Bundesstelle für
Flugunfalluntersuchung

German Federal Bureau of
Aircraft Accident Investigation

Investigation Report

Identification

Type of Occurrence:	Accident
Date:	7 December 2009
Location:	Egelsbach
Aircraft:	Fixed Wing
Manufacturer / Model:	Beechcraft / King Air F90
Injuries to Persons:	Pilot and two occupants fatally injured
Damage:	Aircraft destroyed
Other Damage:	Crop damage
Source of Information:	Investigation by BFU
State File Number:	BFU 3X178-09

Factual Information

History of the Flight

On a flight from Bremen (EDDW) to Frankfurt-Egelsbach (EDFE), a Beechcraft King Air (F90) changed from IFR to VFR rules prior to the final approach, during which it collided with trees, crashing in a wood and catching fire. On board were the pilot and two passengers. The right hand cockpit seat was occupied by a passenger who conducted radio communications.

The approach to runway 27 at EDFE was chosen and executed via the so-called High Performance Aircraft Approach (HPA-approach) as published in the Aeronautical Information Publication (AIP). From 1558 hrs[1] onwards the aircraft was under control by Langen Radar (120.8 MHz), and radar contact was confirmed by the controller. After about six minutes the controller issued the instruction: “[call sign], report if able to cancel IFR”. Subsequently, further instructions were issued to descend to altitude 5,000 ft on QNH 1,012 hPa and fly towards Egelsbach entry point Hotel 1.

About four minutes later the controller gave instructions to descend to 4,000 ft, then 3,000 ft. Simultaneously, clearance was given to fly from entry point Hotel 1 to Hotel 2 and then Hotel 3. When overhead entry point Hotel 2 at 1613 hrs, the King Air reported flight conditions as ‘Victor Mike Charlie’ (VMC – Visual Meteorological Conditions) and the switch to VFR (Visual Flight Rules). At this time, the radar recorded the aircraft’s ground speed as about 180 kt. Langen Radar confirmed the report and gave an instruction to continue the descent and report passing 1,500 ft. About 42 seconds later the pilot was instructed to contact Egelsbach Info (130.9 MHz). The radar trace indicated that at this time the aircraft was at an altitude of about 1,800 ft and about 5.5 NM from the airfield. The ground speed was about 180 kt.

The first radio call from the Beech to Egelsbach Info took place about 15 seconds later at 1615:06 hrs, at an altitude of about 1,500 ft and ground speed of about 190 kt. Egelsbach Info gave the information that the aircraft was north of the approach centreline and asked for a course correction to the left. They further reported the wind as Easterly at 4 knots with Runway 27 in use. After the response “[call sign], thank you” Egelsbach Info responded: “lights and flashes are on“.

During the subsequent approach, the aircraft ground speed reduced over a distance of about 1.3 NM from about 190 kt to about 130 kt (distance to aerodrome about 3 NM). The radar trace indicates that from a position of 3.7 NM from the aerodrome to 2.5 NM from the aerodrome, the aircraft descended from 1,500 ft to 1,000 ft.

At about 1616:03 hrs Egelsbach Info advised: “[…]coming up onto centreline”. This was acknowledged with “[call sign]”, following which Egelsbach Info advised: “you are now on centreline”. This was acknowledged with “thank you very much“.

