aibn Accident Investigation Board Norway

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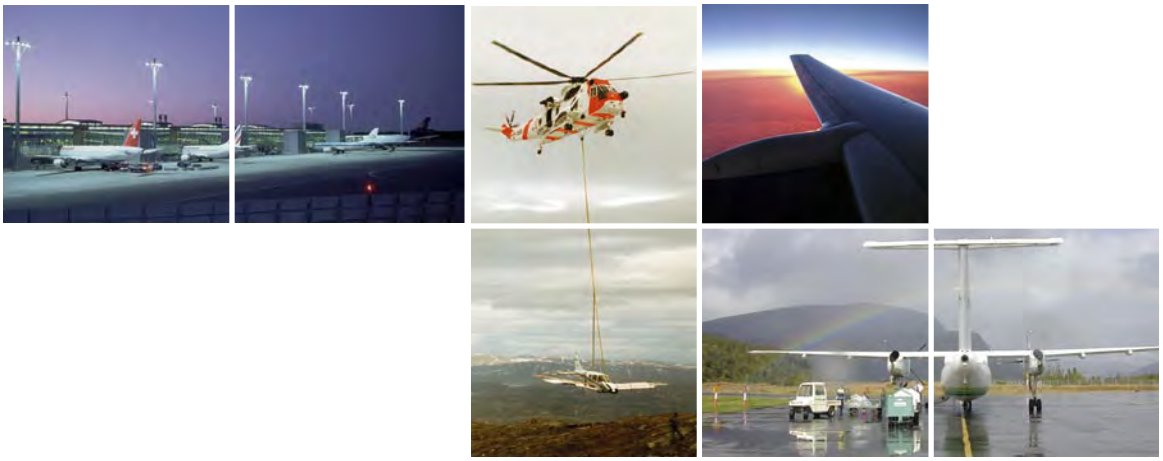

REPORT ON ACCIDENT SVOLVÆR AIRPORT HELLE, NORWAY (ENSH) 6. JULY 2007 INVOLVING PIPER PA-28-181 ARCHER III, D-EZEB

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This report has been translated into English and published by the AIBN to facilitate access by international readers.
As accurate as the translation might be, the original Norwegian text takes precedence as the report of reference.

The Accident Investigation Board has compiled this report for the sole purpose of improving flight safety. The object of any investigation is to identify faults or discrepancies which may endanger flight safety, whether or not these are causal factors in the accident, and to make safety recommendations. It is not the Board's task to apportion blame or liability. Use of this report for any other purpose than for flight safety should be avoided.

Photos: AIBN and Trond Isaksen/OSL

REPORT

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The scope of this investigation is limited. For this reason AIBN has chosen to use a simplified report format. The report format in accordance with guidelines supplied in ICAO annex 13 is only used when the scope of the investigation requires this.

All times given in this report are local time (UTC + 2 hours) unless otherwise stated.

Aircraft:	
- Type and registration:	Piper PA-28-181 Archer III, D-EZEB
- Year of manufacture:	1995
- Engine:	Lycoming O-360-A4M
Date and time:	Friday 6. July 2007 at 1246
Accident site:	Svolvær Airport Helle (ENSH), 68º14'20'' N, 014º39'58''E
ATS airspace:	Norway FIR, Bodø AOR, Helle TIZ, class G (not controlled)
Incident type:	Aviation accident, runway end excursion
Type of flight:	Private
Weather conditions:	Wind: 120º 7 kt. Visibility: more than 10 km. No cloud cover, temperature: 25 ºC, atmospheric pressure: 1010 hPa
Light conditions:	Daylight
Flying conditions:	VMC
Flight plan:	None
Number on board:	Commander + 1 passenger
Personal injuries:	1 seriously injured, 1 lightly injured
Aircraft damage:	Extensive. Undercarriage, fire bulkhead, engine, engine block and propeller destroyed. Belly, front edge of wing and fuselage/tail transition damaged.
Other damage:	1 approach light
Commander:	
- Gender and age:	Male, (German) 61 years of age
- Certificate:	PPL (A), SEP
- Flying experience:	900 hours in total, whereof 400 hours on the aircraft type, 10 hours last 90 days, 7 hours last day
Information sources:	"NF 2007 Reporting of accidents and incidents in civilian aviation" from Commander, passenger and Avinor, and AIBN's own investigations.

