

Investigation Report

Identification

Type of Occurrence:	Accident
Date:	14 September 2009
Location:	Near Jena-Schöngleina Airfield
Aircraft:	Airplane
Manufacturer / Model:	G. J. Vicherek, Czech Republic / Europa XS
Injuries to Persons:	Two persons fatally injured
Damage:	Aircraft destroyed
Other Damage:	Minor damage to forest
Information Source:	Investigation by BFU external experts for field investigation
State File Number:	BFU CX014-09

Factual Information

History of the Flight

For business reasons the pilot had visited a computer fair in Amsterdam. On 12 September 2009 he flew according to Visual Flight Rules (VFR) from Benesov (LKBE), Czech Republic, to Hilversum (EHHV), The Netherlands.

On 14 September 2009 take-off for the return flight was at 1515 hrs¹. The pilot was accompanied by his brother. A witness stated the pilot sent a text message right before departure giving his arrival time in Benesov to be between 1900 hrs and 2000 hrs.

According to the radio communication recordings, at 1738 hrs the pilot radioed the Flight Information Service (FIS) Munich Information on frequency 125.800 MHz giving his location as west of Mulhouse: “[...] VFR with flight plan from EHHV to LKBE, [...] 8 miles west of EDEQ.”



Flight path and course of events

Source: Google Earth map service and GPS read-out

Adaption BFU

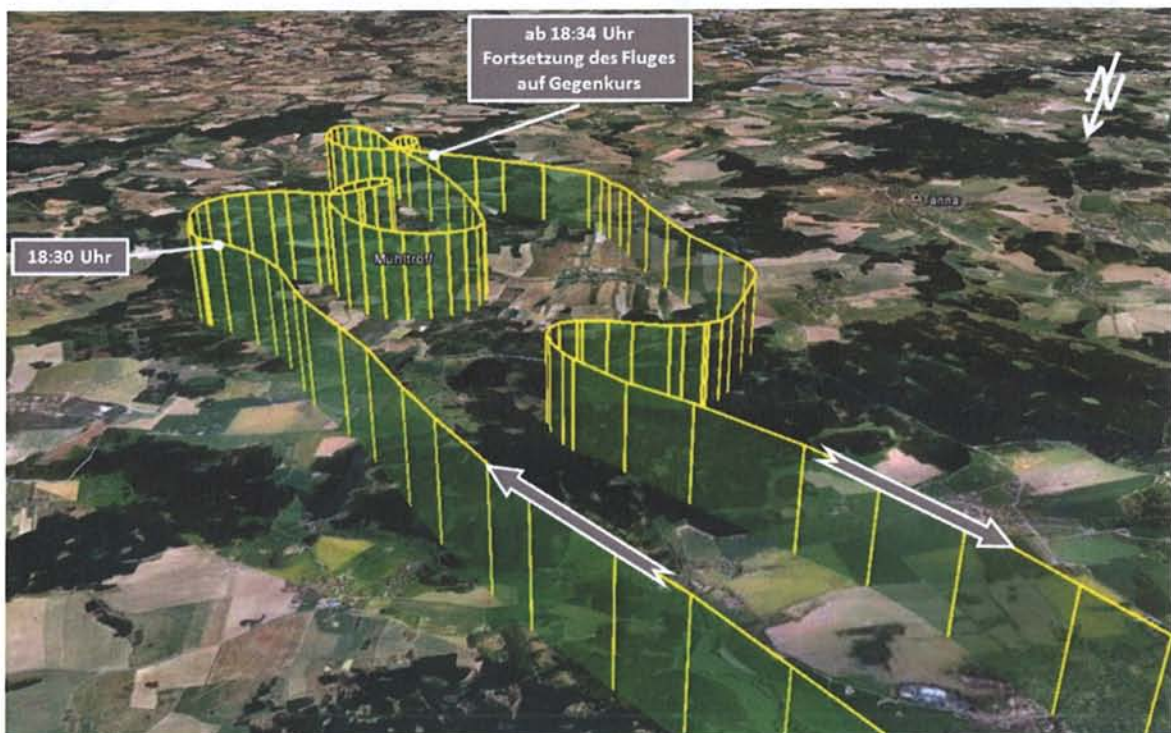
At 1747 hrs the pilot asked for the weather at Karlovy Vary Airport (LKKV) which was located en-route: “[...] latest weather for LKKV please” FIS transmitted the following weather information: “[...] wind 050 9 knots, visibility 6 kilometres, light rain, cloud few 600, broken 4,000, temperature 10, dewpoint 9, QNH 1 017 [...].”

¹ All times local, unless otherwise stated.

At 1754 hrs the pilot received the barometric air pressure (QNH) of 1,018 hPa for Erfurt Airport (EDDE, about 15 NM ahead) which was the closest airport to his position at that time.

According to the GPS recording, until 1830 hrs the airplane flew with almost constant south-east heading and constant altitude toward the destination airport.

After several changes in heading, at 18:34 hrs it was on opposite course, i.e. on a north-west track.

