



Accident to the ULTRAMAGIC - N180 registered F-HPAC

on 21 August 2019
at Onzain (Loir-et-Cher)

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

Time	Around 08:15 ⁽¹⁾
Operator	Au Gré Des Vents
Type of flight	Sightseeing, commercial
Persons on board	Pilot and seven passengers
Consequences and damage	One passenger severely injured

This is a courtesy translation by the BEA of the Final Report on the Safety Investigation published in June 2022. As accurate as the translation may be, the original text in French is the work of reference.

Bounce during landing, basket upset, in sightseeing flight

1 - HISTORY OF THE FLIGHT

Note: the following information is principally based on statements from the pilot and the injured passenger, as well as on the IGC file for the accident flight, extracted from the Flytec vertical speed indicator/altimeter and provided by the pilot.

The pilot took off at 07:15 from the Chambord take-off site (Loir-et-Cher) with seven passengers. He flew over the south of the city of Blois and then followed the Loire River heading south-west, passing north of the commune of Chouzy-sur-Cisse. The winds then led the balloon on a westward route. After around one flight hour, the pilot started the landing phase not far from the commune of Veuzain-sur-Loire, in an area free of obstacles. He instructed the passengers to adopt the landing position, then turned off the three burners a few metres above the ground. The basket made contact with the ground, bounced and fell onto its long side. Once the balloon came to a stop, the pilot rapidly deflated the envelope and asked the passengers to exit the basket. One passenger was unable to do so and complained of pains in her legs. Severe injuries were diagnosed at the hospital, requiring a stay of several weeks in a rehabilitation centre.

2 - ADDITIONAL INFORMATION

2.1 Pilot information

First licensed in 2010, the 32-year-old pilot held a valid free hot air balloon pilot licence. On the day of the event, he had logged about 1,300 flight hours in a balloon, more than half of which in Group B balloons⁽²⁾. Since 01 January 2019, he had logged 150 ascents as pilot-in-command, 9 of which in the last 10 days. He carried out his activity on behalf of Au Gré Des Vents. He also held a microlight pilot licence along with a paramotor class rating.

⁽²⁾ There are four balloon groups. Group B includes envelopes with a capacity between 3,401 and 6,000 m³.

⁽³⁾ The balloon speed recorded by the vertical speed indicator/altimeter approximately 2.5 m from the ground and 15 s before landing was 10 kt (18 km/h).

2.2 Meteorological information

The general situation was characterised by calm, clear weather with few clouds in the morning, associated with CAVOK conditions, and a light north-easterly wind.

The meteorological conditions estimated by the French met office, Météo-France in the vicinity of the site on the day of the accident were as follows:

- surface wind from 070° at 8 to 10 kt;
- visibility greater than 10 km;
- clear sky;
- ground temperature of between 17 and 18 °C;
- QNH of 1025 hPa.

2.3 Ultramagic N180 information

The Ultramagic N180 comprises a 5,100 m³ envelope, as well as a single “T” partition basket with two rectangular compartments, each accommodating four passengers, and a pilot compartment.

The flight manual indicates a maximum surface wind speed of 15 kt (27 km/h)⁽³⁾.

2.4 Safe landing position information

The French civil aviation authority (DGAC) published [Safety instructions regarding the implementation and the operation of hot air balloons](#). The French Aerostation Federation (FFAé) recommends that pilots give a safety briefing before the flight, so that the passengers better assimilate the instructions. The recommendation is for passengers to be reminded of this briefing in flight, at a height sufficient enough for the pilot to be unencumbered by the constraints of obstacles and the noise of the burners.

The instructions for the landing phase are given to the passengers during the safety briefing. These instructions include keeping knees bent and hands on the handles, back pressed against the partition padding and placed in the direction of travel. Passengers are advised to keep a firm hold of the handles after the first contact as there may be a bounce.

These measures are intended to minimise the physical consequences of impacts. People with a musculoskeletal vulnerability (previous accidents, bone demineralisation and osteoporosis, osteoarticular disorders, etc.) are particularly susceptible to injury, even in the event of a slight trauma.