FACTUAL INFORMATION

D-EZEB was operated by Westflug Aachen in Germany. The company operates a flight school and aircraft rental. The Commander and a passenger used D-EZEB for a trip to northern Norway. Two days prior to the accident they landed at Leknes Airport (ENLK). The next flight took place on the day of the accident and was from Leknes to Svolvær Airport Helle. They were flying together with another German light aircraft (PA-28-181 Archer II, D-ENHK).

On recordings from Helle AFIS on the day of the accident it is apparent that D-EZEB reported that they were on the left downwind and subsequently left base to runway 19 Helle. The AFIS officer informed that the wind was 120º, 5 kt and “Runway free”.

The runway at Helle has a physical length of 857 metres and a landing distance available (LDA 19) of 767 metres.

The approach took place against the sun glare. The AFIS officer and ground services personnel observed that D-EZEB came in high on the final for runway 19 and that several corrections were made in an attempt to become established on the lengthened centre line.

The Commander has explained that he was too high at the end of the approach, but he was still of the opinion that the runway would be long enough. He recalls that they landed on the middle of the runway. The AFIS officer noted that the aircraft landed left of the centre line and that approximately 200 metres remained of the runway. The tower's location in the southern part of the airport area entailed that the AFIS officer had an advantageous position with respect to determining the touchdown position of D-EZEB.

A witness that was close to the airport photographed D-EZEB just before landing. A “reconstruction” from the photographer’s position shows that the aircraft passed at a height of 15 to 20 metres (45 to 60 feet) above the runway and was approx. 100 metres past the threshold. It further transpires that the aircraft had been outside of the runway edge lights on the west side of the runway.

The Commander of D-EZEB did not succeed in stopping the aircraft, and the AFIS officer estimated that the aircraft departed the end of the runway at a speed in the range of 70 km/h. At the extension of the runway there was a slope, and on its way down the slope the aircraft broke an approach light before coming to a abrupt halt against a large rock (see figures 1 and 3). There was no fire.

The AFIS officer sounded the crash alarm before the aircraft departed the runway. From the recording it is apparent that a fire engine and inspection vehicle scrambled and that notification in accordance with the notification plan was immediately initiated. This also entailed notifying the emergency medical services. The two on board climbed out and the aircraft was covered in foam.

As no ambulance appeared as expected, the emergency medical services were notified repeatedly. A Sea King rescue helicopter was in the vicinity on a different assignment. Pending the arrival of the ambulance, the helicopter was redirected to pick up the Commander who was seriously injured. The Sea King helicopter carrying a doctor arrived at Helle 29 minutes after the accident took place. 40 minutes after the accident, the ambulance arrived to carry the passenger to medical observation in Svolvær. The recording shows that the AFIS officer expressed that the outcome would have been

catastrophic if the accident had resulted in more serious injuries. AIBN has been informed that the delay was due to the two available ambulances being on other assignments.

Figure 1: The wreck's position in relation to the runway and the terrain at the end of the runway at the time. (Photograph: Avinor)

The AIBN contacted the AFIS officer at Leknes and was informed that the Commander requested weather information for Helle before departure. The Commander did not request further airport information for the flight to Helle.

The Commander and the aircraft normally operated out of the Merzbrück airport in Aachen in Germany (EDKA). Merzbrück has a paved runway only 520 metres in length. The Commander thus had experience from short runway operations.

