



National Transportation Safety Board Aviation Accident Final Report

Location:	Carlsbad, CA	Accident Number:	WPR15LA165
Date & Time:	05/16/2015, 1548 PDT	Registration:	N505SP
Aircraft:	RAYTHEON AIRCRAFT COMPANY B200	Aircraft Damage:	Substantial
Defining Event:	Electrical system malf/failure	Injuries:	1 None
Flight Conducted Under:	Part 91: General Aviation - Personal		

Analysis

The commercial pilot reported that, about 10 minutes after takeoff for a cross-country flight, the airplane experienced a loss of electrical power and that he lost contact with air traffic control (ATC). The pilot proceeded on a westerly course and then proceeded southbound. Partial electrical power was restored, and he tried to re-establish radio contact with ATC with no success. The pilot subsequently diverted to an airport for landing. After he received a green light signal from control tower personnel, the pilot extended the landing gear and flaps. When the airplane touched down, the pilot realized that the landing gear had not extended.

During initial postaccident interviews, the pilot stated that, when he departed, the generators were on and that, after the loss of electrical power, he did not perform any emergency procedures or attempt to reset the generators because the checklist was in a cabinet that he could not reach. In a subsequent interview, the pilot stated that he may have accidentally turned on the starter switches while on the ground at the departure airport, which would have turned off the generators and led to the loss of electrical power.

After the accident, a mechanic entered the cockpit, and he reported that he found the landing gear handle in the "down" position and the flap handle in the "full-up" position. The battery switch was in the "off" position with the battery gang bar down, which turned off the battery, generator 1, and generator 2. After lifting the gang bar and turning on the battery switch, he saw nothing on the cockpit displays but heard the airplane power up. After about 30 minutes, he turned on the electrical power, and the cockpit displays illuminated, and he heard the landing gear trying to extend.

During recovery, the airplane was lifted off the ground, and the landing gear were successfully extended to the down-and-locked position using the emergency gear extension hand pump.

It is likely that the pilot inadvertently turned on the starter switches, which turned off the generators, at the departure airport, and that this led to the depletion of the battery and loss of electrical power to the airplane's systems. If the pilot had the emergency checklist available and

followed the emergency procedures for a loss of electrical power, which required resetting the generators, or if he had attempted to manually extend the landing gear, he likely could have lowered the landing gear.

Probable Cause and Findings

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

The pilot's inadvertently turning on the starter switches, which turned off the generators and resulted in a loss of electrical power and gear-up landing. Contributing to the accident was the pilot's failure to follow the emergency procedures for a loss of electrical power or to manually extend the landing gear.

Findings

Aircraft	Starter-generator - Unintentional use/operation (Cause)
Personnel issues	Lack of action - Pilot (Factor) Use of policy/procedure - Pilot (Factor)

Factual Information

History of Flight

Prior to flight	Preflight or dispatch event
Enroute-climb to cruise	Electrical system malf/failure (Defining event)

On May 16, 2015, at 1548, Pacific daylight time, a Beech King Air B200, N505SP, was substantially damaged when the airplane landed with the landing gear retracted at Mc Clellan-Palomar Airport (CRQ), Carlsbad, California. The airplane was registered to and operated by the commercial pilot under the provisions of 14 *Code of Federal Regulations* Part 91. The pilot was not injured. The cross-country personal flight departed Palm Springs (PSP), California, about 1515 with a planned destination of Santa Ana, California. Visual meteorological conditions prevailed, and no flight plan had been filed.

The pilot reported that 10 minutes into the flight, he received an instrument flight rules flight plan from air traffic control (ATC). The cloud tops were at 8,500 feet and he was cleared to 6,000 ft, which put him in the clouds.

Within minutes of entering the clouds, the airplane lost all electrical power, and the pilot lost contact with ATC. He climbed back out of the clouds and proceeded to the west; he found a hole in the clouds over the Pacific Ocean, descended, and turned southbound. He said partial electrical power was restored, and he tried to advise ATC of his problems. His transmissions were not understood, but he flew to CRQ, and received a green light from the tower personnel. He extended the landing gear and flaps but had no airspeed indicator. When the airplane touched down, the pilot realized that his landing gear had not extended.

Witnesses reported that the airplane approached the runway and was faster than a normal landing, and the gear was still retracted.

The pilot reported during an initial telephone interview with the National Transportation Safety Board investigator-in-charge, that after the loss of electrical power he did not perform any emergency procedures as the checklist was in a cabinet and not reachable; he was just trying to fly the airplane. The pilot stated that when he departed from PSP, the generators were on. When asked if he attempted to reset the generators, he again stated that he did not do any emergency procedures except to fly the airplane. In a later interview, the pilot stated that he may have accidentally turned on the starter switches, which would have turned off the generators and accounted for the loss of electrical power.

