Investigation Report

The Investigation Report was written in accordance with para 18 Law Relating to the Investigation into Accidents and Incidents Associated with the Operation of Civil Aircraft stating facts only.

Identification

<table>
<thead>
<tr>
<th>Type of Occurrence:</th>
<th>Accident</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date:</td>
<td>20 March 2019</td>
</tr>
<tr>
<td>Location:</td>
<td>Mindelheim-Mattsies</td>
</tr>
<tr>
<td>Aircraft:</td>
<td>Airplane</td>
</tr>
<tr>
<td>Manufacturer / Model:</td>
<td>Grob Aircraft SE / G520 „Egrett“</td>
</tr>
<tr>
<td>Injuries to Persons:</td>
<td>No injuries</td>
</tr>
<tr>
<td>Damage:</td>
<td>Aircraft substantially damaged</td>
</tr>
<tr>
<td>Other Damage:</td>
<td>None</td>
</tr>
<tr>
<td>State File Number:</td>
<td>BFU19-0225-3X</td>
</tr>
</tbody>
</table>
Factual Information

History of the Flight

On 22 March 2019 at 0954 hrs¹ the G 520 pilot took off from Mindelheim-Mattsies Special Airfield to a checkflight after maintenance. After completion the airplane returned to the aerodrome of departure. The Flugleiter (A person required by German regulation at uncontrolled aerodromes to provide aerodrome information service to pilots) advised the G 520 pilot, who was approaching runway 33, to land on runway 15 due to his observation of the wind sock. The pilot stated that due to the advice of the Flugleiter he had conducted a low pass over runway 33. In doing so he had determined wind from an eastern direction with 8 kt. Subsequently, an approach to runway 15 was conducted.

The pilot stated that during approach and flare the aircraft had been well controllable. After touchdown on the runway at 1054 hrs the airplane was decelerated by using the thrust reverse. Control was achieved solely by aerodynamic and the brake, since the aircraft involved did not have a steerable nose wheel. Below a speed of approximately 30-40 kt, the aircraft drifted left in spite of full rudder deflection and activation of the right brake. At a speed of about 20 kt it had veered off the runway. The nose wheel had been torn off and all 4 propeller blades had ground contact and been ripped off.

The pilot stated that he had shut off the engine in order to prevent further damage once he realised a runway excursion could no longer be prevented. He added, afterwards he had closed the fuel valves and shut off electricity. The right brake had functioned insufficiently.

The pilot remained uninjured.

The subsequent technical examination by the manufacturer determined air bubbles in the right brake system.

Personnel Information

The 39-year-old pilot held a Commercial Pilot’s Licence (CPL(A) of the European Union issued in accordance with Part FCL. The licence listed radio communications in

¹All times local, unless otherwise stated.
German and English for flights in accordance with visual and instrument flight rules and the following class and type ratings:

- G520 SET, PIC IR, valid until 31 August 2019
- G520 SET, CRI, valid until 31 December 2019
- Test Cat 2, open-ended
- Cessna SET, PIC IR, valid until 30 September 2019
- G 120 TP SET, PIC, valid until 30 September 2020
- G 120 TP SET, IR, valid until 30 September 2019
- G 120 TP SET, CRI, valid until 31 December 2019
- MEP(land), PIC IR, valid until 30 September 2019
- SEP(land), PIC IR, valid until 30 September 2019
- SEP(land), CRI, valid until 31 December 2019
- FI(A), CPL, PPL, SE, SP, night, aerobatic (A)
- Instructor instrument rating, valid until 31 December 2019

His class 1 medical certificate was valid until 18 March 2019 and his class 2 until 18 March 2020.

At the time of the accident, the pilot had a total flying experience of 2,619 hours, of which 22 hours were flown in the accident type. In the last 90 days he had flown 05:21 hours at 7 cycles in the G 520.

Aircraft Information

The Grob G 520 is designed for high altitudes and has a wingspan of 33 m. It has a maximum take-off mass of 4,700 kg. It is equipped with a Garrett TPE331-14F-801L turboprop with 750 SHP. It is also equipped with a pressurized cabin and certified for a maximum operating altitude of 50,000 ft.

The airplane involved is a single-seat version equipped with the wings of the twin-seat version. The single-seat version does not have a steerable nose wheel. Ground direction control is achieved by the aerodynamic effect of the rudder and the brakes of the main landing gear.
In 1991 the LBA issued a Permit to Fly. It had a Permit to Fly issued by EASA; valid until 30 April 2019.

On 11 September 2018, the last flight prior to the accident flight was conducted. At the time of the accident, the airplane had a total operating time of 67:19 hours.

Meteorological Information

According to the statement of Mindelheim-Mattsies Special Airfield, at the time of the accident visual meteorological conditions prevailed. Visibility was more than 10 km (CAVOK) and the wind came from the south-east with 5-10 kt. The runway surface was dry.

Radio Communications

During the flight, the pilot had been in radio contact with the flight information service. He also had radio contact with the Flugleiter at Mindelheim-Mattsies Special Airfield. Radio communications were not recorded.

Aerodrome Information

Mindelheim-Mattsies Special Airfield has one asphalt runway with the orientation 151/331° and a length of 1,149 m and a width of 20 m. Landing Distance Available (LDA) for landing direction 15 is 933 m. The special airfield is located 4.3 NM north-east of Mindelheim and aerodrome elevation is 1,857 ft AMSL.

Flight Recorders

The aircraft was not equipped with a Cockpit Voice Recorder (CVR) and a Solid State Flight Data Recorder (SSFDR). These recording devices were not mandatory.

Wreckage and Impact Information

The accident site was located north of runway 15 of Mindelheim-Mattsies Special Airfield. The airplane stood on its main landing gear; the left main wheel was about 3 m north of runway 15. The traces on the ground showed an approximately 15 m long rolling track of the left main landing gear next to the runway. The nose wheel including yoke had fractured and was lying on the meadow. The nose gear leg had dug it-
self into the ground. All 4 propeller blades were in the feathered position and had been torn off about 30 cm from the spinner. The right wing tip was about 4 m and the left 0.5 m from the ground. The vent of the left wing leaked fuel.

Fig. 1: Accident site

The flaps were in the fully extended position. The shimmy damper and the strut were intact and free of oil. The examination of the brake system at the manufacturer’s determined air bubbles in the right main landing gear wheel brake.
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Investigator in chief: Pfefferl
Field Investigation: Felsch
Braunschweig, 27 May 2019

**Figure 2.1: Bleeding procedure - Air bubbles MLG RH**

Fig. 2: Brake fluid including air bubbles  
Source: Manufacturer/Adaptation BFU
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 - FlUUG) 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.

Published by:

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