Investigation Report

Identification

Type of Occurrence: Accident
Date: 11 August 2018
Location: Melle
Aircraft: Airplane
Manufacturer / Model: DynAero/MCR 01 Sportster
Injuries to Persons: Pilot and passenger fatally injured
Damage: Aircraft destroyed
Other Damage: Crop damage
State File Number: BFU18-1188-CX

Factual Information

The airplane was on the base leg when it entered a steep nose down attitude, collided with a tree, which stood at a street perpendicular to the direction of flight, and then impacted the embankment of the opposite roadside. Immediately after the impact it caught fire.
History of the Flight

The pilot, who also owned the airplane, took off at 0710 hrs\(^1\) from runway 27 of Melle-Grönegau Special Airfield to a private flight in accordance with visual flight rules and Stralsund as aerodrome of destination. On board were the pilot and one passenger.

A witness stated that he had noticed normal engine sounds during take-off and the airplane had climbed speedily due to headwind. He had been able to watch it until it reached the border of the airfield. The witness had taken photographs of the entire take-off sequence from entering the runway up to the climb (Fig. 1).

Another witness observed the airplane above an industrial park near the airfield in about 30-40 m. He saw how it “schwankte (fluctuated)” around the longitudinal axis and noticed “unregelmäßiges Motorgräusch (erratic engine noise)”. He did not see any smoke or fire.

\(^1\)All times local, unless otherwise stated.
An audio recording, which could be correlated with the occurrence and the airplane, contained steady engine noises.

Two other witnesses observed a steep descent immediately prior to the impact (Fig. 2).

The recording of a surveillance camera showed that the airplane was in normal flight attitude when it collided with the tree. Then it impacted the ground and caught fire. The time the surveillance camera recorded was 0714 hrs.

Both occupants were fatally injured and the aircraft destroyed.

**Personnel Information**

Since 1983, the 74-year-old pilot held a private pilot's license. The pilot’s license issued in 2015 in accordance with Part-FCL listed the rating SEP(land) PIC. The rating was valid until 31 May 2019.

His class 2 medical certificate was valid until 14 November 2018. The restriction VNL (Have available corrective spectacles and carry a spare set of spectacles) was entered in the licence.
According to his pilot log book, he had a total flying experience on airplanes of about 20,160 hours. In the past 3 years he had flown about 64 hours on type. According to the technical documentation, he had flown 4 hours of them in the last 9 months.

Until 2005 he had worked as an airline transport pilot.

Aircraft Information

According to the statement of the manufacturer Dyn’Aero, the MCR 01 Sportster is a fibre composite two-seater low-wing aircraft with a T-tail. It is equipped with a fixed landing gear in nose wheel configuration and a four cylinder Rotax 912 flat engine.

The aircraft manufacturer offers different variants as construction kits, which then can be certified as ultralight or very light aircraft.

According to the mass sheet of 7 November 2016, empty weight was 271.5 kg and maximum take-off mass 477.5 kg. Maximum tank mass was given as 36 kg. The actual filling capacity could not be determined. According to estimates and the post-mortem examination, the two occupants had a maximum mass of 130 kg.

Total operating time was 981 hours.

According to the technical documentation of the French maintenance organisation, the aircraft was maintained regularly. In October 2016 this maintenance organisation had conducted a 1,000-hour-check or 5-year-check at an operating time of 955 hours. The last 100-hour-check was conducted in October 2017 at an operating time of 977 hours.

The French airworthiness certificate was a Special Airworthiness Certificate for Kit Amateur-built Aircraft valid until November 2020.

Meteorological Information

Münster-Osnabrück Airport, located approximately 45 km away, had issued the following aviation routine weather report (METAR) for the time of take-off: Wind direction 220° with 7 kt, ground visibility more than 10 km. Cloud cover 5/8 to 7/8 at 1,300 ft AMSL. Air temperature was 13°C and dewpoint 11°C. Barometric air pressure (QNH) was 1,020 hPa. The cloud base increased to 2,000 ft AMSL at a cloud cover of 3/8 to 4/8.
Radio Communications

Pilot and airfield were not in radio contact.