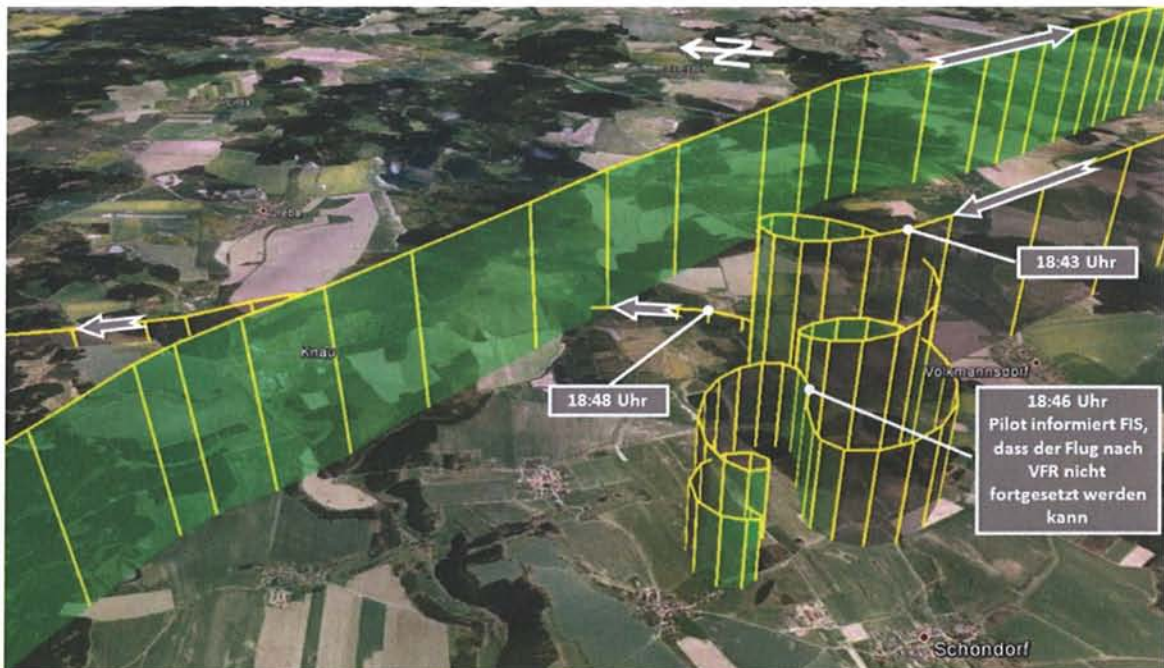


Flight path between 1824 hrs and 1843 hrs

Source: Google Earth map service and GPS read-out

Adaption BFU

At 18:43 hrs the airplane left the cruising altitude, according to the radar recording it was at about 3,600 ft AMSL, and continued the flight in approximately 1,600 ft AMSL on a north-west track.



Flight path between 1843 hrs and 1851 hrs

Source: Google Earth map service and GPS read-out

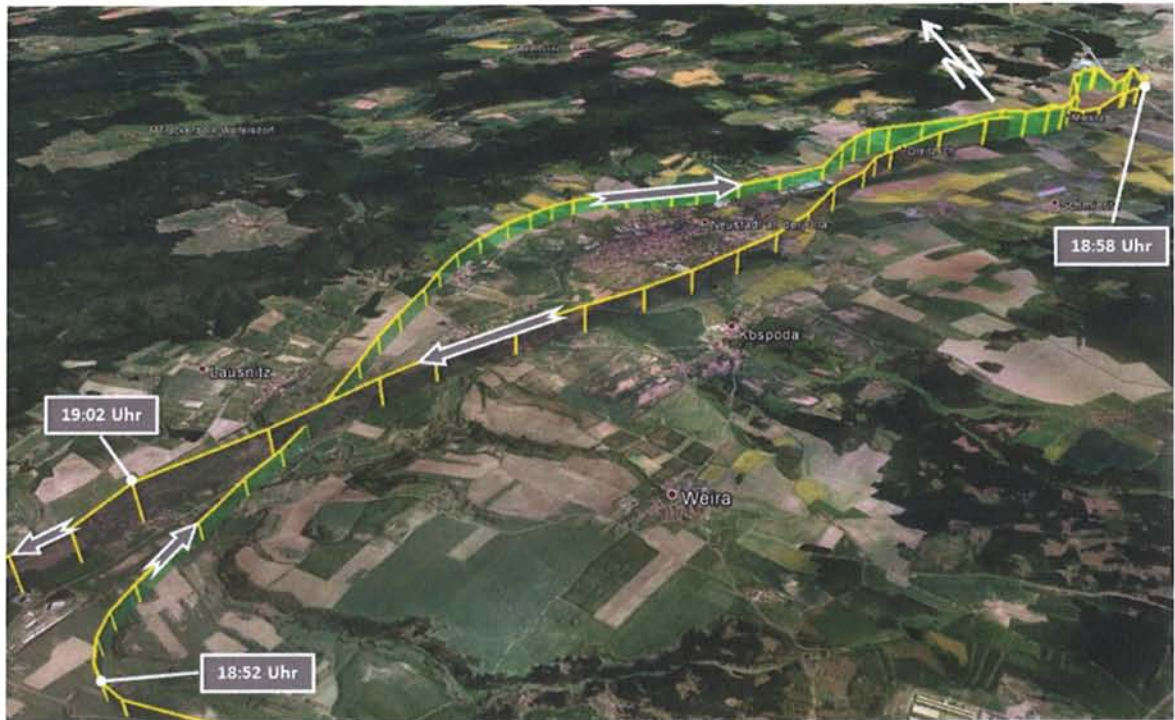
Adaption BFU

At 1846 hrs the pilot informed FIS that he could not continue the VFR flight: "[...] I don't think we can continue further VFR so we'll try go back and take a landing at an airport nearby, can you give us the current weather at Hof please."

