BEA
Bureau d'Enquêtes et d'Analyses
pour la sécurité de l'aviation civile
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SAFETY INVESTIGATION REPORT

Serious incident to the KUBICEK BB142 registered F-HVIO on Tuesday 30 April 2024 at Rosiers-sur-Loire

Time	08:36[1]
Operator	Montgolfière Sensation
Type of flight	Sightseeing flight, commercial
Persons on board	Pilot and eighteen passengers
This is a courtesy translation by the BEA of the Final Report on the Safety Investigation. As accurate as the translation may be, the original text in French is the work of reference.	

Rejected landing, low flight over a small village, collision with a power line

1 HISTORY OF THE FLIGHT

Note: the following information is principally based on statements and GNSS[2] data from the pilot's portable equipment.

The pilot took off from Saumur - Saint-Florent aerodrome at 07:15 with eighteen passengers, for a flight of around one hour. Three other balloons operated by the same operator took off at the same time, two with eighteen passengers and one with seven passengers. The balloon formation followed the Loire. The pilots of the various balloons[3] wanted to stay on the south side of the Loire where there were generally more suitable landing sites. Due to the south-easterly upper wind, the pilots were finally obliged to pass over to the north side of the Loire.

At around 08:28, the pilot of F-HVIO identified an area for landing (see **Figure 1**, point 1), but one of the members of the ground team informed him that the area was not easily accessible for the vehicle due to the access limitations installed against travellers. The pilot decided to reject the landing.

At 08:35, 1,500 m further on, the pilot identified a new area for landing (point 2), a field with short grass four hectares in size, just before a small village. The 230 m-long field was bordered by a row of trees at the start of the field. During the approach, the pilot felt a gust. Another pilot nearby also reported gusts over the radio. To avoid a possible uncontrolled collapse of the balloon envelope[4] onto the houses situated behind the field, the pilot rejected this second attempted landing.

[1] Except where otherwise indicated, the times in this report are given in local time.
[2] The glossary of abbreviations and acronyms frequently used by the BEA can be found on its web site.
[3] The pilots exchanged over the radio on a dedicated frequency.
[4] Volume of 14,200 m^3. It was a group D envelope (volume of envelope greater than 6,000 m^3).

During the go-around, the pilot identified a new landing area (point 3) just behind the village but did not perceive a power line situated in the village. The basket struck this line. The pilot did not observe any damage on the basket. Having passed the identified area just after the village, he continued the flight.

A few minutes later, 1,500 m further on, the pilot identified another landing area (point 4). However, the farmer who owned the field was present and asked the pilot to land elsewhere due to recent planting. Finally, the pilot landed 700 m further on (point 5).

