BEA
Bureau d'Enquêtes et d'Analyses
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SAFETY INVESTIGATION REPORT

Accident to the ULTRAMAGIC - M105 registered F-GYFR on 13 August 2022 at Bondy

Time	Around 14:15[1]
Operator	Air Pegasus Montgolfières
Type of flight	Tethered flight, commercial
Persons on board	Pilot and two passengers
Consequences and damage	One passenger injured
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.	

Untimely take-off of the tethered balloon, rapid descent and collision with the ground in adverse weather conditions

1 HISTORY OF THE FLIGHT

Note: the following information is principally based on statements.

The pilot was taking part in festivities organised by the town of Bondy in a wooded park. This was the second time he had performed this service, which consisted of introducing passengers to tethered flight, with the balloon rising some twenty metres for a few minutes.

At around 11:00, the pilot was at the balloon's operating site. After observing the surrounding obstacles and the local weather conditions, he moored the basket at four points and inflated the envelope.

At 14:15, for the first flight of the day, the pilot was taking two passengers on board when a gust of wind caused the balloon to rise unexpectedly. It quickly came back down and hit the ground a first time, then rose again before colliding with the ground a second time. One of the passengers suffered a leg injury during the second impact.

After the accident, given the weather conditions at the time, the pilot decided to cancel the flights.

[1] Except where otherwise indicated, the times in this report are in local time.

2 ADDITIONAL INFORMATION

2.1 Balloon and accident site

The accident site, a triangle-shaped park with sides measuring between 110 and 150 m, was flat, grassy and bordered by trees. It was located in an urban area, Bondy itself being on the north-east outskirts of Paris.

Figure 1: balloon operating site (BEA annotations)

The ULTRAMAGIC M105 is a hot-air balloon with a 3,000 m^3 (106,000 ft^3) envelope. On the day of the accident, it was equipped with a basket capable of holding four people.

The flight manual indicates, among other things:

- in the "meteorological limitations" section:
  - the surface wind must not exceed 7.5 m/s (15 kt),
  - there should be very little or no thermal activity,
- in the “captive flight” section:
  - maximum wind of 15 kt for an envelope of up to 120,000 ft^3 (4,530 m^3),
  - maximum wind of 10 kt for the same envelope but with passengers.

2.2 Weather conditions obtained from Météo-France

- General situation:
  A barometric swamp with a light low-pressure system. Over the Île-de-France region, the weather was dry, very sunny and very hot during the day.

- At Bondy:
  The sky was clear, becoming hazy towards the end of the afternoon. Visibility remained very good throughout the day.

  There was a light to moderate easterly wind. From midday onwards, gusts of wind of around 20 kt were observed at Orly, Roissy and Le Bourget, particularly between 13:00 and 14:00.

- Le Bourget airport (6 km away) weather reports:
  - METAR
    - LFPB 131200Z AUTO 08010KT 050V110 CAVOK 31/06 Q1013 NOSIG=
    - LFPB 131230Z AUTO 08009KT 050V150 CAVOK 32/05 Q1013 NOSIG=
  - TAF
    - LFPB 131100Z 1312/1412 11010KT CAVOK TX34/1315Z TN20/1405Z BECMG 1410/1412 24010KT=
  - Readings at Le Bourget airport at 12:00 UTC[2]:
    - maximum temperature: 31.9° at 11:38
    - spot wind: 10.3 m/s (20 kt) at 11:12.

2.3 Pilot's experience and statement

The 32-year-old pilot held a hot-air balloon pilot licence (BPL) issued in 2020 and a tethered flight rating.

His experience at the time of the accident was 1,310 ascents and 1,622 balloon flight hours. He held a valid class 2 unrestricted medical certificate.

The pilot stated that Air Pegasus Montgolfières' tethered flights were scheduled for 14:00 to 18:00 on the day of the accident, as part of a festival organised by Bondy.

The pilot had collected meteorological data by consulting the XCWeather and Meteociel websites. His flight file contained the following information:

- wind over 10 km/h;
- temperature 35°C;
- wind forecast at the start of the tethered flights: 15 km/h, with gusts up to 20 km/h from 120° ESE;
- wind forecast at the end of the tethered flights: 15 km/h with gusts up to 20 km/h from 80°.

He indicated that he had set up a windsock and then the balloon at around 14:00 with a crew member. The diagram below shows the plan for mooring the balloon. The pilot chose to set up four mooring points to secure the balloon (see *Figure 1*) even though the envelope was well under 160,000 ft[3] (see *Figure 2* below).

[2] 14:00 in local time.

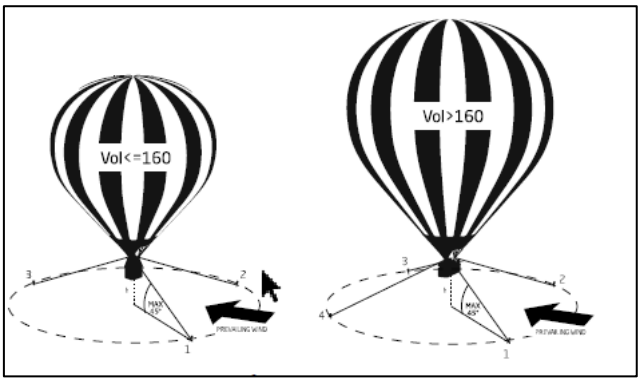

Figure 2: mooring diagram (source: Flight manual)

At 14:15, the first two passengers boarded the basket after receiving safety instructions, for an ascent to a height of around twenty metres.

As soon as they got on board, the balloon rose abruptly before being pushed back down. After contact with the ground, the balloon rose again to around five metres and then descended again to the ground. The pilot then activated the balloon valve to deflate the envelope.

During the impact, one of the passengers suffered a leg injury. The pilot called the emergency services.

He indicated that the unstable weather conditions due to the high temperatures had probably caused gusts of wind. He cancelled the rest of the day's flights.

3 CONCLUSIONS

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

Scenario

The pilot made preparations to provide a commercial service consisting of a series of tethered balloon flights with passengers. The circumstances of the flight (high ambient temperature and solar noon in the middle of summer) were conducive to the development of thermal phenomena incompatible with this type of flight according to the flight manual. Furthermore, the meteorological conditions collected by the pilot suggested that the wind speed could exceed the limits also specified by the flight manual for this type of operation.

To be on the safe side, he chose to set up four mooring points instead of the three normally required for this operation.

The first passengers were given safety instructions and boarded the basket. Suddenly the balloon rose, then descended again, the basket hit the ground and rose again before hitting the ground again, causing an injury to a passenger. The pilot opened the safety valve to deflate the envelope.

Contributing factors

The pilot's decision to carry out the service despite weather conditions incompatible with the type of flight performed may have resulted from:

- a desire to meet a commercial commitment;
- underestimating the risks associated with these weather conditions for the type of flight he was carrying out.

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