FIS transmitted the following weather information for Hof Airport (EDQM). "[...] wind 040 6 knots, visibility 4,100 meters in rain and mist, clouds scattered 500 feet, broken 700 feet, broken 4,700 feet, temperature 11, dewpoint 10 and QNH 1,017."

At 1849 hrs FIS radioed the pilot: "Are you able to make your way to Gera, maybe." Eleven seconds later he added "Or direct to Jena". A reply of the pilot was not recorded.

At 1852 hrs the airplane was on an eastern track and had entered a wide valley located between the towns Neustadt an der Orla and Triptis. At 1858 hrs shortly before reaching Triptis it changed course again to a western track. The flight altitude recorded by radar was between 1,600 ft AMSL and 1,500 ft AMSL.



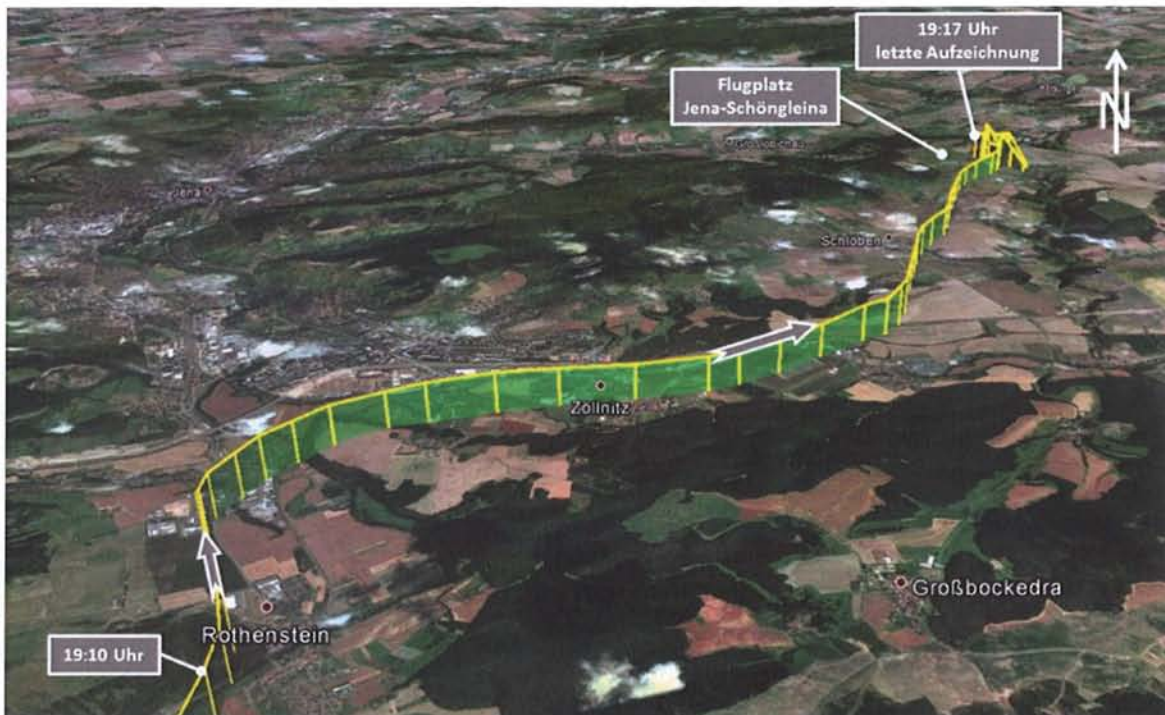
Flight path between 1852 hrs and 1902 hrs

Source: Google Earth map service and GPS read-out

Adaption BFU

After 1852 hrs FIS tried to contact the airplane by radio a total of seven times. Radio contact could not be established again.

The GPS recording shows that the airplane had followed two valleys north and at 1910 hrs it reached the town of Rothenstein, 1.5 NM south of Jena. Afterwards the flight ran parallel to the motorway A4 on an eastern and north-eastern track.



Flight path between 1910 hrs and 1917 hrs

Source: Google Earth map service and GPS read-out

Adaption BFU

South-east of Jena-Schöngleina Airfield (EDBJ), aerodrome elevation is 1,228 ft, the airplane flew a full right circle and then a 180° left hand turn.

After 1900 hrs a witness saw a small, very low flying airplane south-east of Schöngleina. It flew twice very low across a field and then disappeared "in the fog in the direction of Schöngleina". The witness's opinion was that it wanted to land on a larger field next to a meadow.