2.5 Statements

2.5.1 Pilot's statement

The pilot stated that he had had no concerns about the landing phase. According to him, the situation had seemed normal, with no time pressure and with a wind of 10 kt (18.5 km/h) which was a little stronger than expected, but still compatible with the balloon's maximum permissible surface wind of 15 kt (27 km/h) indicated in the flight manual. Given this wind speed, he had considered that it was possible that the landing would end with the basket on its side. He remembered asking the passengers to adopt the landing position (the position he had explained to them and had asked them to demonstrate for him twice, once immediately after take-off and once later during the flight).

He reported that after a first bounce, the basket fell on its long side. Once the balloon came to a stop, he rapidly deflated the envelope.

He then noticed that one passenger was unable to evacuate the basket, complaining of pains in her legs. Focused on his landing procedure, he had not paid particular attention to the position adopted by this passenger and therefore did not know the causes of her injuries.

Concerning the physical condition of passengers he takes on board his balloon, the pilot stated that he ensures that they have sufficient dexterity to take the flight safely. To this end, he checks the ease with which each person boards the basket. He added that he reserves the right to refuse boarding to any person whose physical condition he considers too weak. According to him, these cases remain very rare. He reported that he had not noticed anything of concern when the group had boarded on the morning of 21 August.

2.5.2 Injured passenger's statement⁽⁴⁾

She indicated that she was 81 years old and that this had been her first balloon flight. She was accompanied by a friend of the same age.

The passenger considered herself sporty and in good physical condition. She had no difficulty getting into the basket and had not needed any help. Moreover, she had never had any orthopaedic problems with her lower limbs in the past.

She remembered that the safe landing position to adopt had been explained, but she did not remember demonstrating it. She stated that during the flight, no reference was made to the possibility of a landing ending with the basket on its side. However, she remembered having asked the pilot what would be the speed upon contact with the ground, and that the pilot had initially replied that it would be 15 to 16 km/h. Later, during the landing sequence, she heard the pilot announce the value of 25 km/h. She did not remember the exact moment when she moved from the landing position.

2.5.3 Injured passenger's friend's statement

This passenger specified that he had also suffered from the consequences of the landing manoeuvre, with pains mainly located in his neck, shoulder and right knee. As he had deemed that these were minor injuries compared to his friend's, he chose not to mention them at the time. He nevertheless deemed it useful to mention them when he helped the injured passenger give her statement.

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

On the day of the event, the weather conditions allowed the scheduled flights to take place and were not of a nature to show any particular risk in the morning. During boarding, the pilot estimated that the physical condition of the passengers was compatible with the flight.

After take-off, he gave a safety briefing and, in particular, showed the passengers the position to adopt for landing.

During the landing, the balloon bounced, then the basket fell onto its long side due to

⁽⁴⁾Due to the fact that she was hospitalised for several weeks following the accident, this statement was collected by telephone with the help of the friend who had accompanied her for this sightseeing balloon flight.

the wind conditions. The investigation could not determine whether the passenger with injuries to her lower limbs had adopted and maintained the recommended safety position throughout the landing. It is possible that, surprised by the bounce and the basket upset, she had been unable to maintain a proper position. It is also possible that she did not have the physical strength necessary to maintain the safety position. Given her age, her musculoskeletal characteristics were probably conducive to the bone injuries/fractures she sustained during the landing.

Safety lessons

During a balloon flight, if the wind conditions are such that the basket is likely to bounce or land on its side⁽⁵⁾, the passengers should be fully aware of the importance of correctly adopting and maintaining the demonstrated safety position until the basket has come to a complete stop and the pilots have given their consent to exit it. The possibility of a bounce should be discussed so that the passengers are not caught unaware if this event occurs. To this end, pilots, whose workload increases as the balloon gets closer to the ground, must make sure, while they still have resources available, that all their passengers have understood the information, whatever their position in the basket and their hearing capacity.

In order to improve safety, the FFAé has undertaken to provide people wishing to make a sightseeing flight with a document entitled "*Auto-évaluation pour effectuer un vol en montgolfière*" (self-assessment before taking a balloon flight). This document, which will soon be available on [the FFAé website](#), aims at helping people interested by this, to assess their physical and psychological fitness before a flight.

⁽⁵⁾ This topic is addressed by the BEA in its Safety lessons 2020 and 2021, available at <https://bea.aero/en/bilans-etudes-1/enseignements-2020/ballons/> and <https://bea.aero/en/bilans-etudes/enseignements-2021/ballons/>