# Aviation Investigation Final Report

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| **Location:** | Temecula, California | **Accident Number:** | LAX01LA041 |
| **Date & Time:** | November 15, 2000, 10:50 Local | **Registration:** | N41AL |
| **Aircraft:** | Experimental Glasair 1RG | **Aircraft Damage:** | Destroyed |
| **Defining Event:** | | **Injuries:** | 2 Fatal |
| **Flight Conducted Under:** | Part 91: General aviation - Personal | | |

## Analysis

The amateur-built, experimental single engine airplane collided with terrain while performing what a witness described as a series of aerobatic maneuvers. The witness described the airplane as pulling up, rolling, and then diving until out of sight This same maneuver was performed several times. At the bottom of each dive he heard the engine accelerate and the airplane would begin another climb. During the final maneuver, he did not hear the engine accelerate nor did he see the airplane climb again following the descent. A post-accident examination of the wreckage revealed no evidence of preimpact anomalies to the airframe or engine. The pilot logbooks and airplane builder and maintenance records were not recovered. The private pilot accumulated approximately 288 total flight hours, of which an unknown amount were accumulated in the accident airplane. It is uncertain whether the pilot obtained any aerobatic flight training.

## Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: the pilot's failure to maintain an adequate terrain clearance altitude while performing aerobatic maneuvers, which resulted in the in-flight collision with terrain.

## Findings

Occurrence #1: IN FLIGHT COLLISION WITH TERRAIN/WATER
Phase of Operation: MANEUVERING

Findings
1. AEROBATICS - PERFORMED - PILOT IN COMMAND
2. (C) ALTITUDE/CLEARANCE - NOT MAINTAINED - PILOT IN COMMAND
3. TERRAIN CONDITION - MOUNTAINOUS/HILLY

## Factual Information

On November 15, 2000, at 1050 Pacific standard time, an amateur-built, experimental Glasair 1RG single engine airplane, N41AL, collided with terrain while maneuvering near Temecula, California. The airplane was destroyed, and both the private pilot and pilot-rated passenger received fatal injuries. The airplane was registered to and operated by the owner/pilot as a personal flight under 14 CFR Part 91 when the accident occurred. The flight had originated from Chino, California, approximately 0930. Visual meteorological conditions prevailed at the time and no flight plan had been filed.

A witness near the scene of the accident reported to a Federal Aviation Administration (FAA) inspector that the airplane was performing what appeared to him to be a series of aerobatic maneuvers. He described the airplane as pulling up, rolling, and then diving until out of sight. At the bottom of each dive he heard the engine accelerate and the airplane would begin another climb. During the final maneuver, he did not hear the engine accelerate nor did he see the airplane climb again following the descent.

Photographs taken at the accident site indicated that the composite airplane was destroyed by fire damage. The wreckage came to rest approximately 15 feet from the base of a utility wire pole, and was scattered along the side of a county road. The berm of the road displayed a 6-inch-deep impact mark with sections of the engine cowling lying adjacent to the impact mark, and a leading edge wing strip emanating from the impact mark. The engine was found approximately 10 feet from the impact mark and down a 5-foot hill, which ran along the roadside. The propeller was separated from the engine's propeller flange and was removed from the wreckage by the pilot's family prior to the FAA inspector's on-scene arrival.

The wreckage was transported to a salvage facility and examined by the National Transportation Safety Board investigator-in-charge, an FAA inspector, and an engine manufacturer's representative. Flight control continuity could not be established due to the extent of fire and impact damage. The cockpit instruments were destroyed and were unreadable. The engine's data plate was not located; however, it was determined to be a Textron Lycoming IO-320 series engine. The engine remained attached to the engine mounts and sustained severe impact damage to the left side (encompassing the No. 2 and No. 4 cylinders). The bottom spark plugs, and induction and exhaust pipes were separated from their respective cylinders and the No. 2 and No. 4 cylinder heads were displaced. The rear-mounted accessories were displaced from their respective mounting pads and sustained fire damage. None of the accessories were testable due to the extent of their damage. Visual examination of the components revealed no evidence of premishap catastrophic mechanical malfunction.

Only limited manual rotation of the crankshaft was possible due to the extent of the damage.

Mechanical continuity of the engine was established from the crankshaft to accessory case and to the cylinder/piston components. The cylinders were examined via the use of a lighted bore scope. The combustion chambers were undamaged and displayed no evidence of foreign object ingestion.

The fuel flow divider remained secured to the top of the engine with the respective fuel injector lines secure. The flow divider was disassembled and fuel was observed inside, and the diaphragm was intact. The injector nozzles were secure to their cylinders and when they were removed, no obstructions were noted.

