

Investigation Report

DX001-0/02
April 2003

Identification

Type of Occurrence: Accident
Date: 28. Mai 2002
Location: Jordsands Flak (Denmark)
Aircraft: Aircraft
Manufacturer / Model: Cessna / A185E Skywagon
Injuries to Persons: Pilot slightly injured, two passengers fatally injured
Damage: Aircraft substantially damaged
Other Damage: None
Source of Information: Investigation by BFU

Factual Information

History of the flight

It was intended to perform a VFR flight from Wyk on Föhr to Jordsands Flak, about four kilometres northeast of List in Danish sea territory and in the surroundings of List on Sylt. It was planned to land on water in Jordsands Flak. Takeoff of the amphibian in Wyk on Föhr at 08:45 hrs¹ including the flight through the control zone of Westerland and the subsequent landing approach to land on water in Jordsands Flak was without any problems. According to the testimonies, the approach of the airplane to land on water was completely normal. A spluttering or failure of the engine was not detected. During the landing approach the aircraft flew very slowly, in a wide bend and at a low altitude, before turning over the water at 09:15 hrs

after touching down with the landing gear extended from the floats. By means of these floats the aircraft, lying on its back, could be held on the surface of the water (depth in this place approx. 18 m) until its salvage. The pilot, who was slightly injured, managed to hold on to the floats until saved by divers and taken to hospital. In the case of the two passengers (an elderly couple), only their bodies could be recovered.

Personal Information

The pilot-in-command was holder of a Professional Pilot's Licence, first issued by the authority of the Land Northrhine-Westfalia on 09.12.1983. According to Attachment A, this Professional Pilot's Licence Class 2 was valid until 30.08.2002, issued for the type rating "single engine piston airplane (land and sea) up to 2000 kg maximum weight". The pilot was required to use a correction and spare spectacles on board. At the time of the accident, his total flight experience was approx. 7500 hrs, approx. 18 hrs on the accident type. He had performed about 34 landings on water at the accident with the amphibian.

Aircraft Information

The airplane "Cessna A 185E" was a parasol monoplane with struts in all-metal construction transformed into an amphibian with floats and a retractable landing gear at the nose and in the middle of the floats. In accordance with the flight manual, a maximum of four passengers could be transported on this airplane.

¹ Unless otherwise specified, all times are indicated in UTC

Serial number: 18502030
 Year of construction: 1971
 Max. takeoff weight: 1481 kg

08:54 hrs when leaving the control zone. No particular occurrence were reported during this time.

Communications between Sylt Tower and the pilot of the airplane were handed over to the BFU as a transcript.

At the time of the accident the aircraft had an authorization to fly in the category "Normal Standard Passagere", issued by the Swedish Aircraft Registration Authority.

The owner and operator of the aircraft was the pilot who had bought it in Sweden three months before the accident.

Flight recorders

Radio recordings of the flight of the "Deutsche Flugsicherung" (DFS) or the Danish ATC were not available.

Meteorological Information

According to the testimonies, at the time when the accident occurred, the air was still and the sea smooth at the site of the accident.

In accordance with the information of the Tower of the aerodrome Westerland-Sylt the following weather conditions were prevailing at the time of the accident:

Light conditions: day light
 Wind: 80 °/ 04 knots
 Visibility on the ground: More than 10 km
 Clouds: broken
 Ceiling: 2600 ft
 Temperature: 16 °C
 QNH: 1009 hPa
 Weather: Visual meteorological conditions

Wreckage and impact information

The site of impact of the amphibian is located in Danish sea territory (Jordsands Flak) at 055° 2,5' N and 008° 29,5' E, approx. four kilometres northeast of List on Sylt.

The heavily damaged amphibian was salvaged by a buoy-laying vessel and taken to the harbour of Hörnum. Here, lying on its back, it was deposited at the quay-side and lashed.

The amphibian showed dents on the lower engine cowling, on the right wing leading edge over a length of 2 to 3 m as well as a completely broken windshield and beginning of corrosion on unprotected parts in the engine compartment and in the avionics.

The controls of the aircraft were tested for operation. No technical defects could be established. The wheels of the landing gear were extended and locked. The respective position of the landing gear wheels could be seen by means of mechanical, clearly visible indications on the two floats. The landing gear lever was in the position "down".

