



Aviation Investigation Final Report

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| Location: | Santa Ana, California | Accident Number: | WPR12LA097 |
| Date & Time: | January 7, 2012, 16:28 Local | Registration: | N580TC |
| Aircraft: | Beech 58P | Aircraft Damage: | Substantial |
| Defining Event: | Landing gear not configured | Injuries: | 5 None |
| Flight Conducted Under: | Part 91: General aviation - Personal | | |

Analysis

The pilot of the twin-engine airplane was on a sightseeing diversion while en route to an airport when two "ALT" annunciator lights on the instrument panel illuminated, and the load meters indicated that the alternators were not providing electrical power to the airplane. The pilot powered off some electrical equipment and recycled both alternator switches. The "ALT" annunciator lights extinguished, and all other indications returned to normal. Since nightfall was approaching and the pilot was concerned about the continued availability of electrical power, he then headed for his destination. When the airplane was on short final, the pilot noticed that none of the three green landing gear position annunciator lights were illuminated despite the fact that he had selected the landing gear down. He reported this information to the air traffic control tower controller, conducted a go-around, and asked for the controller's observations regarding the landing gear position. The pilot misunderstood the air traffic controller's communication that the landing gear was not extended. Subsequently, the pilot did not recycle the gear and did not review or execute any abnormal checklist procedures for the landing gear. Although the landing gear warning horn sounded during the second landing approach, the pilot incorrectly believed that the landing gear was extended and landed the airplane with the landing gear fully retracted. Although the landing was accomplished 31 minutes before local sunset and 58 minutes before the end of local civil twilight, the pilot did not go around again due to his concern about approaching nightfall.

While the airplane was in temporary storage awaiting postaccident examination, the owner of the repair facility, who had previously repaired the landing gear system and had conducted the most recent annual inspection on the airplane, gained unapproved access to the airplane, operated the landing gear, and inadvertently damaged the airplane. Subsequent examination of the airplane by investigators revealed that the landing gear system operated normally, and no irregularities were revealed with the electrical system.

According to the airplane manufacturer, without alternator augmentation, the airplane battery would have lasted about the same amount of time that it took for the flight to depart and reach the location where the pilot first noticed the electrical anomaly. Based on this information and the fact that the

airplane had been tampered with, no detailed component testing was accomplished, and the root causes of the initial electrical anomaly and failure of the landing gear to extend could not be determined.

Probable Cause and Findings

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

The pilot's failure to review or execute any applicable checklist procedures or troubleshoot or take corrective action before landing despite indications that the landing gear was not extended. Contributing to the accident were the pilot's misunderstanding of the air traffic controller's communication that the landing gear was not extended, his desire to land quickly, and an undetermined electrical system anomaly.

Findings

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| Personnel issues | Use of checklist - Pilot |
| Aircraft | Gear position and warning - Not used/operated |
| Personnel issues | Incorrect action selection - Pilot |
| Not determined | (general) - Unknown/Not determined |
| Aircraft | AC generator-alternator - Not specified |

Factual Information

History of Flight

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| Enroute | Electrical system malf/failure |
| Approach-VFR pattern final | Sys/Comp malf/fail (non-power) |
| Approach-VFR go-around | Sys/Comp malf/fail (non-power) |
| Landing-flare/touchdown | Landing gear not configured (Defining event) |

HISTORY OF FLIGHT

On January 7, 2012, about 1628 Pacific standard time, a Beech 58P, N580TC, was substantially damaged when it landed gear up on runway 19L at John Wayne Airport/Orange County airport (SNA), Santa Ana, California. The owner-pilot and the four passengers were not injured. The personal flight was operated under the provisions of Title 14 Code of Federal Regulations Part 91. Visual meteorological conditions prevailed, and no flight plan was filed for the flight.

According to the pilot, the twin-engine airplane was based at Santa Barbara Municipal Airport (SBA), Santa Barbara, California. The intended destination was SNA, and the pilot planned to overfly Catalina Island en route. The airplane was equipped with one alternator per engine, and an electrical loadmeter and annunciator light for each alternator. When the airplane was in the vicinity of Catalina, the two "ALT" annunciator lights on the instrument panel illuminated, and the loadmeters indicated that the alternators were not providing electrical power to the airplane. The pilot powered off some electrical equipment, and ran his hand across the circuit breaker (CB) panel to ensure all breakers were in; he did not notice any breakers that were out. He then recycled both alternator switches; the ALT lights extinguished, and all other indications returned to normal. The pilot did not know the underlying reason for the problem, and was concerned about the continued availability of electrical power, since nightfall was approaching. He then headed for SNA.