The propeller was subsequently examined at the pilot's daughter's home. The propeller spinner was crushed aft around the propeller cylinder. The two blades were in place and intact. Both blades displayed chordwise scoring and scrapes on both sides of the blades. The one blade was bent aft approximately 40 degrees near the root and was twisted toward low pitch. The other blade was also bent aft to a lesser extent and was also twisted toward a low pitch.

The airplane's building and maintenance records were not recovered during the investigation. The pilot's family searched for the records to no avail, and they are presumed to have been in the airplane at the time of the accident. According to FAA records, the airplane was issued an experimental airworthiness certificate on August 25, 1999. The total time on the airplane and engine are unknown.

The pilot held a private pilot certificate with an airplane single engine land rating. He was issued a third-class medical certificate on December 16, 1998, with a limitation to wear corrective lenses. According to the last medical certificate application, the pilot reported having accumulated a total of 201 hours of flight time. The pilot's logbook was not recovered during the investigation, and it is unknown how many hours were accumulated in the accident airplane. It could not be determined whether the pilot had obtained aerobatic flight training.

An autopsy on the pilot was conducted at the Riverside County Coroner's Office. According to the autopsy report, the pilot died as a result of multiple traumatic injury. Toxicological tests performed by the coroner's office were negative for alcohol and all screened drug substances.

## Pilot Information

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| **Certificate:** | Private | **Age:** | 65,Male |
| **Airplane Rating(s):** | Single-engine land | **Seat Occupied:** | Left |
| **Other Aircraft Rating(s):** | None | **Restraint Used:** | |
| **Instrument Rating(s):** | None | **Second Pilot Present:** | Yes |
| **Instructor Rating(s):** | None | **Toxicology Performed:** | Yes |
| **Medical Certification:** | Class 3 Valid Medical--w/ waivers/lim | **Last FAA Medical Exam:** | December 16, 1998 |
| **Occupational Pilot:** | UNK | **Last Flight Review or Equivalent:** | |
| **Flight Time:** | 288 hours (Total, all aircraft) | | |

## Aircraft and Owner/Operator Information

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| **Aircraft Make:** | Experimental | **Registration:** | N41AL |
| **Model/Series:** | Glasair 1RG GLASAIR 1R | **Aircraft Category:** | Airplane |
| **Year of Manufacture:** | | **Amateur Built:** | Yes |
| **Airworthiness Certificate:** | Experimental (Special) | **Serial Number:** | 704 |
| **Landing Gear Type:** | Retractable - Tricycle | **Seats:** | 2 |
| **Date/Type of Last Inspection:** | Unknown | **Certified Max Gross Wt.:** | |
| **Time Since Last Inspection:** | | **Engines:** | 1 Reciprocating |
| **Airframe Total Time:** | | **Engine Manufacturer:** | Lycoming |
| **ELT:** | | **Engine Model/Series:** | IO-320 |
| **Registered Owner:** | Alan Harold Larson | **Rated Power:** | 150 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:** | RAL,818 ft msl | **Distance from Accident Site:** | 30 Nautical Miles |
| **Observation Time:** | 09:53 Local | **Direction from Accident Site:** | 320° |
| **Lowest Cloud Condition:** | Clear | **Visibility** | 10 miles |
| **Lowest Ceiling:** | None | **Visibility (RVR):** | |
| **Wind Speed/Gusts:** | / | **Turbulence Type Forecast/Actual:** | / |
| **Wind Direction:** | | **Turbulence Severity Forecast/Actual:** | / |
| **Altimeter Setting:** | 30 inches Hg | **Temperature/Dew Point:** | 11°C / 2°C |
| **Precipitation and Obscuration:** | No Obscuration; No Precipitation | | |
| **Departure Point:** | Chino, CA (CNO ) | **Type of Flight Plan Filed:** | None |
| **Destination:** | Temecula, CA | **Type of Clearance:** | None |
| **Departure Time:** | 09:30 Local | **Type of Airspace:** | Class G |

## Wreckage and Impact Information

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| **Crew Injuries:** | 1 Fatal | **Aircraft Damage:** | Destroyed |
| **Passenger Injuries:** | 1 Fatal | **Aircraft Fire:** | On-ground |
| **Ground Injuries:** | N/A | **Aircraft Explosion:** | On-ground |
| **Total Injuries:** | 2 Fatal | **Latitude, Longitude:** | 33.525001,-117.083335 |

## Administrative Information

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| **Investigator In Charge (IIC):** | Crispin, Robert |
| **Additional Participating Persons:** | Gabriel Sorrano; Federal Aviation Administration; Riverside, CA<br>Mark W Platt; Textron Lycoming; Van Nuys, CA |
| **Original Publish Date:** | November 25, 2003 |
| **Last Revision Date:** | |
| **Investigation Class:** | Class |
| **Note:** | The NTSB traveled to the scene of this accident. |
| **Investigation Docket:** | https://data.ntsb.gov/Docket?ProjectID=50635 |