | AHN, 0 ft msl                  | Distance from Accident Site:         | 0 Nautical Miles |
| Observation Time:                | 1750 EST                       | Direction from Accident Site:        | 0°               |
| Lowest Cloud Condition:          | Partial Obscuration / 0 ft agl | Visibility                           | 1 Miles          |
| Lowest Ceiling:                  | Overcast / 500 ft agl          | Visibility (RVR):                    | 0 ft             |
| Wind Speed/Gusts:                | 6 knots /                      | Turbulence Type Forecast/Actual:     | /                |
| Wind Direction:                  | 10°                            | Turbulence Severity Forecast/Actual: | /                |
| Altimeter Setting:               | 30 inches Hg                   | Temperature/Dew Point:               | 9° C / 8° C      |
| Precipitation and Obscuration:   |                                |                                      |                  |
| Departure Point:                 | DAYTON, OH (MGY)               | Type of Flight Plan Filed:           | IFR              |
| Destination:                     | (19A)                          | Type of Clearance:                   | IFR              |
| Departure Time:                  | 1255 EST                       | Type of Airspace:                    | Class E          |

## Airport Information

|                      |                              |                           |                |
|----------------------|------------------------------|---------------------------|----------------|
| Airport:             | JACKSON COUNTY AIRPORT (19A) | Runway Surface Type:      |                |
| Airport Elevation:   | 951 ft                       | Runway Surface Condition: |                |
| Runway Used:         | 34                           | IFR Approach:             | ADF/NDB        |
| Runway Length/Width: | 4108 ft / 75 ft              | VFR Approach/Landing:     | Forced Landing |

## Wreckage and Impact Information

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

## Administrative Information

|                                   |  |              |            |
|-----------------------------------|--|--------------|------------|
| Investigator In Charge (IIC):     | PRESTON E HICKS,   | Report Date: | 08/31/1995 |
| Additional Participating Persons: | ROBERT E BRUCE   |              |            |
| 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> . |              |            |

The National Transportation Safety Board (NTSB), established in 1967, is an independent federal agency mandated by Congress through the Independent Safety Board Act of 1974 to investigate transportation accidents, determine the probable causes of the accidents, issue safety recommendations, study transportation safety issues, and evaluate the safety effectiveness of government agencies involved in transportation. The NTSB makes public its actions and decisions through accident reports, safety studies, special investigation reports, safety recommendations, and statistical reviews.

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](#).