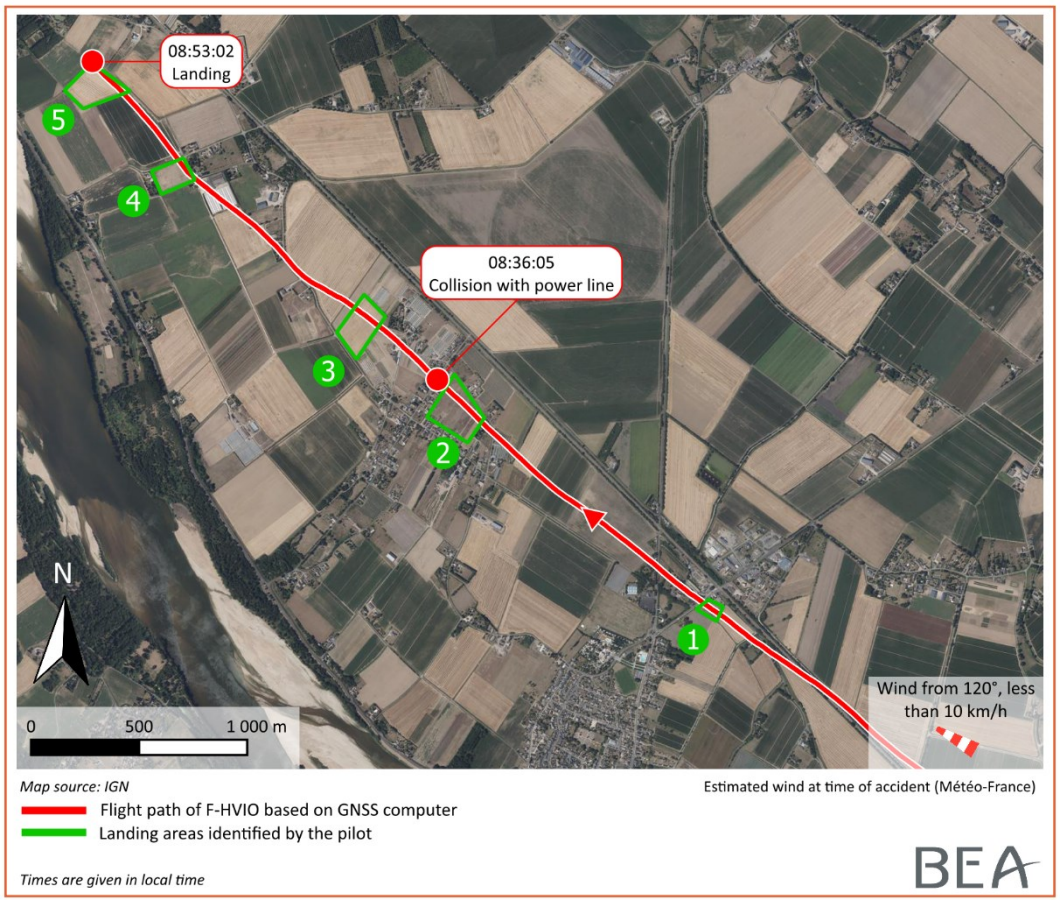

Figure 1: flight path of F-HVIO

2 ADDITIONAL INFORMATION

2.1 Power line information

The basket hit a medium-voltage (MV) power line[5] about 10 m high, running alongside the road that crosses the village and perpendicular to the balloon's flight path. The line is made up of three 7.5 mm-diameter, twisted, unsheathed steel cables. The concrete poles carrying the line are spaced about 100 m apart in the village. The collision area was situated around 15 m from one of the poles.

[5] MV lines transmit electricity at local level to small industries, SMEs and businesses. These lines carry a voltage of between 15 kV and 30 kV.

Following the collision, the network operator Enedis noted the following damage:

- activation of the network protection circuit breaker following a short-circuit on the line;
- extensive damage to the base of a concrete pole, requiring its replacement.

A video[6] of the collision, taken by a local resident, was provided to the BEA and analysed. The images show that the balloon's basket caught the first power line cable and brought it into contact with a second, creating an electric arc and a detonation.

Figure 2: excerpt from video at time of collision
(Source: witness on ground, annotated by the BEA)

2.2 Pilot information

At the time of the incident, the 50-year-old pilot held a group A, B, C and D balloon pilot licence obtained in 2010 with the commercial flight rating. He had totalled just over 1,600 balloon flight hours including 1,300 hours on group C and D balloons. He was also the accountable manager for Montgolfière Sensation.

2.3 Statements

2.3.1 Pilot's statement

The pilot specified that he knew the flight sector well. He reported that the weather conditions were favourable and in line with the forecasts consulted the previous day, with a light southerly surface wind and a south-easterly upper wind. The surface wind actually observed during the attempted landings was less than 10 km/h.

He indicated that at around 08:30, only two balloons were still in flight, including his own, and that he wanted to land before the wind strengthened. He had also observed gusts of up to 20 km/h during the flight, and small surface gusts.

[6] The video was initially retrieved from a social network before being transmitted to the BEA.

On the second attempted landing, the pilot aimed for the middle of the field after flying over a row of poplars. He used two of the four burners at his disposal for the go-around when the landing was rejected. He did not want to climb too high so that he could land just after the village. He explained that he had not had the impression that he had touched the power line: he thought the winch line, with its metal ring, might have created an electric arc[7] under the basket, as he believed it was not attached[8]. He pointed out that the basket remained stable and that there was no loss of control of the balloon.

The pilot indicated that, following the electric arc, he cut off the burners and pilot lights, then relit them after checking that there was no damage to the balloon. He indicated that on the ground, he observed no traces under the basket.

2.3.2 Passengers' statements

The passengers who spoke to the BEA all mentioned that the basket tilted during the collision, with varying degrees of amplitude[9]. A passenger at the front said she had verbalised the presence of the electric cable just before the collision. She specified that she then reported the reality of the collision, indicating that they had caught the cable.

3 CONCLUSIONS

The conclusions are solely based on the information which came to the knowledge of the BEA during the investigation.

Scenario

During a second attempted landing, the pilot carried out a go-around as he was worried that a gust might push the balloon envelope towards the houses of the village as it collapsed. He therefore planned to land just after the village and only used two of the four burners to fly over the buildings at a low height. During the climb, at a height of around ten metres, the basket struck a power line that the pilot had not identified.

Contributing factor

The pilot probably underestimated the risk of flying over houses at low height and in particular, the difficulty of identifying obstacles, which might be concealed, in an urbanised area, while he was in climb.

Measures taken

Following the serious incident, the operator updated its risk assessment table as part of its SMS. It amended the sheet relating to the risk of "Late perception of a power line" and added two new sheets, "Sudden or one-off wind acceleration: gusts" and "Electric arc under the basket". Pilots and crew were also reminded of the procedures to be complied with in such situations.

The BEA investigations are conducted with the sole objective of improving aviation safety and are not intended to apportion blame or liabilities.

[7] In the commercial aviation safety occurrence report (CRES-AC) sent to the DSAC, the pilot mentioned an electric arc under the basket.

[8] It was not possible to see this line under the basket in the analysis of the video.

[9] Based on the analysis of the video, it was not possible to determine with any certainty, the basket's movements at the time of the collision with the power line.