Based on the Aircraft Flight Manual, the AIBN has calculated the landing distance requirement. The following figures form the basis of the calculation: temperature: 25 ºC, airport height above sea level: 27 ft, aircraft landing weight: 980 kg (2 160 lbs), headwind component: 2 kt, flaps 40º. Providing the aircraft was landed fully stalled with power off and maximum braking applied, the landing ground roll requirement is as illustrated in figure 2.

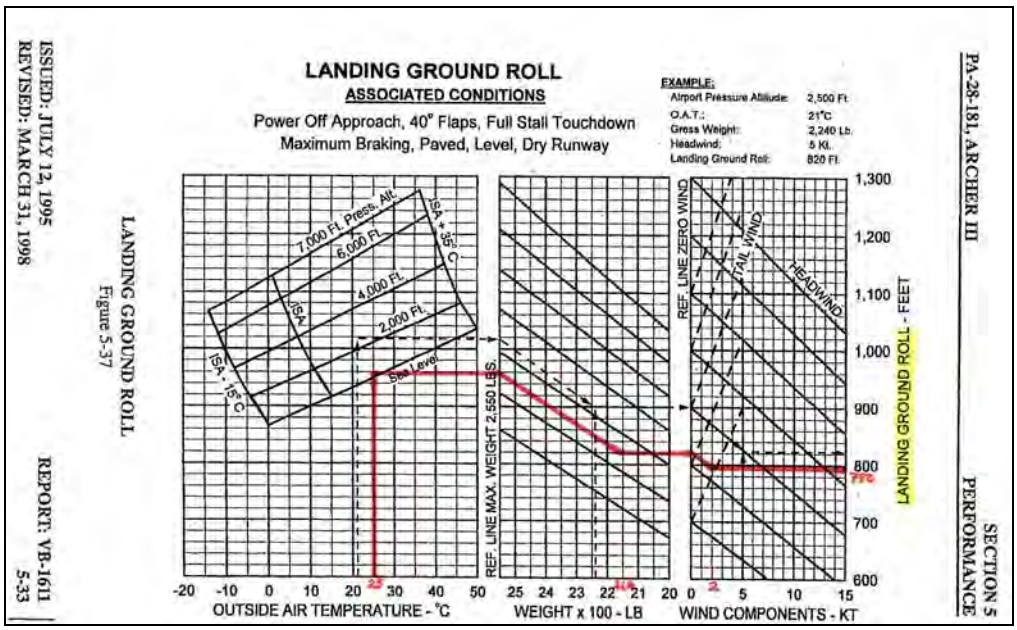

Figure 2: Shows that approx. 790 ft (240 metres) landing ground roll is required. (The corresponding figure when passing 50 ft above the threshold is approx. 390 metres)

Runway 19 at Helle has no electronic approach aids. The airport has PLASI (visual approach slope indicator) with an angle of 4.5º.

None of the two on board have indicated that there were any technical defects with the aircraft in connection with the landing. Tire marks from the touchdown of D-EZEB were not possible to verify due to numerous other marks from landings on runway 01 in the area in question.

The AIBN did not turn out for this accident, but was in immediate telephone contact with the airport manager and AFIS officer in order to obtain the relevant information. Written reports from the airport and passenger were received shortly following the accident. The AIBN chose to await the Commander's health condition and written report before deciding whether to interview him or not. However, the local police authorities fined the Commander and confiscated his pilot's license while he was hospitalized. The Commander accepted the fine on the spot. He later hired a Norwegian attorney to assist him.

When the report from the Commander was not forthcoming, the AIBN contacted him and received a report on the accident somewhat later. However, the report form was sparingly completed and did not provide any details with regard to contributory factors as to why the accident occurred. Following a request by the AIBN, the Commander later submitted a very short and still inadequate description of the course of events. Information on possible contributory factors has thus not been available for the investigation.

The AIBN ordinarily experiences that parties are very cooperative in explaining the course of events and providing information in order to determine possible causes.

