



# National Transportation Safety Board Aviation Accident Final Report

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<b>Location:</b>	St. Louis, MO	<b>Accident Number:</b>	CEN10LA076
<b>Date &amp; Time:</b>	12/10/2009, 1856 CST	<b>Registration:</b>	N411BL
<b>Aircraft:</b>	BEECH 200	<b>Aircraft Damage:</b>	Substantial
<b>Defining Event:</b>	Landing gear not configured	<b>Injuries:</b>	7 None
<b>Flight Conducted Under:</b>	Part 135: Air Taxi & Commuter - Non-scheduled		

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## Analysis

The pilot reported that the landing gear failed to extend prior to landing. His attempts to manually extend the landing gear in accordance with the manual extension procedure from the airplane flight manual were not successful. He subsequently executed an emergency gear-up landing. A postaccident inspection revealed that the emergency gear engagement handle was not in the engaged position. When the handle was engaged, subsequent movement of the extension lever manually lowered the landing gear. Further examination revealed that the landing gear motor circuit breaker was open (popped). The landing gear motor and circuit breaker were located under the cabin floor aft of the forward wing spar. When the circuit breaker was reset and electrical power applied to the airplane, the landing gear was successfully extended using the normal procedure.

## Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The pilot's failure to properly follow the manual landing gear extension procedure, resulting in a gear-up landing.

## Findings

### Aircraft

Gear extension and retract sys - Incorrect use/operation (Cause)

### Personnel issues

Use of equip/system - Pilot (Cause)

Use of checklist - Pilot

## Factual Information

On December 10, 2009, at 1856 central standard time, a Beech model 200 airplane, N411BL, piloted by an airline transport pilot, was substantially damaged during an emergency gear-up landing on runway 24 (7,602 feet by 150 feet, concrete) at Lambert-St. Louis International Airport (STL), St. Louis, Missouri. The pilot reported that the landing gear failed to extend properly on initial approach. His subsequent attempts to lower the landing gear with the manual extension procedure were unsuccessful. The flight was being conducted under 14 Code of Federal Regulations Part 135 on an instrument flight rules flight plan. Night visual meteorological conditions prevailed. The pilot and 6 passengers on-board were not injured. The flight departed Charles B. Wheeler Downtown Airport (MKC), Kansas City, Missouri. The intended destination was STL.

The pilot stated that he attempted to lower the landing gear on final approach about six miles from the runway. He reported that when he selected gear down nothing happened. He attempted to cycle the landing gear a few times with no effect. The pilot subsequently executed a missed approach in order to troubleshoot the problem. His efforts to lower the landing gear normally were not successful. The pilot stated: "I then followed the check list for gear malfunction and manual gear extension. I pulled the gear circuit breaker, pulled the lever out, rotated it 90 degrees clock wise to engage the system and started pumping. I felt no pressure as I was pumping; I pumped about 40 or 50 times." During several low approaches, air traffic controllers confirmed that the landing gear was not extended. The pilot then set-up up for and executed a gear up emergency landing. The pilot and passengers exited through the main cabin door.

A post accident inspection revealed that the landing lever was in the down position, the extension lever was unstowed, and the emergency engagement handle was in the down position (not engaged). Movement of the extension lever at that time did not produce any corresponding movement of the landing gear torque shafts. The engagement handle was subsequently pulled up and rotated to lock it in the engaged position. At that time, movement of the extension lever produced corresponding movement in the torque shafts. In that configuration, with the airplane supported on jacks, manual extension of the landing gear was successful.

Further examination revealed that the landing gear motor circuit breaker was open (popped). The circuit breaker was located adjacent to the motor under the cabin floor panel, aft of the forward wing spar. The circuit breaker was reset and electrical power was applied to the airplane. The landing gear was operated using both the normal and manual systems with no anomalies observed.

The airplane flight manual provided a procedure for manual extension of the landing gear. The procedure noted: Establish 130 knots airspeed, pull (open) the landing gear relay circuit breaker on the pilot's sub-panel, place the landing gear handle in the down position, lift and turn the emergency engagement handle to engage the system, and pump the extension lever until all three green gear down instrument panel lights are illuminated.