According to the radar recording at that time the altitude was about 1,100 ft to 1,200 ft AMSL.

A second witness saw the airplane at about 1915 hrs north of Schöngleina and shortly afterwards he heard a "loud crash".

The two occupants suffered fatal injuries during the impact with the trees and the airplane was destroyed.

150 search and rescue personnel participated in the search and rescue mission. At about 2355 hrs the accident site was located.

Personnel Information

Pilot in Command (PIC)

The 42-year-old pilot was a citizen of the Czech Republic. He held a Canadian Private Pilot's License (PPL) - first issued on 13 January 1997 - and an American PPL - first issued on 25 August 1997 - including the rating single-engine piston land and night flying qualification.

He held a Canadian class 3 medical certificate, issued on 27 March 2009, valid for 24 months and a Czech class 2 medical certificate, issued on 30 March 2009, valid for 24 months.

According to his pilot log book he had a flying experience as Pilot in Command (PIC) of 435 hours, 36 hours of which according to night visual flight rules. His flying experience on the type was 350 hours.

Passenger

The 45-year-old person found in the right seat was a citizen of the Czech Republic and did not have any flying experience.

Aircraft Information

The aircraft Europa XS is a single-engine, low-wing airplane with two side by side seats and dual controls.

The airplane was built by G. J. Vicherek, Czech Republic, from a construction kit made by Europa Aircraft Co. Ltd.. In 2006 it was classified as Experimental and certified for operation according to VFR.

According to the airworthiness certificate operation was restricted to the sovereign territory of the Czech Republic ("*This aircraft shall not be operated over any other country without Civil Aviation Authority permission of that country*"). There neither existed an application for an entry and an operating permit nor a subsequent permission from the responsible authority.



Aircraft EUROPA XS

Source: Airliners.net/Photo: Daniel Rybka

The aircraft log book showed a flight time of 463 hours and 533 flight cycles up until 1 August 2009. On 21 July 2009 the last 100-hour inspection was performed.

The aircraft was equipped with a flight information system Dynon Avionics EFIS-D10A, an autopilot Trio Avionics EZ Pilot (wing levelling), a combination of satellite navigation and radio communication Garmin GNC 250XL, a radio, a transponder, and an emergency locator transmitter. The pilot also had a global positioning system Garmin GPSMAP 496 with integrated terrain and obstacle warning on board.

According to the weighing report of 16 May 2006 the empty mass was 428.6 kg and the Maximum Take Off Mass (MTOM) was 622.0 kg.

The tank volume was 68 litres and the usable fuel quantity was 58.7 litres (flight manual, page 2-2: *Total fuel quantity 68 litres, usable fuel quantity 58.7 litres*).

The fuel system has a so-called reserve which allows the use of the entire fuel quantity. According to the flight manual, page 2-2 its use was prohibited: *Use of RESERVE (9.5 litres) fuel selector position in flight is PROHIBITED*).

The mean fuel consumption for a typical economic cruise flight with an airspeed of up to 100 kt is 11 - 12 litres per hour.

The manager of Hilversum Airport stated that the airplane took 62.18 litres of fuel on board prior to departure.

Meteorological Information

The BFU did not have the information available as to the extent of the meteorological pre-flight preparation.

Forecast

According to the forecast of the Deutscher Wetterdienst (German meteorological service provider, DWD) valid for the middle of Germany from 1400 to 2000 hrs an upper low pressure zone moved south-west over the middle of Germany as cold air drop on the south-side of a high pressure zone. The cold air drop controlled the weather in the western area with instable layered cold air. On its backside from East Germany hot air advection with substantial upward floating of hot air had begun.

The weather was characterised by occasional showers, individual thunderstorms in the east and in the area of the mid-range mountains by low stratus clouds; there were cloud layers in the high altitude areas.

At the time of departure at 1515 hrs, the aviation routine weather report (METAR) showed the following data for the en-route airports:

Erfurt (EDDE) at 1450 hrs 06008KT 9000 RA FEW009 BKN010 BKN026 11/10
Q1018 TEMPO NSW=

(The wind came from 60° at 8 kt; ground visibility in the rain was 9 km. There were some clouds in 900 ft and 5/8 - 7/8 cloud in 1,000 ft and 2,600 ft. Air temperature was 11°C, dewpoint was 10°C and QNH was 1,018 hPa. The intensity of the rain changed occasionally from moderate to light.)

Hof (EDQM) at 1450 hrs 06006KT 5000 RA BR BKN007 OVC042 11/09
Q1017=

(The wind came from 60° at 6 kt. Ground visibility in the rain and mist was 5 km. The cloud cover was 5/8 - 7/8 in 700 ft and in 4,500 ft the cloud cover was complete. Air temperature was 11°C, dewpoint was 9°C and QNH was 1,017 hPa.)

Prague (LKPR) at 1500 hrs 36008KT CAVOK 13/11 Q1017 NOSIG RMK REG QNH 1014=
(The wind came from 360° at 8 knots. Ground visibility was more than 10 km; there were no clouds below 5,000 ft and no significant weather phenomena. QNH dropped to 1,014 hPa.)