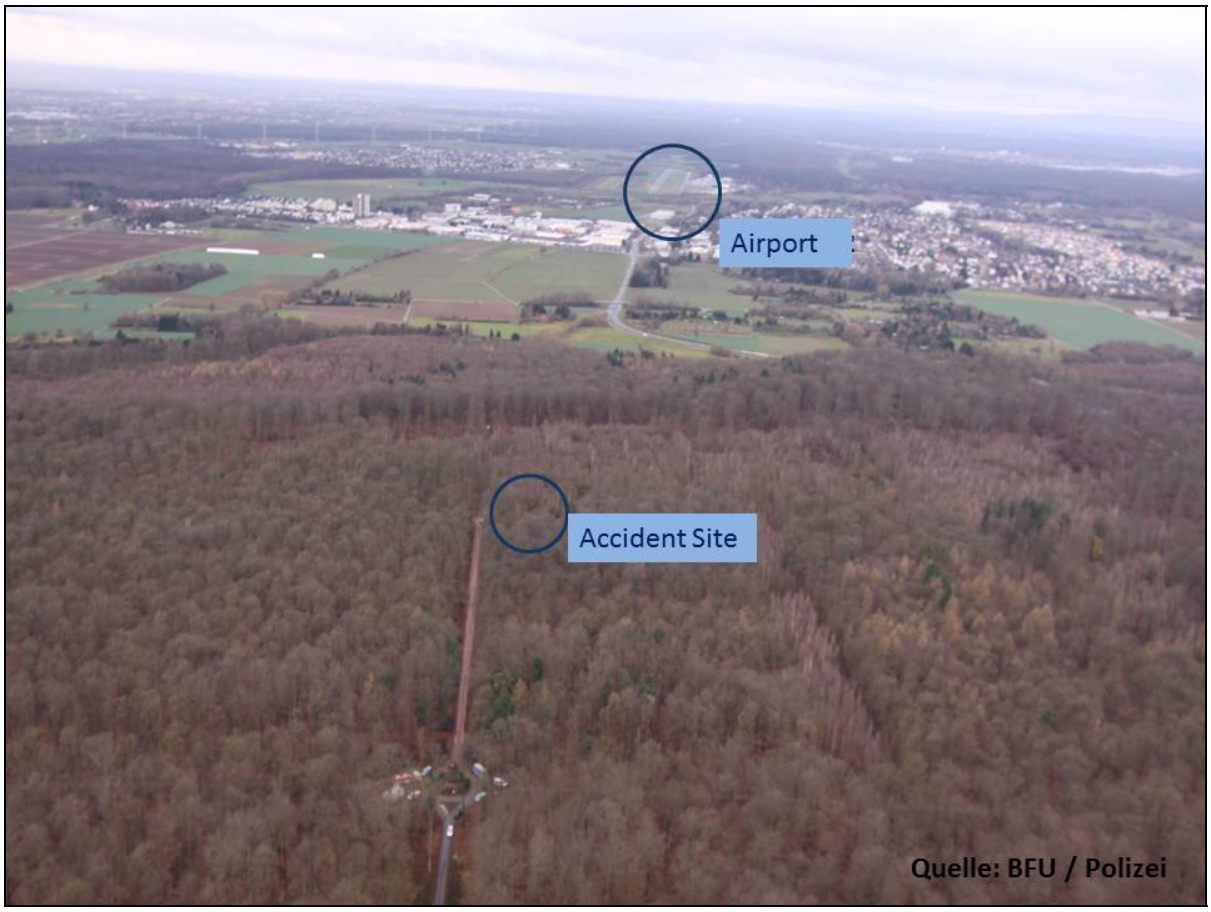
The radar trace indicates that at this time the aircraft descended from 900 ft to 800 ft. When Egelsbach Info advised “check your altitude”, the aircraft was at an altitude of about 800 ft. After a further two seconds, at 1616:18 hrs, the radar data indicated the