Maintenance records indicated that the most recent continuous airworthiness phase inspection was completed on August 25, 2009. At the time of the accident, the airframe total time was approximately 9,648 hours, with 9,670 total cycles.

## History of Flight

Approach-IFR final approach	Sys/Comp malf/fail (non-power)
Landing	Landing gear not configured (Defining event)
Landing-flare/touchdown	Off-field or emergency landing Abnormal runway contact

## Pilot Information

Certificate:	Airline Transport	Age:	40, Male
Airplane Rating(s):	Multi-engine Land; Single-engine Land	Seat Occupied:	Left
Other Aircraft Rating(s):	None	Restraint Used:	Seatbelt, Shoulder harness
Instrument Rating(s):	Airplane	Second Pilot Present:	No
Instructor Rating(s):	Airplane Multi-engine; Airplane Single-engine	Toxicology Performed:	No
Medical Certification:	Class 1 With Waivers/Limitations	Last FAA Medical Exam:	09/29/2009
Occupational Pilot:	Yes	Last Flight Review or Equivalent:	08/20/2009
Flight Time:	8000 hours (Total, all aircraft), 500 hours (Total, this make and model), 7900 hours (Pilot In Command, all aircraft), 72 hours (Last 90 days, all aircraft), 20 hours (Last 30 days, all aircraft)		

## Aircraft and Owner/Operator Information

Aircraft Make:	BEECH	Registration:	N411BL
Model/Series:	200	Aircraft Category:	Airplane
Year of Manufacture:		Amateur Built:	No
Airworthiness Certificate:	Normal	Serial Number:	BB-448
Landing Gear Type:	Retractable - Tricycle	Seats:	11
Date/Type of Last Inspection:	08/25/2009, Continuous Airworthiness	Certified Max Gross Wt.:	12500 lbs
Time Since Last Inspection:	81 Hours	Engines:	2 Turbo Prop
Airframe Total Time:	9648 Hours at time of accident	Engine Manufacturer:	P&W CANADA
ELT:	Installed, not activated	Engine Model/Series:	PT6A-60A
Registered Owner:	BUTLER AVIATION INC	Rated Power:	1050 hp
Operator:	BUTLER AVIATION INC	Operating Certificate(s) Held:	On-demand Air Taxi (135)

## Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual Conditions	Condition of Light:	Night
Observation Facility, Elevation:	STL, 618 ft msl	Distance from Accident Site:	1 Nautical Miles
Observation Time:	1851 CST	Direction from Accident Site:	180°
Lowest Cloud Condition:	Clear	Visibility	10 Miles
Lowest Ceiling:	None	Visibility (RVR):	
Wind Speed/Gusts:	8 knots /	Turbulence Type Forecast/Actual:	/
Wind Direction:	210°	Turbulence Severity Forecast/Actual:	/
Altimeter Setting:	30.24 inches Hg	Temperature/Dew Point:	-4° C / -15° C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Kansas City, MO (MKC)	Type of Flight Plan Filed:	IFR
Destination:	St. Louis, MO (STL)	Type of Clearance:	IFR
Departure Time:	CST	Type of Airspace:	

## Airport Information

Airport:	Lambert-St Louis International (STL)	Runway Surface Type:	Concrete
Airport Elevation:	618 ft	Runway Surface Condition:	Dry
Runway Used:	24	IFR Approach:	None
Runway Length/Width:	7602 ft / 150 ft	VFR Approach/Landing:	Straight-in

## Wreckage and Impact Information

Crew Injuries:	1 None	Aircraft Damage:	Substantial
Passenger Injuries:	6 None	Aircraft Fire:	None
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	7 None	Latitude, Longitude:	38.748611, -90.370000 (est)

## Administrative Information

Investigator In Charge (IIC):	Timothy Sorensen	Report Date:	05/28/2010
Additional Participating Persons:	Raymond Callahan; FAA-St Louis FSDO; St Ann, MO		
Publish Date:	07/13/2010		
Investigation Docket:	<a href="http://dms.nts.gov/pubdms/search/dockList.cfm?mKey=75173">http://dms.nts.gov/pubdms/search/dockList.cfm?mKey=75173</a>		

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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](#).