A mechanic was dispatched to help defuel the airplane about 30 minutes after the accident. He reported that fuel was leaking from the right wing so he disconnected the battery. He opened an access panel but was unable to mechanically turn off the fuel selector valve (FSV). He reconnected the battery and went into the cockpit. He saw that the landing gear handle was in the down position, and the flap handle was in the full up position. The battery switch was in the OFF position with the battery gang bar down, which turned off the battery, generator 1, and

generator 2. After lifting up the gang bar and turning on the battery switch, he saw nothing on the cockpit displays but heard the airplane power up. He located the FSV, turned it off, and confirmed with a firefighter that the solenoid in the wing audibly closed. The mechanic turned the electrical power off and disconnected the battery. The fuel leak from the right engine filter bowl stopped.

It took the mechanic about 30 minutes to gather the equipment needed to defuel the airplane, and he decided to start with the right side by connecting to the engine supply line. He reconnected the battery and entered the cockpit to turn on the electrical power. With power on, the cockpit displays illuminated, and he heard the landing gear try to operate to the down position. After another mechanic pulled the circuit breaker for the avionics, he defueled the airplane.

During recovery, the airplane was lifted off the ground, and the landing gear were successfully extended to the down and locked position.

Pilot Information

Certificate:	Commercial; Private	Age:	68, Male
Airplane Rating(s):	Multi-engine Land; Single-engine Land	Seat Occupied:	Left
Other Aircraft Rating(s):	None	Restraint Used:	4-point
Instrument Rating(s):	Airplane	Second Pilot Present:	No
Instructor Rating(s):	None	Toxicology Performed:	No
Medical Certification:	Class 2 With Waivers/Limitations	Last FAA Medical Exam:	03/06/2014
Occupational Pilot:	No	Last Flight Review or Equivalent:	07/31/2013
Flight Time:	5230 hours (Total, all aircraft), 330 hours (Total, this make and model), 5050 hours (Pilot In Command, all aircraft), 25 hours (Last 90 days, all aircraft), 8 hours (Last 30 days, all aircraft), 2 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Manufacturer:	RAYTHEON AIRCRAFT COMPANY	Registration:	N505SP
Model/Series:	B200 UNDESIGNAT	Aircraft Category:	Airplane
Year of Manufacture:	1996	Amateur Built:	No
Airworthiness Certificate:	Normal	Serial Number:	BB-1538
Landing Gear Type:	Retractable - Tricycle	Seats:	9
Date/Type of Last Inspection:	12/16/2014, Continuous Airworthiness	Certified Max Gross Wt.:	12500 lbs
Time Since Last Inspection:		Engines:	2 Turbo Prop
Airframe Total Time:	3962.4 Hours at time of accident	Engine Manufacturer:	Pratt & Whitney
ELT:	C126 installed, not activated	Engine Model/Series:	PT6A-52
Registered Owner:	N505SP LLC	Rated Power:	850 hp
Operator:	On file	Operating Certificate(s) Held:	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual Conditions	Condition of Light:	Day
Observation Facility, Elevation:	KCRQ, 328 ft msl	Observation Time:	2253 UTC
Distance from Accident Site:	0 Nautical Miles	Direction from Accident Site:	332°
Lowest Cloud Condition:	Few / 1900 ft agl	Temperature/Dew Point:	18° C / 11° C
Lowest Ceiling:		Visibility	10 Miles
Wind Speed/Gusts, Direction:	9 knots, 250°	Visibility (RVR):	
Altimeter Setting:	30 inches Hg	Visibility (RVV):	
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	PALM SPRINGS, CA (PSP)	Type of Flight Plan Filed:	IFR
Destination:	Carlsbad, CA (CRQ)	Type of Clearance:	IFR
Departure Time:		Type of Airspace:	

Airport Information

Airport:	MC CLELLAN-PALOMAR (CRQ)	Runway Surface Type:	Asphalt
Airport Elevation:	330 ft	Runway Surface Condition:	Dry
Runway Used:	24	IFR Approach:	None
Runway Length/Width:	4897 ft / 150 ft	VFR Approach/Landing:	Traffic Pattern

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:	33.126944, -117.278333 (est)

Additional Information

The pilot checklist emergency procedures for a dual generator failure identifies the first step to reset the generators, then on.

If the generators do not reset, the checklist identifies for landing, to extend the landing gear manually.

Administrative Information

Investigator In Charge (IIC):	Patrick H Jones	Adopted Date:	11/28/2017
Additional Participating Persons:	Greg Nolting; Federal Aviation Administration; San Diego, CA		
Publish Date:	11/28/2017		
Note:	The NTSB did not travel to the scene of this accident.		
Investigation Docket:	http://dms.nts.gov/pubdms/search/dockList.cfm?mKey=91214		

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