Aerodrome Information

Melle-Grönegau Special Airfield (EDXG) had one runway with a length of 768 m and a width of 15 m in the directions 089° and 269° (09/27). Take-off Run Available (TORA) for runway 27 was 609 m. Airport elevation is 236 ft (72 m) AMSL.

The VFR motor traffic circuit was located south of the airfield (Fig. 3).

Fig. 3: Excerpt from the visual approach chart Melle-Grönegau Special Airfield, of 10 July 2014, including the possible flight path (red) and the accident site

Source: AIP/adaptation BFU
Wreckage and Impact Information

The accident site was located south-west of Melle Special Airfield. The wreckage was lying at an embankment at the south edge of the street, which bordered an industrial park. Trees, which were about 15 m high, lined either side of the street. The distance to the threshold of runway 27 was approximately 2,400 m. The accident site was at approximately the same elevation as the airfield (Fig. 4).

At the northern end of the street branches had been knocked off a tree. These had scattered along the street towards the final position of the wreckage.

The flight and the resulting impact direction was about 180°.

The cockpit area, the fuselage, the vertical tail, and the wings were destroyed by impact forces and fire. Large areas of the skin of the elevator had fractured.

The condition of the engine, which the BFU had seized, did not allow any determinations in regard to its performance, due to the destruction by impact forces and fire.
Medical and Pathological Information

The Public Prosecutor ordered a post-mortem examination of the pilot which determined multiple trauma as cause of death. The histological examination did not reveal any indication of an acute medical problem which could have contributed to the incident.

A post-mortem examination of the passenger was not ordered.

Fire

Shortly after the impact a fire occurred.

Analysis

The pilot held the required licence and was rated to operate the aircraft as pilot in command. He had a valid medical certificate and there were no indications of any acute medical problems which would constitute incapacity to act.

Due to the pilot’s former work as transport aircraft pilot he has to be viewed as broadly experienced. The BFU reasoned that based on his experience on type of the last three years with approximately 20 flight hours per year that he principally was capable to recognise and analyse danger and deduce emergency actions.

The investigation determined that there were no indications which would suggest any interference of the flight operations on the part of the passenger.

At the day of the accident visual meteorological conditions prevailed and there were no weather phenomena which could have influenced the course of the accident.

The aircraft had a proper certificate of registration. It was not possible to state payload and centre of gravity because the data could not be recovered. The information provided and the estimates allow the conclusion that the airplane was operated within prescribed limits.

The destruction of the airplane by fire did not allow relevant determinations of its controllability. The audio recordings, which documented regular engine noise, could be collated with the airplane. Hence, the BFU concluded that the engine had not failed. It was not possible to conclude the actual engine parameters, such as engine speed.
Flight time was approximately 2 minutes. The photographs of a witness show that take-off and climb have been normal. Based on the witness statements and the recordings of a surveillance camera, the BFU concluded that at the base leg the aircraft had entered a steady descent in normal flight attitude which continued until the collision with trees. The BFU is of the opinion that an uncontrolled flight attitude, such as bank over or spinning-like attitudes, can be ruled out.

Conclusions

The BFU could not determine why the accident occurred.

Investigator in charge: Jens Eisenreich
Field Investigation: Ingolf Masemann, Roland Karnbach
Medical analysis: Dr. Thomas Harendza

Braunschweig, 28 February 2020
This investigation was conducted in accordance with the regulation (EU) No. 996/2010 of the European Parliament and of the Council of 20 October 2010 on the investigation and prevention of accidents and incidents in civil aviation and the Federal German Law relating to the investigation of accidents and incidents associated with the operation of civil aircraft (Flugunfall-Untersuchungs-Gesetz - FLUG) of 26 August 1998.

The sole objective of the investigation is to prevent future accidents and incidents. The investigation does not seek to ascertain blame or apportion legal liability for any claims that may arise.

This document is a translation of the German Investigation Report. Although every effort was made for the translation to be accurate, in the event of any discrepancies the original German document is the authentic version.

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