Inbound to the runway at SNA, the pilot selected flaps and landing gear extended, and did not notice anything unusual until he was on short final, when he observed that none of the three landing gear position green annunciation lights were illuminated. He communicated this information to the air traffic control tower controller, and conducted a go-around. He then conducted a flyby of the tower, and asked for the controller's observations regarding the landing gear position. The pilot believed that the controller told him that the landing gear was extended. He therefore did not recycle the gear, and since he was concerned about the possibility of additional problems and approaching darkness, he did not review or execute any abnormal procedures checklists for the landing gear. The pilot was given permission to land, and although he believed the landing gear to be extended, the airplane was landed with the gear fully retracted.

All five occupants exited the airplane uneventfully. After site documentation by airport personnel and the Orange County Sheriff's Department (OCSO), Orange County Fire Department (OCFD) crane and sling equipment was used to lift and relocate the airplane to the county ramp next to Signature Flight Services.

PERSONNEL INFORMATION

According to Federal Aviation Administration (FAA) records, the pilot held a private pilot certificate with multiple ratings, including multi-engine land. The pilot reported a total flight experience of about 972 hours, including about 54 hours multi-engine time, all of which was in the accident airplane make and model. His most recent FAA third-class medical certificate was issued in March 2011.

AIRCRAFT INFORMATION

According to FAA information, the airplane was manufactured in 1977, and was first registered to the pilot in April 2011. The airplane was substantially damaged in a previous landing gear related accident in March 2010 by another pilot. In that accident, the pilot neglected to extend the landing gear prior to landing.

Subsequent to that previous accident, Aircraftsman, a repair facility located at Chino airport (CNO), Chino, California, repaired and sold the airplane to the present owner. The most recent annual inspection was accomplished in conjunction with the repair activity, and was completed in February 2011.

METEOROLOGICAL INFORMATION

The SNA 1647 automated weather observation included winds from 210 degrees at 5 knots, visibility 6 miles, clear skies, temperature 14 degrees C, dew point 9 degrees C, and an altimeter setting of 29.94 inches of mercury.

Local sunset was at 1659, and local civil twilight ended at 1726. Respectively, these were 31 and 58 minutes after the event.

AIRPORT INFORMATION

FAA information indicated that SNA was equipped with two runways, 1R/19L and 1L/19R. Runway 1R/19L measured 2,887 feet by 75 feet, and runway 1L/19R measured 5,701 feet by 150 feet. The airport elevation was 56 feet above mean sea level. At the time of the event, the air traffic control tower was staffed and operational.

WRECKAGE AND IMPACT INFORMATION

The airplane came to rest upright, about halfway down runway 19L. None of the three landing gear was exposed, and all landing gear doors were closed. All evidence was consistent with the landing gear being fully retracted at touchdown.

All three propeller blades on each engine were bent from ground contact. Although not detected until several days after the event, several areas of the fuselage skin and structure were ground away by the skid along the runway, which constituted substantial damage to the airplane.

ADDITIONAL INFORMATION

Post Accident Airplane Activity

Due to the day (Saturday) and lack of severity of the event, FAA personnel did not examine the airplane until Monday January 9. On that day, the FAA inspector observed that the airplane was in the same position and configuration as OCFD had left it; the airplane was on its belly on the county ramp. The inspector noted that the landing gear handle was selected "down," and the landing gear motor was out/popped. Based on the inspector's examination of the airplane (on the ground, as-is), he initially classified the event as an "incident," pending further examination. The inspector then notified the pilot/owner and airport personnel that the airplane was not to be disturbed without NTSB and FAA permission.

Also on Monday January 9, the owner began coordinating with Martin Aviation (located at SNA) to arrange for the raising and re-location of the airplane to the Martin facility (a Beech service center) for detailed examination and repair. In anticipation of that activity, a Martin technician went to photograph the airplane on Monday evening. When he arrived at the airplane, he observed that it had been raised up on jacks. He notified the OCSD about that situation. The next day, the FAA and NTSB were notified that the airplane had been disturbed without their knowledge or approval.