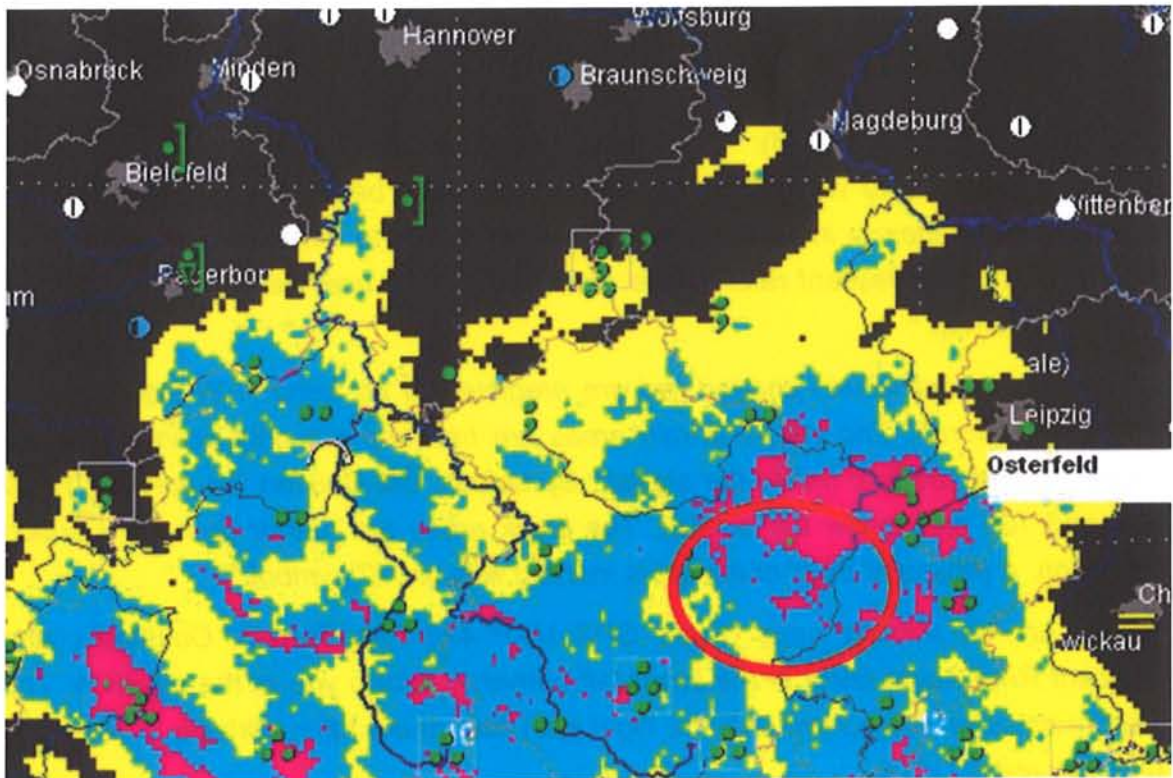
Weather at the Time of the Accident

The Flugleiter of Jena-Schöngleina Airfield stated at about 1800 hrs it had begun to rain. At 1900 hrs surface visibility was less than 200 m; the cloud base was not recognisable and the cloud cover was complete. Witnesses stated that in the area of Schöngleina it was "foggy and gloomy".

The aviation routine weather report of Erfurt Airport (EDDE) located about 50 km west of the accident site published the following weather data:

Erfurt (EDDE) at 1720 hrs 06011KT 9999 -RA BKN007 12/11 Q1018 NOSIG=
(The wind came from 060° at 11 kt. Visibility was more than 10 km. There was slight rain at a cloud cover of 5/8 - 7/8 with a lower limit in 700 ft. Air temperature was 12°C, dewpoint was 11°C and QNH was 1,018 hPa. No significant weather changes were to be expected.)

Erfurt (EDDE) at 1920 hrs 05007KT 1800 RA BR SCT003 BKN004 12/12 Q1018 BECMG BKN003=
(The wind came from 050°, at 7 kt. Visibility was 1,800 m. It was raining and in addition mist limited visibility. There were broken clouds in 300 ft (3/8 - 4/8) and in 400 ft the lower limit of scattered clouds (5/8 - 7/8) was in 400 ft. Air temperature was 12°C, dewpoint was also 12°C and QNH was 1,018 hPa. It was to be expected that the scattered cloud cover would drop to 300 ft.)



Moderate to heavy rainfall at 1900 hrs in the accident region

Source: DWD

The automatic weather stations in the broader vicinity recorded the following conditions at 1900 hrs:

Schleiz	Wind 050° / 4 m/s, moderate rain, visibility 2,400 m, clouds 6/8 in 200 ft
Osterfelde	Wind 080° / 2 m/s, heavy rainfall, visibility 2,900 m, clouds 7/8 in 300 ft
Gera-Leumnitz	Wind 040° / 4 m/s, heavy rainfall, visibility 4,500 m, clouds 7/8 in 300 ft, lowest clouds in 90 ft.

Sunset was given to be at 1931 hrs.

Aids to Navigation

In close proximity there were no ground aids to navigation.