[1] all times local unless otherwise stated

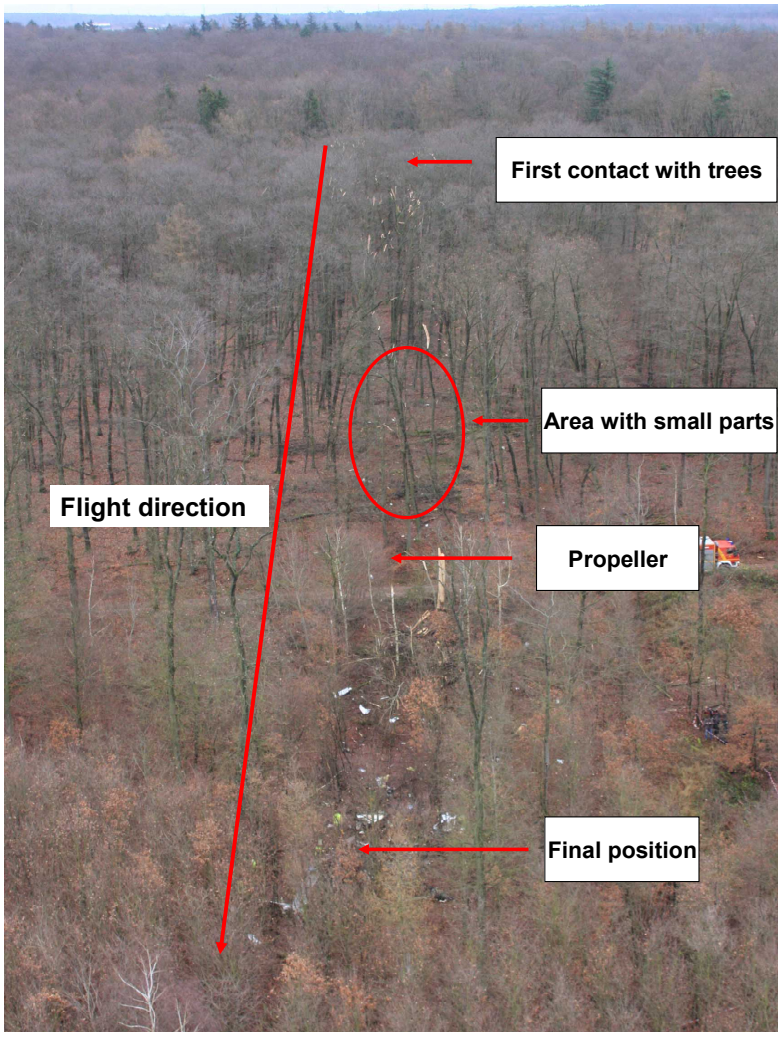
aircraft height as about 700 ft; there was no more indication on the radar screen afterwards. In this area, the terrain is about 620 ft, with trees extending to about 700 ft AMSL.

At 1616:24 hrs the aircraft was requested by Egelsbach Info to alter course slightly to the right. Neither a reply was received to this request nor to a subsequent transmission from Egelsbach Info about 22 seconds later.

Egelsbach Info assumed there had been a crash and alerted the emergency services, the first of which arrived at the accident site at about 1638 hrs and found a burning wreck.



Position accident site – airfield Source: BFU / Police



Accident location Source: BFU / Police

Personnel Information

Pilot in Command (PIC)

The 61 year-old PIC held a Private Pilot's Licence (PPL) issued in accordance with the JAR-FCL (German) and valid to 1 November 2009. He held a Type Rating for the King Air BE90 as PIC valid to 29 November 2010. For the renewal of the licence the required reliability check was missing, which the pilot had not applied for.

He also held Type Ratings for the Cessna Citation C525 as PIC, valid until 16 December 2009, for the Piper PA31/42, valid until 15 November 2010, and for multi-engine piston aircraft (land), valid until 29 November 2010.

He was licensed for flights in accordance with Instrument Flight Rules and CAT 1 landings. Witnesses stated his total flight time as being about 2,200 hours, most of which were flown under IFR conditions. During the previous 90 days he had flown about 16 hours on the aircraft type in question. His last check flight on this type had taken place on 15 November 2009. On the same day a second check flight had taken place which was performed on a Piper PA31T. He had passed both check flights.

He held a Class 2 Medical Certificate valid to 15 February 2010.
Every month the pilot regularly performed IFR-flights. Home base and location of his aircraft was Egelsbach.