New requirements in "Forskrift om utforming av store flyplasser" [Regulations concerning the design of large airports] (BSL E 3-2) concerning the scope of the safety area are currently being implemented. At Svolvær airport Helle the work was completed and announced in AIP Norway on 20. November 2008. D-EZEB came to a halt 60 metres beyond the threshold. The southern safety

area has been lengthened so that it currently is a paved area that stretches 185 metres beyond the threshold.

Figure 3: D-EZEB covered with foam, the site of the accident, broken approach light and uneven ground at the extension of the runway. (Photograph: Avinor)

COMMENTS FROM THE ACCIDENT BOARD

The weather conditions at Helle on the day in question were good, with moderate wind, mainly at an angle from the left side of the aircraft. The temperature at the airport was 25 ºC, and the sun heated the black asphalt. Particularly in the case of low wing aircraft, this causes the aircraft to float in over the runway due to thermal flow, in addition to ground effect.

Witnesses have explained that the aircraft approached higher than normal, oscillated several times across the centre line and that touchdown was far along the runway. The Commander has explained that the aircraft came in high and that he landed halfway down the runway. The AIBN is of the opinion that the approach was not stabilized. In the case of an approach where the aircraft comes in too high and “dives” towards the runway, the airspeed will increase. Increased airspeed combined with the thermal effect from the runway and ground effect causes the aircraft to float further along the runway than usual before landing.

The aforementioned “reconstruction” verifies that the approach was significantly higher than normal.

As apparent from figure 2, the aircraft requires approx. 240 metres of runway to roll out and stop, provided the aircraft was fully stalled when landing. The AFIS officer observed that the aircraft had a relatively high speed when it left the runway. The AIBN is of the opinion that this indicates that the aircraft was landed with excess speed and/or that the Commander did not apply maximum braking.

The AIBN cannot exclude the possibility that the Commander may have been distracted by the view and thus reduced his focus on the landing. It may be the case that the Commander considered the landing to be undemanding and thus had a relaxed attitude to the landing process. This is substantiated by the fact that he continued the approach and landing despite the aircraft not being stabilized in terms of either height or direction. He may also have felt a certain pressure to land before his friends in the other German light aircraft that was right behind him.

It is the AIBN's experience that aviation accidents with foreign VFR pilots on sightseeing trips in Norway are an almost annual occurrence. The brochure "2008 VFR-guide" is available from the website of the Civil Aviation Authority Norway. The AIBN is of the opinion that the brochure contains much useful factual information and that it describes many important aspects pilots should take into consideration both during planning and carrying out VFR flying to Norwegian airports. The AIBN is of the opinion that the brochure should be made more easily available so there is a greater chance that it may be studied. A safety recommendation in connection with this is proposed.

The Commander was seriously injured and D-EZEB was significantly damaged as a result of the collision with a large rock. As a result of the safety area to the south being extended to 185 metres beyond the threshold, the AIBN is of the opinion that the risk of damage as a result of a corresponding excursion has been significantly reduced.

The AIBN agrees with the AFIS officer in that it is alarming that it took unreasonably long time before the ambulance arrived at the airport. In this case the delay was due to the fact that the emergency services had dispatched the two available ambulances to another assignment.

Based on a review of the recordings of all communications in the tower, the AIBN is of the opinion that the staff at the airport handled the accident in a professional manner.

SAFETY RECOMMENDATION

The following safety recommendation were made by the Accident Investigation Board[1]

Safety recommendation SL no. 2009/01T

It has been repeatedly aviation accidents with foreign VFR pilots due to the demanding topography, weather conditions and relatively short runways in Norway. It is desirable that these pilots has studied the latest version of the "VFR-guide". The AIBN recommends that the Civil Aviation Authority Norway considers improvement of access and knowledge to the "VFR-guide".

[1] The Norwegian Ministry of Transport and Communications ensures that safety recommendations are submitted to the aviation authority and/or other ministries concerned for evaluation and monitoring, cf. Regulation on public investigations of air traffic accidents and air traffic incidents within civil aviation, Section 17.