



National Transportation Safety Board Aviation Accident Final Report

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| Location: | Mojave, CA | Accident Number: | ANC18LA042 |
| Date & Time: | 06/04/2018, 1152 PDT | Registration: | VH-XMH |
| Aircraft: | GIPPSAERO PTY LTD GA10 | Aircraft Damage: | Destroyed |
| Defining Event: | Aerodynamic stall/spin | Injuries: | 2 Minor |
| Flight Conducted Under: | Part 91: General Aviation - Flight Test | | |

Analysis

The airplane manufacturer was conducting spin flight testing for the installation of a cargo pod when the airplane exhibited aberrant behavior and the testing was halted. The chief design engineer (CDE) was consulted, and, to provide a margin of safety for further flights, a forward center of gravity position was authorized for flaps up and flaps takeoff entries to gain more insight into the airplane's behavior on the previous flight. At the final briefing, before the next flight, the flight crew added spins with flaps in the landing configuration (flaps landing) into the test plan without the CDE's consultation or authorization.

According to the pilot flying, after two wings-level, power on, flaps landing spins with left rudder and right aileron, a third spin entry was flown in the same configuration except that the entry was from a 30° left-bank turn. The airplane entered a normal spin, and, at one turn, flight controls were inputted for a normal recovery; however, the airplane settled into a fully developed spin. When recovery attempts failed, the decision was made to deploy the anti-spin parachute. After repeated unsuccessful attempts to deploy the anti-spin parachute, and when the airplane's altitude reached about 500 ft above the briefed minimum bailout altitude, both pilots called for and executed a bailout. The airplane impacted the ground and was destroyed.

A postaccident examination of the anti-spin parachute system revealed that half of the connector hook had opened, which allowed the activation pin lanyard for the anti-spin parachute to become disengaged.

Based on the airplane's previous aberrant behavior and the conservative parameters that the CDE had previously set, it is not likely that the CDE would have authorized abused spin entries without a prior testing buildup to those entries. Thus, the flight crew made an inappropriate decision to introduce flaps landing entry spin testing, and the failure of the anti-spin parachute contributed to the accident.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be:

The flight crew's inappropriate decision, without authorization or consultation from the manufacturer's chief design engineer, to introduce flaps in the landing configuration into the entry spin testing, which resulted in an unrecoverable spin and impact with the ground. Contributing to the accident was the failure of the anti-spin parachute.

Findings

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| Aircraft | Aircraft systems - Failure (Factor) |
| Personnel issues | Decision making/judgment - Flight crew (Cause) |

Factual Information

On June 4, 2018, about 1152 Pacific daylight time, an Australian registered GIPPSAERO PTY LTD, GA10 airplane, VH-XMH, was destroyed after it impacted terrain following an unrecoverable spin, and the unsuccessful deployment of the anti-spin parachute near Mojave, California. The airplane was registered to GIPPSAERO PTY LTD and operated by GIPPSAERO PTY LTD in conjunction with the National Test Pilot School (NTPS) as a visual flight rules test flight under the provisions of 14 *Code of Federal Regulations Part 91.715 Special Flight Authorization* when the accident occurred. The Australian certificated commercial pilot and the United States certificated airline transport pilot sustained minor injuries. Visual meteorological conditions prevailed, and company flight following procedures were in effect.

According to the airplane manufacturer, the purpose of the flight was to conduct spin trials with the GA-10 airplane fitted with a cargo pod installation. Initial spin trials with the cargo pod were completed in Australia with company pilots, and the aircraft configured well away from the critical flight conditions identified during the original airplane certification spin testing. Due to scheduling and personnel constraints, it was decided to send the airplane and company personnel to NTPS to conduct the more critical spin tests. The flight tests commenced and proceeded until May 31, 2018, when the airplane exhibited some aberrant behavior, and the manufacturer's Chief Design Engineer (CDE) was consulted. To provide a margin of safety for further flights, a forward CG position was authorized for flaps up and flaps takeoff entries, in an effort, to gain more information into the airplane's aberrant behavior on the previous flight. At the final briefing, prior to the next flight, spins with landing flaps were added by the flight crew without consultation or authorization from the CDE.

According to the pilot flying, the flight departed about 1105 PDT and a stall series consisting of stalls with flaps up, flaps takeoff and flaps landing was completed prior to any spin entries, with stall characteristics normal and benign. The first spin entry was a wings level, power on, flaps landing spin with left rudder and right aileron. He said that the recovery took longer than expected, and the decision was made to repeat the test point. A repeat of the same entry resulted in a very similar spin with the recovery at one additional turn. The second test point (third spin entry) was flown in the same configuration as the first two, except that the entry was from a 30° left-bank turn. The airplane entered a normal spin and at one turn, flight controls were inputted for a normal recovery; however, the airplane settled into a fully developed spin. After 3 turns, the pilots in the chase aircraft called "three turns". The control yoke was held full forward with full opposite rudder, and right aileron was inputted, in an attempt, to affect yaw rate, to no avail, so the control yoke was returned to neutral, full forward and full right rudder. Around 10,000 ft, the pilots in the chase aircraft called "chute, chute, chute". The anti-spin parachute lever was pulled aft; however, the anti-spin parachute did not deploy even after repeated attempts. At about 8,500 ft msl, 500 ft above the briefed minimum bailout altitude, both pilots called for and executed a bailout.

A postaccident examination of the anti-spin parachute system revealed that one half the connector hook had opened allowing the activation pin lanyard for the anti-spin parachute to become disengaged.

