Air Accident Investigation Department of the Bahamas

Aviation Short Investigation Final Report

Wheels up landing involving

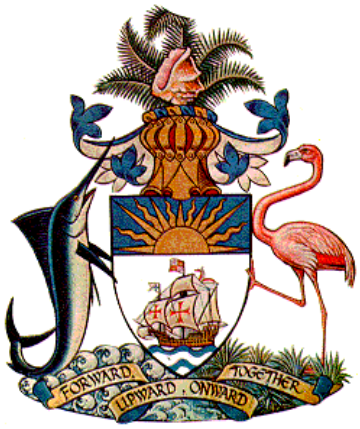
BE-1900, N376SA

Deadman's Cay, Long Island, Bahamas, on November 30th 2016

AAID Aviation Occurrence Investigation

I16-000010

Final – 5 May 2017



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Wheels up landing involving BE1900, N376SA

What Happened?

On September 30, 2016 the Air Accident Investigation Department of the Bahamas (AAID) received notification that a Beechcraft B1900C aircraft, operated by Southern Air Charter Company Limited, a Bahamas Air Operator Certificate holder was involved in an occurrence at Deadman's Cay Airport, Long Island, Bahamas while on a domestic, commercial air transport, scheduled flight.

N376SA a BE1900 aircraft with a crew of two, and nine passengers, landed on runway 09 with the gear in the retracted position. The captain reported that 10 miles from landing, when the aircraft flaps were selected to the approach position for landing, at this point he realized that the flaps were not working. He further stated that he elected to continue the approach and prepare for a no-flaps landing. The performance charts for the aircraft were consulted and preparations were made for the landing. Both pilot claimed landing gears were selected to the down and locked position and three green lights confirming gears locked was noted. However, upon touchdown, the gears retracted causing the aircraft to land on its belly. No injuries were reported to occupants of the aircraft

Investigation Findings

Aircraft N376SA, a BE1900 aircraft was piloted by airmen Mr. Quinton Pinder (PIC) and Mr. Tevin Lundy (SIC) when it landed at Deadman's Cay airport without the use of landing gears. According to the pilot and first officer, 10 miles from landing the first degree of flaps were selected at which point they became aware that the flaps were not working. As they were so close to land and did not want to fly back to Nassau with the passengers, the decision was made to continue and land using a no-flap landing procedure as outline in the Quick Reference Handbook (QRH) and performance manuals on board the aircraft. The crew reported that the gear was subsequently selected down, both pilots stated that they confirmed "three greens" and then they continued the approach for landing. They further claimed that it was only upon touch down did they realize the gears were in fact, not down and locked when they started seeing the propeller disintegrate

During the course of the investigation two (2) eyewitnesses contacted the police at the airport station in Deadman's Cay Long Island, and subsequently spoke to accident investigators from the Flight Standards Inspectorate (who was dispatched to assist in the investigation), that the aircraft approached for a landing with its gear "still up." One witness stated he called the airline agent on his mobile phone to have her contact the pilots and alert them that their gears were not extended. The call was not answered initially, subsequent calls were received too late however, as the aircraft had by then, already made contact with the runway with its gear retracted. Both witnesses, fearing retribution from the community if it is uncovered they gave a written statement, so they declined to complete a written statement, but spoke freely to both Police Inspector on the island as well as to investigators about what occurred.

Personal interview with both pilots revealed conflicting accounts of what took place on the flight deck which further corroborated the witnesses' statements that the pilots forgot to extend their landing gear. The investigation also uncovered that the Ground Proximity Warning System (GPWS) which would alert the pilots to unsafe landing situation, had been inoperative for some time.

The operator was directed to secure the Cockpit Voice Recorder (CVR) for follow up analysis. Once the recorder was received, efforts were made to review and analyze its content to determine what occurred on the flight deck during the approach and landing phase.

As a result of the investigation and its preliminary findings, the investigation department made recommendation to the Flight Standards Inspectorate (Bahamas oversight authority) as well as to the Federal Aviation Administration to conduct a re-examination of both crew as their differing versions of events, and their competency to pilot an aircraft was in question.

Additionally, as the captain also served in the capacity as an approved pilot check airman on behalf of the Flight Standards Inspectorate on this aircraft type, the investigation department

made further recommendation to the Flight Standards Inspectorate to revisit this designation in light of the occurrence and the pilot's questionable actions and responses.

The accident investigation unit has also recommended to the Flight Standards Inspectorate that they coordinate with the manufacturer, as well as the FAA to determine under what condition, if any, landing gears on this aircraft model would all retract, after confirmation of down and lock and no indication of unsafe or in transit gear, as both pilots claimed all gears were down and locked and the gear must have collapsed on landing.

Conference with the manufacturers to determine the likelihood of such an event, revealed that such an event was never reported and that "for the green lights to illuminate in the cockpit, the landing gear drag braces must travel to the over-center position to activate the gear down and lock position switches," therefore "it is practically inconceivable that the landing gears would fail in such a scenario."

Photographic documentation of the runway after the gear up landing have revealed no signature marks of any tire trail or gouges in the runway as would be normal during a gear collapse and the aircraft gears coming in contact with the runway at such high speeds. The absence of these key signature markings, further strengthens the investigation team's belief that the crew forgot to extend the landing gear and with the GPWS unserviceable, there were no aural warning to alert them to the unsafe conditions.

Crew Experience

Pilot

The captain was a 37 year old male and had been issued a United States Airline Transport Pilot License, with airplane multi-engine land privileges, number 2736540 by the Federal Aviation Administration, effective 7 November, 2013. He also held ratings on the BE1900 aircraft. He also held a private pilot license with airplane single engine land privileges. Additionally, he held a medical first class certificate issued on September 2016. The captain's latest recurrent training event occurred satisfactorily on August 17, 2016 at the Flight Safety International training center in LaGuardia, New York, USA.