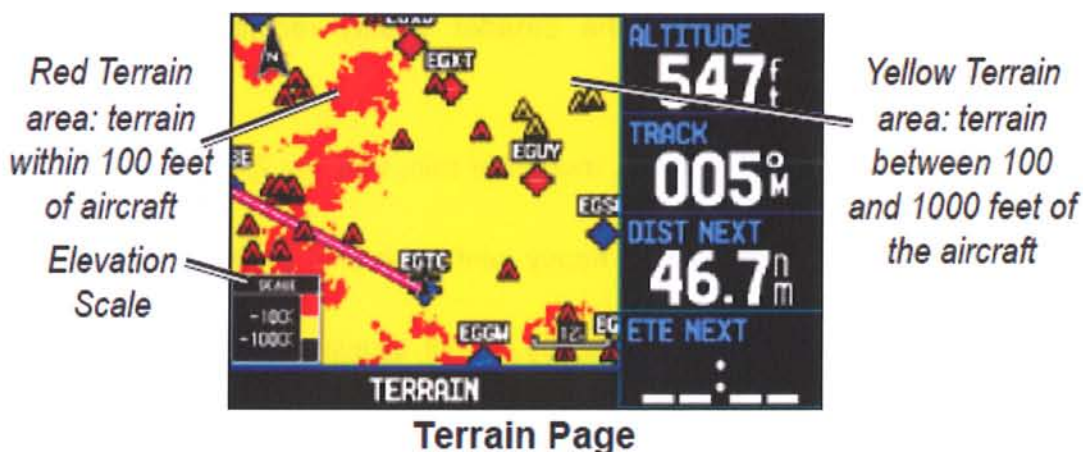
The GPS Garmin GPSMAP 496 on board was equipped with a Jeppesen data base for terrain and obstacles. Alert windows appear on all pages.

According to the manual the following information is available (GPSMAP 496 Owner's Manual, page 36 ff): *"The Terrain Page, available only in Aviation Mode, provides an overhead view of the terrain and obstacles beneath you. Alert windows appear on all pages to inform you of your proximity to the terrain and obstacles, as well as an unsafe descent rate. These alerts depend on user-defined parameters in the Terrain setup."*

"The areas of the terrain shaded red are predicted to be within 100 feet below or above the aircraft. The yellow terrain areas are between the user-defined Caution Elevation and 100 feet below the aircraft. By default, the Caution Elevation is 1,000 feet and 100 feet below the aircraft. The black areas are further than the Caution Elevation. A projected point of impact is marked with an "X" symbol."

"If you are on another page of the GPS MAP 496 unit, Terrain, Obstacles, and Descent Rate Alerts show in the lower-left corner to inform you of the situation. The alert remains on the screen until the flight path has cleared the obstacle or terrain or until you press QUIT."

The settings page allows a deactivation of the warnings.



Example of terrain information on the GPSMAP 496

Source: Manual Garmin GPSMAP 496

In the accident area the Maximum Elevation Figure (MEF) for VFR flights was 2,700 ft AMSL.

Communication

The pilot had the last radio contact with Munich Information. Radio communications were made available to the BFU as transcript.

There was no radio contact with Jena-Schöngleina Airfield.

Aerodrome Information

Jena-Schöngleina Airfield (EDBJ) has an elevation of 1,228 ft (374 m) and has one tarmac runway oriented 02/20 with a length of 1,170 m and a width of 23 m. There also is a grass runway oriented 08/26 with a length of 620 m.

The airfield is certified for VFR day/night.

The Flugleiter on duty stated the airfield was closed at about 1900 hrs.

Flight Recorder

A Garmin GPSMAP 496 was on board of the airplane. The housing of the GPS was fractured and the display smashed. In 2012 the Bureau d'Enquêtes et d'Analyses pour la sécurité de l'aviation civile (French civil aviation safety investigation authority, BEA) was able to read out the GPS with their own software.

Parts of the flight path were also recorded by the radar equipment of the air traffic control service.

The data was recorded and made available to the BFU.

Wreckage and Impact Information

The accident site was located about 20 m below the airfield elevation on a hillside which slopes to the south-east and has a dense, broad-leaved forest with 10 - 15 m high trees. The collision occurred with the tress parallel to the hillside with a south-western heading.



The accident site including the collision direction

Photo: BFU

During the initial collision both wings had their end parts on a length of about 2 m torn off. One of these pieces became stuck in about 5 m in one of the thick treetops. The subsequent collisions also occurred with trees. The impact marks on the trees show a slope angle - compared to the horizontal - of about 25° . The inner wing parts, the tail section, the engine and the fuselage were found distributed in collision direction on the forest soil. The wreckage was distributed over a distance of about 50 m with very little lateral distribution.



High degree of destruction due to the collision with trees

Photo: BFU

Fuselage, wings, landing gear, tail section and control surfaces were either severely damaged or destroyed.

The three propeller blades were torn off in the root area.

The seat belts had been torn out of their mounting points; rescue personnel had cut them.

The antenna of the Emergency Locator Transmitter (ELT) was torn off.

Based on the position of the control lever it was determined that landing gear and flaps were extended.