The insurance company representative revealed that he had been contacted by the owner of Aircraftsman, and Aircraftsman told the insurance company that the NTSB had given Aircraftsman permission to begin work on the airplane. This was untrue; the NTSB had not communicated with any representatives of Aircraftsman until after the airplane was observed to be on jacks. The NTSB, FAA, and insurance company agreed that the airplane would be recovered to the Martin ramp by Martin personnel for FAA examination.

On Wednesday January 11, the FAA and Martin Aviation personnel arrived at the airplane on the county ramp and discovered that the airplane was now standing on its landing gear. They also noted leading edge damage to the right wing that was not previously present.

Queries to Aircraftsman revealed that after Aircraftsman had raised the airplane on jacks, the airplane was blown off the jacks by another airplane, which resulted in the wing damage. Aircraftsman personnel then re-raised the airplane, and manually extended the landing gear. None of this activity was authorized by any NTSB, FAA, or insurance company personnel.

After Martin Aviation received written permission to recover the airplane to their facility on the opposite side of SNA, they used the OCFD sling equipment that was used to relocate the airplane to the county ramp after the accident. After relocation to Martin, the gear was confirmed to be locked down, and the airplane was towed into the Martin hangar. It was again jacked up, and the FAA and NTSB were notified of the airplane's location and readiness for further examination.

Second FAA Airplane Examination

On January 17, 2012, the FAA inspector re-visited the airplane, and with the Martin technician, accomplished the following activities:

- The landing gear motor CB was re-set
- External battery power was used to retract the landing gear. Retraction function and indications were all normal
- The manual gear extension system was utilized to extend the gear. Extension function and indications were all normal.

- The airplane was equipped with 3 lights which would illuminate green for respective landing gear "down" position; all 3 were observed to illuminate green when the gear was extended
- The gear was again retracted, and the normal extension system was used to re-deploy the gear. Extension function and indications were all normal

Neither the FAA inspector nor the Martin technician observed any landing gear system abnormalities, and both determined that the landing gear extension/retraction system was fully operational.

Additional Pilot Recollections

The pilot provided the following information in response to NTSB and Beech questions regarding the event:

- The pilot observed that both "alternator out" lights on the instrument panel illuminated during the event over Catalina
- He observed a reading of '0' (zero) on the loadmeters when he noticed the electrical problem
- The pilot estimated that he flew "less than 5 minutes" with the alternators off line
- After the pilot reset the alternators, he observed balanced loads on the loadmeters
- He did not have any further alternator or electrical issues for the remainder of the flight (to SNA)
- The pilot heard the landing gear motor activate "for what sounded like the full extension" after he selected landing gear down on his approach to SNA
- The pilot heard the landing gear warning horn "on the go around and the landing"
- When asked by the NTSB what he communicated to the owner (by name) of Aircraftsman after the accident, the pilot stated that he was "not sure" who the named individual was

Beech Information

Based on the examination and test results on the airplane, a Beech air safety investigator offered the following observations:

- There is "no better test" of the landing gear system than what the FAA did; cycle the landing gear electrically. The Beech representative concluded that it appears that there "is no issue" with the functionality of the landing gear extension and retraction system
- The successful FAA extensions and retractions of the landing gear seem to eliminate the possibility of a mechanical issue with the gear
- It is "highly unlikely" to have simultaneous alternator failures on both engines; it is "much more likely" for the pilot to forget to turn on the alternators during start procedures. However, the alternator out lights should illuminate on the panel if the alternators were off line.
- Approximate battery life (unsustained by alternators) is typically 30 to 45 minutes, which is about the same amount of time it took for the flight from SBA to Catalina.

Pilot Information

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| Certificate: | Private | Age: | 47 |
| Airplane Rating(s): | Single-engine land; Single-engine sea; Multi-engine land | Seat Occupied: | Left |
| Other Aircraft Rating(s): | None | Restraint Used: | 3-point |
| Instrument Rating(s): | Airplane | Second Pilot Present: | No |
| Instructor Rating(s): | None | Toxicology Performed: | No |
| Medical Certification: | Class 3 Without waivers/limitations | Last FAA Medical Exam: | March 3, 2011 |
| Occupational Pilot: | No | Last Flight Review or Equivalent: | |
| Flight Time: | 972 hours (Total, all aircraft), 54 hours (Total, this make and model) | | |