Passenger (in the right hand seat of the cockpit)

The 56 year-old passenger was in possession of a valid Private Pilot's Licence (PPL) issued in accordance with JAR-FCL (German) and valid to 1 March 2014. He held a Type Rating as PIC for the King Air BE90 and was licensed for flights in accordance with Instrument Flight Rules and CAT 1 landings. His last check flight on the type in question took place after training on 19 July 2009. The training and check flight had been performed on the aircraft which had the accident.

He held a Class 2 Medical Certificate valid to 28 February 2010. He also held a Flight Radio-Telephony Operator's Licence (AZF) issued on 8 September 1986.

Witnesses identified that passenger as the person who was doing the radio communication.

Egelsbach Info

The 41 year-old Flugleiter (a person required by German regulation at uncontrolled aerodromes to provide aerodrome information service to pilots) had served at Frankfurt-Egelsbach Airfield since February 2000. He was in radio communication with the aircraft.

The 38 year-old second Flugleiter had served at Frankfurt-Egelsbach Airfield since August 2007. He observed arriving and departing traffic at a PC-supported radar display.

Aircraft Information

The Beechcraft King Air BE90 is a low-wing twin-engine aircraft with retractable landing gear. The flight handbook states that it is approved for single-pilot operation.
The aircraft is 12.12 m long, has a wingspan of 13.98 m and height of 4.61 m.

Aircraft manufacturer:	Beechcraft
Type:	King Air F90
Manufacturer serial number:	LA-96
Year of construction:	1981
Maximum take-off weight:	10,950 lbs
Maximum landing weight:	10,950 lbs
Total flight time (airframe):	6,069 hours (as of 13 November 2009)
Total flight cycles:	5,353 (as of 13 November 2009)
Engines:	Pratt & Whitney PT6A-135

According to the inspection certificate the equipment on board approved the aircraft for flights under IFR-conditions. Among other things, the aircraft was equipped with two Garmin GNS 530 and GNS 430 satellite navigation systems (GPS).

The BFU received two inspection certificates dated 9 December 2008. One was valid until October 2009, the other until December 2009.

Maximum Flap Extension/ Extended Speed VFE Approach Position - 32.5% Full Down Position - 100%	 182 142	 184 144	 Do not extend flaps or operate with flaps in prescribed position above these speeds.
Maximum Landing Gear Operating Speed VLO Extension Retraction	 182 164	 184 166	 Do not extend or retract landing gear above the speeds given.
Maximum Landing Gear Extended Speed VLE	182	184	Do not exceed this speed with landing gear extended.

Extract from Pilot´s Operating Handbook, Vol. 1, Section II, Limitations, page 2-5

Meteorological Information

The Meteorological Aerodrome Routine Report (METAR) for Egelsbach at 1550 hrs on 07 December 2009 gave: Wind 080°/2kt; visibility 5,000 m; mist (brume); cloud, few at 500 ft; scattered at 1,000 ft; broken at 25,000 ft; temperature 6°; dew point 6°; QNH 1,012 hPa. The weather report at 1620 hrs was unchanged from 1550 hrs, other than that the wind was 090°/4 kt.

According to the official expert opinion of the Deutscher Wetterdienst (DWD, German Meteorological Service), the General Aviation Forecast (GAFOR) for Central Germany issued at 1000 hrs and valid for the period 1000 hrs to 1900 hrs, described a cold front moving east, followed by an intermediate mass of cooler air. For the afternoon the forecast predicted cloud increasing from the South West with the base at about 3,000 ft Above Mean Sea Level (AMSL). The GAFOR (General Aviation Forecast) issued at 1000 hrs predicted DELTA 1 conditions between 1400 hrs and 1600 hrs for the Rhein-Main area. This is commensurate with horizontal visibility at ground level of better than 8 km and/or a cloud base of 1,000 to 2,000 ft Above Ground Level (AGL).