First Officer

The first officer was a 26 year old male and had been issued a United States Airline Transport Pilot License, with airplane multi-engine land, commercial privileges, number 3441292 by the Federal Aviation Administration effective July 15, 2016. He also held ratings on the BE1900 aircraft with SIC required. In addition, he held a medical first class certificate issued in December, 2015. The first officer's latest recurrent training event occurred satisfactorily on July 15, 2016 at the Flight Safety International training center in LaGuardia, New York, USA.

The Aircraft

N376SA was manufactured by Beech in 1987, with serial number UB72. It was a fixed-wing, multi-engine aircraft with valid certificate of airworthiness, with standard classification issued on May 31, 2013. It was registered to Southern Air Charter Co. Ltd at 3115 Kyle Ave STE B1, Springdale, Maryland, USA, 20774-2567.

The aircraft had installed two PT6A SER engines manufactured by Pratt & Whitney. Up to September 30 the day of the accident, the aircraft had accumulated total block time of 18,899.6 hours, time in service of 18,756.0 hours and total engine cycles of 2908 hours on the left engine and 946 hours on the right engine.

Weather

The occurrence occurred during the day when the weather at the time was reported as Visual Meteorological Conditions (VMC) and was not a factor in the occurrence.

Findings

These findings should not be read as apportioning blame or liability to any particular organization or individual.

- The flight crew failed to extend the landing gear as required prior to a landing.
- The GPWS warning system was unserviceable
- The flaps were inoperative
- Unknown distractions existed during the approach and landing that may have contributed to distract the pilot resulting in the aircraft landing with the landing gear in the retracted position.
- Both pilots gave differing and varying accounts of what occurred, and what actions they took on the flight deck prior to the gear up landing.
- Analysis of the CVR uncovered a possible intentional complete dump of the information contained on the CVR equipment.

Safety Action

Whether or not the AAID identifies safety issues in the course of an investigation, relevant organizations may proactively initiate safety action in order to reduce their safety risk. The AAID has been advised of the following proactive safety action in response to this occurrence.

In response to the recommendation to have both crew reexamined, the Authority did confirm that both crew men were in fact re-examined for their fitness to hold their pilots license.

Additionally, the Authority in response to recommendation issued, did confirm to the investigation department that the Check Airman Authorization of the captain was in fact revoked effective 2 December, 2016.

Aircraft Operator

In light of the accident the operator did confirm that they removed both pilots from active line duty pending a re-examination by the Authority.

Safety Message

In the flying environment, interruptions and distractions can be subtle and brief and can interrupt the normal flow in the cockpit resulting in a preoccupation and distraction with one task to the detriment of another task.

The investigation found that it was likely that pilots have a general awareness of the inherent risks associated with distractions in the flying environment. Like all humans, however, pilots are susceptible to becoming preoccupied and distracted with one task to the detriment of another task, interruptions/ distractions may be subtle or brief where even a minor equipment malfunction can turn a routine flight into a challenging event.

The primary effects of interruptions/distractions is to break the flow pattern of ongoing cockpit activities such as normal checklists and problem-solving activities.

The Accident Investigation Department advises all operators to ensure pilots during training and on active line flying are advised of the pitfalls and dangers distractions can present and to emphasize the need to always follow the checklist in its entirety.

About the AAID

The Air Accident Investigation Department (AAID) is the independent accident investigation department under the Bahamas Ministry of Transport & Aviation (MOTA) charged with the responsibility of investigating all aviation accidents and serious incidents in the Bahamas.

The AAID's function is to promote and improve safety and public confidence in the aviation industry through excellence in:

- Independent investigation of aviation accidents and other safety occurrences
- Safety data recording, analysis and research
- Fostering safety awareness, knowledge and action.

The AAID does not investigate for the purpose of apportioning blame or to provide a means for determining liability. At the same time, an investigation report must include factual material of sufficient weight to support the analysis and findings. At all times the AAID endeavors to balance the use of material that could imply adverse comment with the need to properly explain what happened, and why, in a fair and unbiased manner.

The AAID performs its functions in accordance with the provisions of the Bahamas Civil Aviation Act 2016, Civil Aviation (Investigations of Air Accidents and Incidents) Regulations 2017, Bahamas Civil Aviation (Safety) Regulations (BASR) 2015, Schedules 1 and 19, International Civil Aviation Organization (ICAO) Annex 13 and, where applicable, relevant international agreements.

The Air Accident Investigation Department is mandated by the Ministry of Transportation & Aviation to investigate air transportation accidents and incidents, determine probable causes of accidents and incidents, issue safety recommendations, study transportation safety issues and evaluate the safety effectiveness of agencies and stakeholders involved in air transportation. The object of a safety investigation is to identify and reduce safety-related risk. AAID investigations determine and communicate the safety factors related to the transport safety matter being investigated.

The AAID makes public its findings and recommendations through accident reports, safety studies, special investigation reports, safety recommendations and safety alerts. When the AAID issues a safety recommendation, the person, organization or agency is required to provide a written response without delay. The response shall indicate whether the person, organization or agency accepts the recommendation, any reasons for not accepting part or all of the recommendation(s), and details of any proposed safety action(s) resulting from the recommendation(s) issued.

About this report

Decisions regarding whether to conduct an investigation, and the scope of an investigation, are based on many factors, including the level of safety benefit likely to be obtained from an investigation. For this occurrence, a limited-scope, fact-gathering investigation was conducted in order to produce a short summary report, and allow for greater industry awareness of potential safety issues and possible safety actions.