Aircraft and Owner/Operator Information

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| Aircraft Make: | Beech | Registration: | N580TC |
| Model/Series: | 58P | Aircraft Category: | Airplane |
| Year of Manufacture: | 1977 | Amateur Built: | |
| Airworthiness Certificate: | Normal | Serial Number: | TJ-126 |
| Landing Gear Type: | Retractable - Tricycle | Seats: | 5 |
| Date/Type of Last Inspection: | February 1, 2011 Annual | Certified Max Gross Wt.: | 5400 lbs |
| Time Since Last Inspection: | | Engines: | 2 Reciprocating |
| Airframe Total Time: | 5740 Hrs as of last inspection | Engine Manufacturer: | CONT MOTOR |
| ELT: | Installed | Engine Model/Series: | TSIO-520 SER |
| Registered Owner: | On file | Rated Power: | 300 Horsepower |
| Operator: | On file | 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: | KSNA,40 ft msl | Distance from Accident Site: | 0 Nautical Miles |
| Observation Time: | 16:47 Local | Direction from Accident Site: | |
| Lowest Cloud Condition: | Clear | Visibility | 6 miles |
| Lowest Ceiling: | None | Visibility (RVR): | |
| Wind Speed/Gusts: | 5 knots / None | Turbulence Type Forecast/Actual: | / |
| Wind Direction: | 210° | Turbulence Severity Forecast/Actual: | / |
| Altimeter Setting: | 29.94 inches Hg | Temperature/Dew Point: | 14°C / 9°C |
| Precipitation and Obscuration: | No Obscuration; No Precipitation | | |
| Departure Point: | Santa Barbara, CA (KSBA) | Type of Flight Plan Filed: | None |
| Destination: | Santa Ana, CA (SNA) | Type of Clearance: | VFR |
| Departure Time: | 15:00 Local | Type of Airspace: | |

Airport Information

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| Airport: | John Wayne Orange County SNA | Runway Surface Type: | Asphalt |
| Airport Elevation: | 56 ft msl | Runway Surface Condition: | Dry |
| Runway Used: | 19L | IFR Approach: | None |
| Runway Length/Width: | 5701 ft / 150 ft | VFR Approach/Landing: | Traffic pattern |

Wreckage and Impact Information

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| Crew Injuries: | 1 None | Aircraft Damage: | Substantial |
| Passenger Injuries: | 4 None | Aircraft Fire: | None |
| Ground Injuries: | N/A | Aircraft Explosion: | None |
| Total Injuries: | 5 None | Latitude, Longitude: | 33.675556,-117.868057(est) |

Administrative Information

Investigator In Charge (IIC): Huhn, Michael

Additional Participating Persons: Roger A Kari; FAA FSDO; Long Beach, CA

Original Publish Date: July 30, 2014

Last Revision Date:

Investigation Class: [Class](#)

Note:

Investigation Docket: <https://data.nts.gov/Docket?ProjectID=82820>

The National Transportation Safety Board (NTSB) is an independent federal agency charged by Congress with investigating every civil aviation accident in the United States and significant events in other modes of transportation—railroad, transit, highway, marine, pipeline, and commercial space. We determine the probable causes of the accidents and events we investigate, and issue safety recommendations aimed at preventing future occurrences. In addition, we conduct transportation safety research studies and offer information and other assistance to family members and survivors for each accident or event we investigate. We also serve as the appellate authority for enforcement actions involving aviation and mariner certificates issued by the Federal Aviation Administration (FAA) and US Coast Guard, and we adjudicate appeals of civil penalty actions taken by the FAA.

The NTSB does not assign fault or blame for an accident or incident; rather, as specified by NTSB regulation, “accident/incident investigations are fact-finding proceedings with no formal issues and no adverse parties ... and are not conducted for the purpose of determining the rights or liabilities of any person” (Title 49 *Code of Federal Regulations* section 831.4). Assignment of fault or legal liability is not relevant to the NTSB’s statutory mission to improve transportation safety by investigating accidents and incidents and issuing safety recommendations. In addition, statutory language prohibits the admission into evidence or use of any part of an NTSB report related to an accident in a civil action for damages resulting from a matter mentioned in the report (Title 49 *United States Code* section 1154(b)). A factual report that may be admissible under 49 *United States Code* section 1154(b) is available [here](#).