The GAMET area forecast for the Langen Flight Information Region issued at 1000 hrs for the period 1300 hrs to 1600 hrs gave no significant limitations expected to visibility (less than 5,000 m). Likewise, the GAMET issued at 1600 hrs did not predict any significant reduction to surface visibility prior to 1900 hrs. South of the 51st

degree of latitude the forecast gave the cloud base (five to seven oktas) as 800 ft to 1,000 ft AGL.

Witnesses in a police helicopter described the weather at the time of the accident as follows:

At the airfield the visual flight conditions were absolutely uncomplicated; to the south no relevant clouds were visible. But an extended fog layer started eastwards after overflying the industrial area of Egelsbach and the federal road number 3. *[…] The layer started immediately at the top of the trees and was about 100 to 200 ft thick. Due to this, visibility to the east was zero. […] This was only possible directly at the top of the trees while hovering extremely slowly. Visibility was altering between 50 meters and maximum about 150 meters. The fog layer was present around the helicopter and above. Intermittent we could see blue spots but basically the layer was compact and closed. […]*

Other witnesses stated that they heard the aircraft directly before the crash but did not see it, because visibility overhead the tree tops was impaired by the fog.

Aids to Navigation

A non-directional beacon (NDB) was available at the special airfield but there is no published IFR approach procedure. The NDB was operating at the day of the accident.

Communications

There were continuous communications between the aircraft and the respective ground control stations. Communications were conducted in the English language. Recordings of the interchanges were available for this investigation.

Aerodrome Information

Frankfurt-Egelsbach Special Airfield is at 385 ft AMSL. The special airfield has two runways oriented 09 and 27. One is a 670 m long grass runway, while the second is a hard asphalt runway 1,400 m long and 25 m wide.

At the time of the accident runway 27 was in use without restrictions, the available landing distance was 1,166 m. The NDB was in full operation. The approach lighting for runway 27 was switched on and set at intensity level five (highest). The runway

lighting consisted of PAPI (Precision Approach Path Indicator), threshold lighting, runway edge lighting, plus flashing lights left and right of the runway threshold.

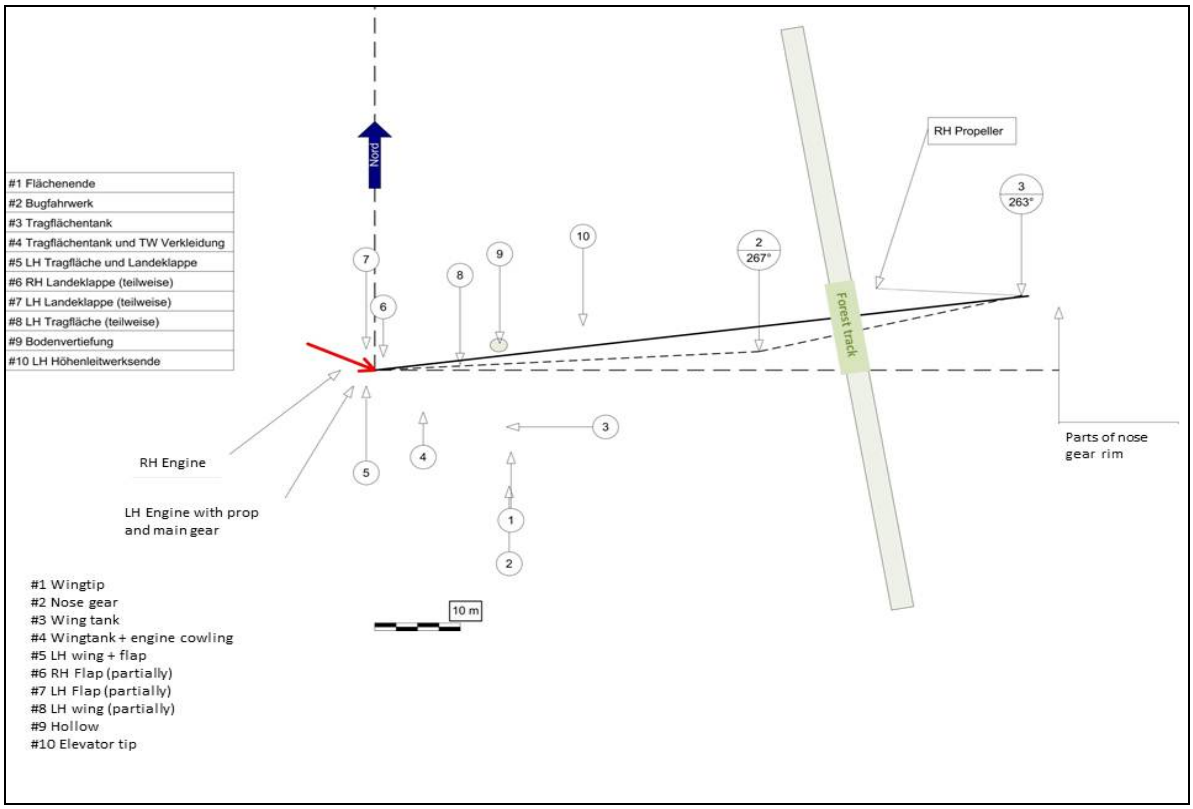
On 8 December 2009 a police helicopter performed a recce flight. The helicopter hovered overhead the accident site and checked the PAPI indications. From the tree tops up to about 1,240 ft AMSL the PAPI showed “red over red”, from there up to about 1,320 ft “red over white”.