Aids to Navigation

An evaluation of the GPS instrument was no longer possible as the result of short circuits and corrosion inside the instrument due to the exposure to sea water.

Communications

At 08:47hrs the pilot contacted the aerodrome control of Westerland-Sylt and finished his radio contact at

Since a further technical examination of the landing gear and the rudder control was not possible at the harbour quayside (the aircraft was still lying on its back), the wings were removed for transporting the aircraft to the airport Westerland-Sylt; the aircraft parts were taken to a maintenance station at the airport. During the subsequent functions test of the landing gear, no technical defects could be found. Extending and retracting the landing gear as well as locking it in the end positions was perfect and so was the landing gear transition and locking indication. Also the aural warning, which was additionally installed in the aircraft and, depending on the engine power, is always heard in the case of falling below a certain value, irrespective of the landing gear position, did not show any findings.

This aural warning can be switched off any time if it is sounding.

The rudder control mechanics also functioned perfectly.

Medical and pathological information

According to the pathological examination of the passengers (a married couple) at the Institute for Forensic Medicine (Institut für Rechtsmedizin) in the university hospital of Kiel, the couple died by drowning.

The pilot was taken to hospital with facial injuries and hypothermia.

Survival aspects

It was not possible for the elderly couple to survive the accident.

While the body of one of the passengers had to be recovered from the aircraft cabin, the body of the other passengers was recovered drifting between the floats.

Additional information

The investigation was transferred to the German BFU, instead of to the Danish Air Accident Investigation Bureau.

In accordance with NfL I –209/01 dated 20.06.2001, the drawing up/filing of a flight plan was not required.

Among others, the pilot gave the following information about the accident:

- the return flight from Wyk on Föhr to Jordsands Flak was a so-called flight at cost price
- information concerning the pilot himself (Flight experience)

According to the testimony, a leaflet of the air carrier, the owner was the pilot, was found among the documents of the accident couple. Among others, under the heading "Großer Nationalparkflug", this leaflet offered a 45-minute flight across the North Frisian mud flats (nordfriesisches Wattenmeer), islands and the holms at a price of 98 Euros and contained the information "New in the programme: Flying by Amphibian". The couple is said to have booked the flight at 98 Euros per persons with the pilot.

Analysis

According to the findings at the site of the accident, the landing gear of the amphibian was fully extended and locked when alighting on the water in Jordsands Flak (Denmark). Consequently, the nose-over around the lateral axis of the airplane, caused by the increased glide resistance, could, also in the case of a smooth sea, not be avoided when the aircraft touched down on the water.

Since a witness reported that a short time before the accident east of Morsum, which is situated on the southern tip of Sylt, he saw an aircraft passing with the wheels under the floats protruding, it can most probably be assumed that after takeoff in Wyk on Föhr the landing gear had not been retracted as required in the flight manual.

It is strange that during the approach to land on water until touchdown on the water the landing gear of the aircraft was still extended and locked although at this time the visual yellow gear indication (Landing gear extended and locked) was displayed and the aural landing gear alarm given, at the latest when the gas lever was set to idle. Since the aural warning was always given when the gas lever was set to idle, it's possible that the pilots feel it disturbing and switch it off.

Moreover, until touching down on the water, the landing lever should have been in Down Position.

To what extent the very low number of flight hours the pilot performed on the aircraft type (amphibian) affected the accident, is hard to say.

Since, with the publication of the AIR Navigation Act (Luftverkehrsgesetz-LuftVG), § 20, on 27.03.1999, the term "flight at cost price" was deleted and replaced by then term "non-commercial transportation", it cannot be said if this flight was performed for non-commercial or commercial transportation" of passengers. Basically, according to the insurance terms and conditions, four criteria must be complied with for the commercial transportation of persons:

1. Legal independence
2. Permanent activity
3. Remuneration
4. Intention to make profit

A non-commercial transportation of persons would not have been subject to authorization in this case since the aircraft had only been certificated for a maximum of four passengers.

Conclusions

The accident can be attributed to the fact that the landing gear of the amphibian had not been retracted for the intended landing water.

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