The fuel system was destroyed; the fuel supply system was on reserve. The float chambers of both carburetors contained fuel. An extra tank - fuel capacity of 36 litres - including hand pump (rubber ball) contained six litres of fuel.

The spark plugs showed a normal combustion pattern.

The electrical equipment was destroyed.

The baggage had a weight of 33,0 kg; the additional tank a weight of 9.3 kg including fuel.

The bodies of the two occupants including safety belts were lying about 9 m away from each other in the area of the main wreckage.

1.13 Medical and Pathological Information

Pilot

According to the autopsy report the pilot died due to the application of blunt force to the head. The direct cause of death was a fracture of the skullcap and the basal skull which caused contusio cerebri including haemorrhage and subdural haemorrhage. Furthermore, at the time of death the bladder was filled with urine (500 ml).

The chemical-toxicological test did not reveal any substance or alcohol-related limitation to the capacity to act.

The pilot had a weight of 83.5 kg.

Passenger

The autopsy of the passenger revealed the impact of severe blunt force to the torso. Vital organs were destroyed.

The passenger had a weight of 86.1 kg.

Fire

There was no evidence of in-flight fire or fire after the impact.

Survival Aspects

The accident was non-survivable for both occupants

The damaged ELT did not send any signals.



Location of the ELT within the wreckage area

Photo: BFU

Additional Information

According to the publications of the Luftfahrt-Bundesamt (LBA) generally foreign aircraft with restricted registration require an entry and an operating permit in Germany. The application has to be submitted at least two full workdays prior to the beginning of the flight. The application has to be accompanied by the following documentation (in English or German):

- Airworthiness Certificate or
Permit to Fly
- Noise Certificate
- Registration Certificate
- Airworthiness Review Certificate
- License of the pilot in command (issued by the State of Registry)
- Certificate of Insurance

Entry was not permitted without a Permission for Entry. The permission was usually granted for the purpose and time period stated in the application but not for more than 180 days per calendar year and it could contain restrictions.

Analysis

For 12 years, the pilot held two foreign pilot's licenses, private pilot's licenses for single-engine piston land and ratings for Visual Flight Rules (VFR) day and night. He did not have an instrument rating. He did not have a Czech license.

Since acquiring the pilot's license in 1997 he had accumulated a flying experience of 435 hours; up until 2001 36 of which were flown according to VFR/Night. Between 2001 and 2005 he did not fly at all. Since May 2005 he had exclusively flown the Europa XS on which he had accumulated 350 hours of flying experience. During this time, on 30 October 2006, only one VFR Night flight of one hour and 30 minutes was conducted. The recordings in the pilot log book ended on 10 May 2009. According to the aircraft log book he had flown further 10 hours between 21 July 2009 and 1 August 2009. Given the winter breaks common for VFR flight operations the pilot had been flying without interruptions. The mean annual flight time since 2005 was about 90 hours. The BFU is of the opinion that it is commensurate with a good training and experience level, especially on the type in question.

The aircraft had a valid certificate of registration and was properly inspected.

The BFU does not understand the fuel reserve especially since the flight manual prohibits its use. No mounting or any other fixing elements were found for the additional tank carried on board the aircraft. The flight manual did not show any indication as to the use of the additional tank either. Due to the high degree of destruction it was not possible to prove the use of the tank during the flight.

The airworthiness certificate stated that because of the special registration as Experimental a Permission for Entry of German airspace was required. The Luftfahrt-Bundesamt (German civil aviation authority, LBA) stated that there was neither a permit to operate the airplane in German airspace nor a refusal of an application. During the preparation phase of the flight, the pilot, who was also manufacturer and operator of the aircraft and, therefore, had substantial knowledge regarding registration requirements, should have become aware that a fundamental prerequisite for flights abroad was not met.

Prior to departure in Hilversum the airplane was refuelled with 62.18 litres fuel. The maximum fuel capacity of the airplane was 68 litres according to the flight manual. The mean consumption during cruise flight was between 11 and 12 litres per hour according to the flight manual. Since take-off, flight time was about 4 hours. Therefore, total consumption was between 44 - 48 litres; since the airplane was operated above MTOM consumption probably was higher. This assumption is documented by the position of the tank selection switch which was in the position reserve. The BFU is of the opinion that the pilot used the entire fuel quantity.

At the time of the accident the loading of the airplane was with 223 kg about 30 kg above the allowable value of 193.4 kg (Pilot: 83.5 kg plus 2 kg clothes (general); passenger - 86.1 kg plus 2 kg clothes (general); baggage - 33.0 kg; additional tank - 9.3 kg; fuel: about 7.0 kg (fuel above reserve). At the time of the accident the MTOM was exceeded by 4.8%.

The BFU did not have any information regarding the meteorological pre-flight preparation available. If the pilot has made himself familiar with the forecast he knew about the expected poor visual meteorological conditions particularly the rain and the low partially layered clouds. The weather conditions prevailing at the time of the accident concurred with the forecast. The pilot had asked for the weather conditions at Karlovy Vary Airport during the flight. Since they did not include the en-route weather conditions, they were no basis for a decision-making process for the continuation of the flight to the intended destination.