Flight Recorders

Flight recorders were not mandatory for the aircraft and none were installed.

Wreckage and Impact Information

The accident site was in a forest about 1.8 NM East of the special airfield and located under the approach path to runway 27. The aircraft had cut a visible lane oriented 259° starting with the initial impact point on the trees, the main wreck coming to rest on the ground after about 153 metres. A trail of components was found along this path including the weather radar, parts of the airframe, engine cowls, landing gear and tailplane. The right hand propeller was found about 60 metres in advance of the main wreckage. Some of the propeller blades been severed about 40 cm from the tip.



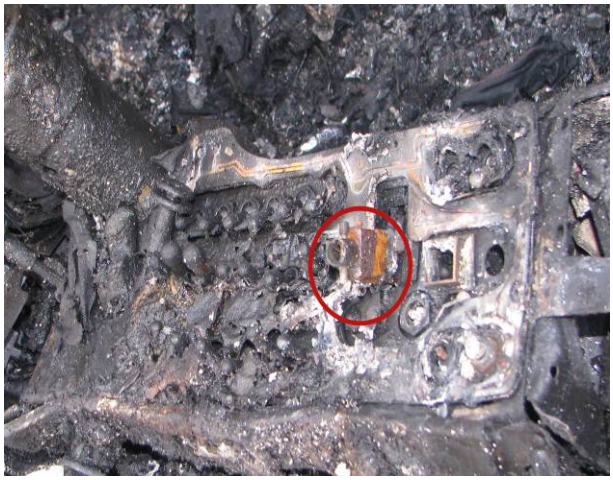
Wreckage distribution Source: BFU

The main wreck was inverted and twisted about 5° to the right in the direction of flight; the cockpit came to rest on a heading of about 084°. The main wreckage area consisted of the wings, the landing gear and the left engine with propeller. Likewise, the tips had been severed from the left propeller and the blades were bent. The right engine had broken away from the wing and came to rest behind the main wreck. The airframe and part of the wings were destroyed by the outbreak of fire.

Crop damage occurred at the accident site. Several trees snapped when the aircraft hit them. Leaking fuel seeped into the ground.

Main wreckage

Right propeller



Gear lever

Cockpit instruments middle

Middle console with engine levers and instruments

Cockpit instruments right

Photos (6): BFU

Medical and Pathological Information

The pilot and the two passengers were fatally injured.

