



Serious incident to the EXTRA - EA330 - LX
registered **F-HLIK**
on 1 August 2021
at Avignon-Caumont (Vaucluse)

Time	Around 11:10 ¹
Operator	Private
Type of flight	Aerobatic
Persons on board	Pilot and one passenger
Consequences and damage	Pilot injured, aeroplane slightly damaged

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.

Canopy blown off in flight during aerobatic manoeuvres

1 HISTORY OF THE FLIGHT

Note: the following information is principally based on statements.

The pilot, accompanied by one passenger, took off from runway 35 to practise aerobatic manoeuvres overhead Avignon airport. After climbing to an altitude of 4,500 ft in the east sector of the facilities, he flew over the airfield and accelerated in descent. At around 3,000 ft, when the indicated airspeed was around 170 kt, the pilot initiated a pull-up manoeuvre to achieve level flight before starting aerobatic manoeuvres. He heard an explosion and after a few seconds of confusion, observed that the canopy had disappeared.

The pilot, who suffered an injury to the face, aborted the flight and landed immediately.

2 ADDITIONAL INFORMATION

2.1 Aeroplane information

The Extra 330 is an aerobatic aeroplane with two seats in tandem configuration that is used for training and competition flights. It is equipped with a side-opening one-piece canopy. Its certification envelope is +/- 10 g.

In May 2020, the canopy was repaired by the aeroplane's manufacturer after it was damaged while taxiing. The report for this repair work indicated that the plexiglass section was not damaged and that only the frame was repaired. The examinations conducted after the incident were unable to establish a link between the repairs and the canopy blowing off.

The maximum value of the positive load factor recorded during the flight was 4.9 g.

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

2.2 Damage information

After landing, only a small part of the plexiglass remained at the front of the canopy.

The canopy frame was intact and still attached to the airframe. The leading edge of the right horizontal stabiliser had a hole approximately 10 centimetres in diameter. The tail fin and the fuselage were dented.

The face shield of the helmet of the pilot who was sat in the rear seat was completely torn off.

2.3 Occupant information

2.3.1 Pilot

The 41-year-old pilot held a Commercial Pilot Licence - Aeroplanes (CPL(A)) and an aerobatic rating. At the time of the incident, he had logged approximately 4,200 flight hours, approximately 100 hours of which on the Extra including three hours in the previous 30 days.

The pilot indicated that after the first acceleration in descent, he put the aeroplane in horizontal flight. After this pull-up manoeuvre, he heard an explosion. He added that after a few moments of confusion, he adopted a climb attitude and observed that the canopy plexiglass had disappeared. The face shield of his helmet was also torn off. Communication with his passenger via the aircraft intercom was inaudible, nevertheless he was able to make the passenger understand that they were going to land quickly.

The pilot asked the passenger to take control of radio communications. He assessed the aeroplane's responses to the controls and, realising that the aeroplane could still be controlled, he landed.

2.3.2 Passenger

The 38-year-old passenger held a Private Pilot Licence - Aeroplanes (CPL(A)) and an aerobatic rating. He was used to flying on the Extra 200.

He wore a cloth flying helmet.

He indicated that after the pull-up manoeuvre that followed the acceleration, he felt he was thrown suddenly to the right. He did not remember a marked roll movement. His head struck the canopy. Looking up, he saw that a crack had appeared high up to the right of his field of vision and immediately informed the pilot. He then heard the pilot shouting over the aircraft intercom. He then observed that there was practically nothing left of the canopy. On turning around, he saw that the pilot's face shield was no longer in place and that his face was covered with blood.

The passenger stated that during the pre-flight inspection, neither himself nor the pilot observed any existing damage to the canopy.

3 CONCLUSIONS

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

Scenario

After the acceleration and levelling off before starting the aerobatic manoeuvres, the passenger's head struck the right section of the canopy. It is possible that this impact provoked or exacerbated damage that spread very rapidly causing the canopy to blow off.

The pilot and his passenger then divided up the flying and communication tasks to enable the flight to be rapidly aborted.

Safety lessons

The pilot considered that wearing a helmet with face shield lowered probably minimised the severity of his injuries.

When performing aerobatic figures on high-performance aeroplanes, communicating with the passenger may allow the latter to adopt the correct posture (core strength, muscular contractions) to avoid abrupt movements.

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