The finally chosen destination airport Jena-Schöngleina has a runway approved for Visual Flight Rules Night (VFRN) but was closed about 15 minutes prior to the arrival of the airplane. In addition, visual meteorological conditions did not prevail at the airfield.

The BFU is of the opinion that from 1747 hrs on - at the latest - the conduct of the flight had become more difficult due to the deteriorating visual meteorological conditions, especially the precipitation, and the mountainous terrain.

It is likely that for some time the pilot did not view the situation as an unsolvable problem and, therefore, the setting of a focal point, e.g. a precautionary landing at a suitable field, was not an option.

It cannot be excluded that the filled bladder the autopsy revealed influenced the concentration of the pilot due to the increasing need to urinate.

The weather radar of 1700 hrs showed that when the pilot radioed at 1747 hrs, about 15 NM north-west of Erfurt (EDDE), and asked for the weather information at Karlovy Vary Airport, about 103 NM away, he already flew in light rain. At Erfurt Airport - the closest airport - the cloud base was in about 700 ft; visibility was more than 10 km. The weather data of Karlovy Vary did not meet optimal visual meteorological conditions but were very similar to the conditions in which the pilot already flew at the time. It is possible that at that early stage the pilot would have abandoned the aim to land in Benesov, Czech Republic, had he received a clear indication as to the worsening visual meteorological conditions. But he would have had to be more precise when making his enquiry to FIS. On the other hand, the flight information service did not provide this information and the chance was wasted. Erfurt Airport would have been available as alternate aerodrome.

Until 1830 hrs, the airplane's south-east track and flight altitude remained almost constant. At that time the distance to the destination was still about 115 NM. The subsequent heading change and the decision made at 1834 hrs show that the pilot estimated that the visual meteorological conditions might not be sufficient to continue the flight.

Until 1843 hrs, the pilot could maintain the flight altitude of about 3,600 ft AMSL for the return flight.

The subsequent descent to approximately 1,600 ft AMSL and the information to FIS at 1846 hrs that the VFR flight could no longer be maintained show that the weather conditions in the area had worsened rapidly. It is to be assumed that due to weather conditions the return flight to Erfurt Airport, 36 NM away, was impossible as well.

After 1848 hrs the flight was continued in about 1,600 ft AMSL mainly in valleys; terrain height was up to 1,500 ft. It is likely that the information about the poor visual meteorological conditions at Hof Airport, located south and about 20 NM away, were insignificant to the pilot.

If the terrain and obstacle alerts on the Garmin GPSMAP 496 were activated, commensurate alerts should have been indicated after about 1848 hrs.

At 1849 hrs FIS asked whether the pilot wanted to divert to Gera or Jena but received no answer. It is to be assumed that the pilot did not receive the radio communication due to the low altitude in the mountainous terrain or he was busy with the conduct of the flight and navigation.

After 1852 hrs, the pilot flew east between 1,500 ft AMSL and 1,600 ft AMSL from Neustadt an der Orla to Triptis in a valley which toward the east rises slightly (terrain height about 900 ft rising to 1,200 ft). Shortly before he reached Triptis, he turned back to a western heading and flew back through the valley. It is likely that the poor visual meteorological conditions towards the east were the motivation for the pilot's decision.

Due to the weather conditions two attempts to fly south-east or east failed; return to Erfurt Airport in the north-east was probably impossible or not an option and flying south to Hof Airport was also impossible. At this point the pilot had all knowledge about the weather conditions and a suitable assessment of the situation would have been possible. The terrain surrounding Neustadt an der Orla and Triptis was suitable for a precautionary landing with this type of airplane.

After 1902 hrs, the airplane followed two valleys north and after 8 minutes reached the motorway A4 running crossways to the direction of flight. Initially the pilot followed the motorway directly to Jena-Schöngleina Airfield.

At exactly 1915 hrs the airplane was on the extended centre line 570 m away from runway 02. However, the airplane veered right and remained in the valley south-east of the airport. Witnesses observed it there as it was flying twice very low across a field. The BFU is of the opinion that there was suitable terrain available in this valley also for a precautionary landing due to weather conditions.

After a full right circle the airplane flew towards the hill on the south-east side of the airfield which was in clouds at the time. Under these circumstances the collision with terrain was inevitable.



Approach attempt to Jena-Schöngleina Airfield

Source: Google Earth map service and GPS read-out

Adaption BFU

Sunset was imminent, fuel was probably running very low and the weather limited the conditions for visual flight rules.

The traces on the trees, the high degree of destruction and the characteristic of the wreckage distribution indicate a collision with trees with regular cruise speed and horizontal flight attitude (controlled flight into terrain).

Conclusions

The airplane collided with the terrain because the pilot had infringed the minimum safe altitude and had entered instrument meteorological conditions.

Investigator in charge:	Jens Eisenreich
Radar data read-out:	Philipp Lampert
Field Investigation:	Wolfgang Berger

Braunschweig, 18 March 2013

The investigation has been conducted in compliance with the law relating to the Investigation of Accidents and Incidents associated with the Operation of Civil Aircraft (Flugunfall-Untersuchungsgesetz - FIUUG) dated 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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