Two days after the accident all persons on board the aircraft were autopsied to determine the cause of death. The following findings were made:

Pilot:

[…] that the deceased person had taken the drug Amantadin which is usually used as Anti-Parkinson medication. […] the intake of the medication did not occur in close proximity to the death. The concentration in the blood from blood vessels was 4.3 mg/l and from the heart 2.3 mg/l and was defined as to be within the toxic range (therapeutic range is according to literature: 0.2 – 1 mg/l).

[…]

Further, the drug Carpidopa together with a degradation product was detected in a urine sample. Carpidopa is an inhibitor of amino acid decarboxylase and is practically only used in combination with the Anti-Parkinson medication Levodopa whose effectiveness it enhances.

[…]

However, the toxicological findings must be interpreted carefully. A possible influence of the thermal exposure or other factors on the post-mortem distribution of Amantadin cannot be excluded, especially because the blood and liver distribution ratio does not coincide with comparable cases. With the determined liver concentration a significantly lower blood concentration would have to be expected which would then be within the therapeutic range.

The toxicological findings showed that the deceased took the Anti-Parkinson medication Amantadin and Carbidopa.

[…]

The low blood alcohol level of 0.25 $^{0}/_{00}$ in combination with a negative finding in the urine (0.02 $^{0}/_{00}$) can result from a recent consumption of a low dosage of alcohol […]

[…]

II. The deceased was probably under the slight influence of alcohol; the alcohol concentration in the blood was 0.25 $^{0}/_{00}$, the concentration in the urine was 0.02 $^{0}/_{00}$. […]

As cause of death a crash / heat / flame trauma was determined.

Passenger in the right cockpit seat:

[…] The ethanol concentration in the blood was 0.21‰ and in the urine 0.00‰. […]

The low blood alcohol level of 0.21‰ in combination with a negative finding in the urine of 0.00‰ can result from a recent consumption of a low dosage of alcohol […]

II. The deceased was probably under the slight influence of alcohol; […]

As cause of death blunt force trauma and crash trauma was determined.

Second passenger:

[…]The ethanol concentration in the blood was 0.41‰ and in the urine 0.02‰. […]

The low blood alcohol level of 0.41‰ in combination with a negative finding in the urine of 0.02‰ can result from a recent consumption of a low dosage of alcohol […]

II. The deceased was under the slight influence of alcohol; […]

As cause of death smoke intoxication was determined.

Fire

Fire broke out around the main wreck and affected an area of about 70 m^2.

Survival Aspects

The aircraft overturned after contact with several trees und crashed upside down into the forest. Thereby, the fuselage pointed towards the direction from which the aircraft came.

As a result of the contact with the trees the aircraft broke apart and caught fire when hitting the ground. Due to the high impact forces, the impact deformation of the aircraft and the severe fire the occupants had no chance to survive the accident.

The rescue team was alerted by the Flugleiter at Egelsbach Special Airfield and by witnesses who were in the forest close to the accident site. At around 1638 hrs the first rescue team reached the site.

Additional Information

Excerpt from the Air Traffic Order:

§ 1 Basic rules for the conduct in air traffic

[…] (3) Whenever someone is handicapped in his performance as pilot of an aircraft or as a crew member by the use of alcoholic beverages or other intoxicating substances or as a result of mental or physical shortcomings, shall not act as pilot or any other crew member.