The closest weather reporting facility was Mojave Air and Space Port (KMHV), Mojave, California, about 9 miles north of the accident site. At 1200, a METAR from KMHV was reporting, in part: wind from 300° at 15 knots, gusting 20 knots; visibility, 10 statute miles; clouds and sky condition, clear; temperature, 93° F; dew point 39° F; altimeter, 29.91 inches of mercury.

History of Flight

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| Maneuvering | Aerodynamic stall/spin (Defining event) |
| Uncontrolled descent | Collision with terr/obj (non-CFIT) |

Pilot Information

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| Certificate: | Airline Transport; Flight Instructor | Age: | 70, Male |
| Airplane Rating(s): | Single-engine Land; Single-engine Sea | Seat Occupied: | Left |
| Other Aircraft Rating(s): | Glider; Helicopter | Restraint Used: | |
| Instrument Rating(s): | Airplane | Second Pilot Present: | Yes |
| Instructor Rating(s): | Airplane Multi-engine; Airplane Single-engine; Glider | Toxicology Performed: | No |
| Medical Certification: | Class 2 With Waivers/Limitations | Last FAA Medical Exam: | 04/12/2018 |
| Occupational Pilot: | Yes | Last Flight Review or Equivalent: | 11/09/2017 |
| Flight Time: | 9767 hours (Total, all aircraft), 46 hours (Total, this make and model), 8315 hours (Pilot In Command, all aircraft), 53 hours (Last 90 days, all aircraft), 22 hours (Last 30 days, all aircraft), 1 hours (Last 24 hours, all aircraft) | | |

Pilot Information

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| Certificate: | Flight Instructor; Commercial; Foreign | Age: | 61, Male |
| Airplane Rating(s): | Multi-engine Land; Single-engine Land | Seat Occupied: | Right |
| Other Aircraft Rating(s): | None | Restraint Used: | |
| Instrument Rating(s): | Airplane | Second Pilot Present: | Yes |
| Instructor Rating(s): | Airplane Multi-engine; Airplane Single-engine | Toxicology Performed: | No |
| Medical Certification: | Class 2 With Waivers/Limitations | Last FAA Medical Exam: | 03/20/2018 |
| Occupational Pilot: | Yes | Last Flight Review or Equivalent: | 04/15/2018 |
| Flight Time: | 10980 hours (Total, all aircraft), 287 hours (Total, this make and model), 10780 hours (Pilot In Command, all aircraft), 22 hours (Last 90 days, all aircraft), 14 hours (Last 30 days, all aircraft), 1 hours (Last 24 hours, all aircraft) | | |

Aircraft and Owner/Operator Information

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|--------------------------------------|---|---------------------------------------|-----------------|
| Aircraft Make: | GIPPSAERO PTY LTD | Registration: | VH-XMH |
| Model/Series: | GA10 NO SERIES | Aircraft Category: | Airplane |
| Year of Manufacture: | 2016 | Amateur Built: | No |
| Airworthiness Certificate: | | Serial Number: | GA10-TP450-16-1 |
| Landing Gear Type: | Tricycle | Seats: | 10 |
| Date/Type of Last Inspection: | 09/17/2017, 100 Hour | Certified Max Gross Wt.: | 4751 lbs |
| Time Since Last Inspection: | | Engines: | 1 Turbo Prop |
| Airframe Total Time: | 113.1 Hours at time of accident | Engine Manufacturer: | Rolls Royce |
| ELT: | C126 installed, activated, did not aid in locating accident | Engine Model/Series: | M250-B17F/2 |
| Registered Owner: | GIPPSAERO PTY LTD | Rated Power: | 450 hp |
| Operator: | GIPPSAERO PTY LTD | Operating Certificate(s) Held: | None |

Meteorological Information and Flight Plan

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| Conditions at Accident Site: | Visual Conditions | Condition of Light: | Day |
| Observation Facility, Elevation: | KMHV, 2801 ft msl | Distance from Accident Site: | 9 Nautical Miles |
| Observation Time: | 1900 UTC | Direction from Accident Site: | 350° |
| Lowest Cloud Condition: | Clear | Visibility | 10 Miles |
| Lowest Ceiling: | None | Visibility (RVR): | |
| Wind Speed/Gusts: | 15 knots / 20 knots | Turbulence Type Forecast/Actual: | / |
| Wind Direction: | 300° | Turbulence Severity Forecast/Actual: | / |
| Altimeter Setting: | 29.91 inches Hg | Temperature/Dew Point: | 34° C / 4° C |
| Precipitation and Obscuration: | No Obscuration; No Precipitation | | |
| Departure Point: | Mojave, CA | Type of Flight Plan Filed: | Company VFR |
| Destination: | Mojave, CA | Type of Clearance: | VFR Flight Following |
| Departure Time: | PDT | Type of Airspace: | Military Operation Area |

Wreckage and Impact Information

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| Crew Injuries: | 2 Minor | Aircraft Damage: | Destroyed |
| Passenger Injuries: | N/A | Aircraft Fire: | None |
| Ground Injuries: | N/A | Aircraft Explosion: | None |
| Total Injuries: | 2 Minor | Latitude, Longitude: | 34.938611, -118.126667 (est) |

Administrative Information

Investigator In Charge (IIC): David B Banning Report Date: 04/20/2020

Additional Participating Persons:

Publish Date: 04/20/2020

Note: The NTSB did not travel to the scene of this accident.

Investigation Docket: <http://dms.nts.gov/pubdms/search/dockList.cfm?mKey=97404>

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](#).