



Accident to the AQUILA - AT01 registered PH-DHB

on 14 July 2015

at Moutiers (Ille-et-Vilaine)

⁽¹⁾Except where otherwise indicated, times in this report are local.

Time	Around 10:45 ⁽¹⁾
Operator	Aero Club Maritime (The Netherlands)
Type of flight	Cross-country
Persons on board	Pilot and passenger
Consequences and damage	Aeroplane damaged
This is a courtesy translation by the BEA of the Final Report on the Safety Investigation published in June 2020. As accurate as the translation may be, the original text in French is the work of reference.	

Main landing gear strike with fence during take-off from a grass downsloping runway, forced landing in a field, failure of nose gear

1 - HISTORY OF THE FLIGHT

Note: the following information is principally based on statements.

As the pilot was not familiar with Moutiers private aerodrome, he decided to carry out an initial take-off from this aerodrome with just himself onboard. To determine the aeroplane's lift-off point, he asked a person to stand on the runway shoulder at 250 m from the south end of the runway⁽²⁾. The pilot took off from runway 35 and the witness specified that the aeroplane left the ground at around 225 m from the south end. Around ten minutes later, the pilot landed on runway 17 and then taxied to the south end where he turned around, lined up and applied the parking brake before carrying out the actions and checklists associated with the engine shutdown.

A few minutes later, the pilot got into the aeroplane with a passenger. He carried out the specified before take-off actions and checklists. With a view to carrying out a short take-off, he applied full thrust for around ten seconds and then released the parking brake. The aeroplane accelerated and slightly deviated to the right. After a take-off run of 300 m, the pilot observed that the indicated airspeed was close to 35 kt whereas the rotation speed is 50 kt. He considered that rejecting the take-off would not allow him to avoid the fence which was situated at around 30 m beyond the north end of the runway. He added that he pulled on the stick at the last moment. The aeroplane took off and the main landing gear came into contact with the top of the fence. The pilot kept control of the aeroplane and decided to land in a field. During the landing run, the nose gear ran into a hole and broke. The aeroplane came to a stop in the field. The persons onboard were able to evacuate uninjured and without difficulty. The leading edge of the right wing, the two blades of the propeller and the nose gear were damaged.

⁽²⁾ 400 m long x 50 m wide grass runway with a south to north downward slope of around 3%.

2 - ADDITIONAL INFORMATION

2.1 Pilot information

The pilot, holder of a PPL(A) licence since May 2002, had logged 1,320 flight hours of which 219 hours on type and 36 hours in the previous three months of which 22 hours on type.

Before the flight, the pilot thought that the speed would rapidly increase during the take-off run due to the downward slope of the runway. He also specified that he had calculated the weight and balance of the aeroplane along with the operational performance and thought that they permitted take-off.

He indicated that there had been a smell of burning when he got out of the aeroplane. He specified that he did not find where this smell was coming from but thought that it came from the brake disks under the fairing rather than from the engine. He added that perhaps the brakes had not been completely released after releasing the parking brake.

2.2 Meteorological information

The 10:30 and 11:00 reports from the Rennes-Saint Jacques aerodrome automatic weather station, situated at 23 NM west of the aerodrome, provided the following wind information:

- At 10:30: wind from 260° at 6 kt, variable between 210° and 300°.
- At 11:00: wind from 240° at 8 kt, variable between 200° and 280°.

The pilot said that the wind was calm at Moutiers.

Visibility was greater than 10 km and the sky overcast at 2,800 ft. The temperature was 21°C.

2.3 Aerodrome information

The study of 23 March 2015 concerning the creation of the aerodrome specified that obstacles abeam the thresholds of the north and south runways required a clearance margin that the pilots would have to evaluate and that consequently, this decreased the real usable length of the runway for landing and taking-off.

The grass had been cut two days before the day of the accident but had not been picked up.

2.4 Aircraft information

The aeroplane flight manual indicates that operating the aeroplane on dry grass runways increases the take-off distance valid for a paved, dry and flat runway by 25 %. For a take-off weight estimated at 733 kg by the pilot⁽³⁾ for the accident flight, the take-off run distance calculated using the flight manual data is around 330 m for a dry grass runway and the take-off distance is approximately 600 m in the conditions of the day. This calculation does not take into account the runway slope. Without a passenger, the take-off run distance, on a grass runway without taking into consideration the slope, is around 270 m, i.e. an extra distance of 45 m to that observed during the first take-off (influence of slope).

⁽³⁾The maximum take-off and landing weight of the Aquila AT01 is 750 kg.

3 - CONCLUSIONS

The conclusions are solely based on the information which came to the knowledge of the BEA during the investigation. They are not intended to apportion blame or liability.

Scenario

The pilot decided to undertake a flight departing from Moutiers private aerodrome accompanied, for the first time, by a passenger. The take-off weight was close to the aeroplane's maximum take-off weight. The pilot took off on downsloping runway 35 which had been mowed two days earlier. During the take-off run, the pilot realised that the take-off run distance had increased and that the aeroplane was sluggish. He thought that he would not be able to stop the aeroplane before the obstacles situated beyond the end of the runway and continued the take-off. After the main landing gear struck the top of the fence, the pilot landed in a field in line with the runway. The nose gear failed on running into a hole.

Contributing factors

The following factors may have contributed to the landing gear touching the fence after take-off:

- Insufficient consideration given, during flight planning, to elements which could degrade the aeroplane's take-off performance and to those limiting the available runway length for take-off (clearance margin with respect to obstacles at the end of the runway or distance from threshold before taking off due to the turnaround for example).
- The absence of references allowing the pilot to assess the distance covered and to interrupt the take-off sufficiently early, on an unfamiliar aerodrome.
- The presence of cut grass in the main landing gear wheel fairings.