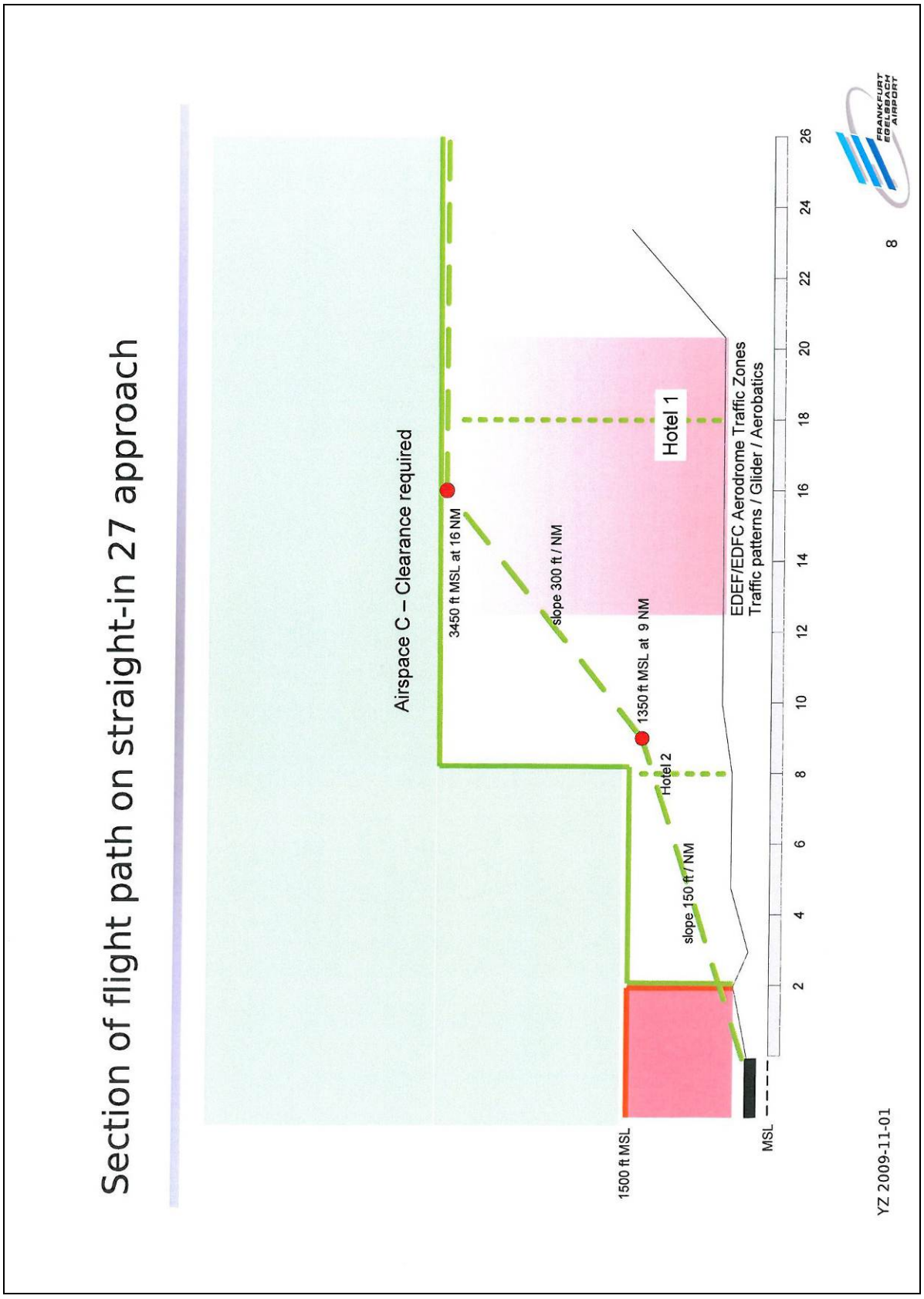
In 1998 a new version of previous flight safety information regarding this particular topic was published by the Luftfahrt-Bundesamt (LBA) (NfL II 24/98); refer to the website of Luftsport Verband Bayern e. V.

The flight accident information V7 of the Aircraft Accident Investigation Bureau at the Luftfahrt-Bundesamt (today BFU) dated July 1982 contains:

[…] According to international aviation medicine a measurable performance impairment of pilots occurs already at a blood alcohol level of 0.2‰ and significant performance impairment occurs at 0.35‰. Total flight inaptitude must be assumed at 0.5‰. The risk value of 0.2‰ for pilots who work in a three-dimensional environment is comparable with the 0.8‰ for car drivers who operate on the ground. […]

Excerpt from „*Frankfurt-Egelsbach Operations for High Performance Aircraft, How to get there and away again*“:

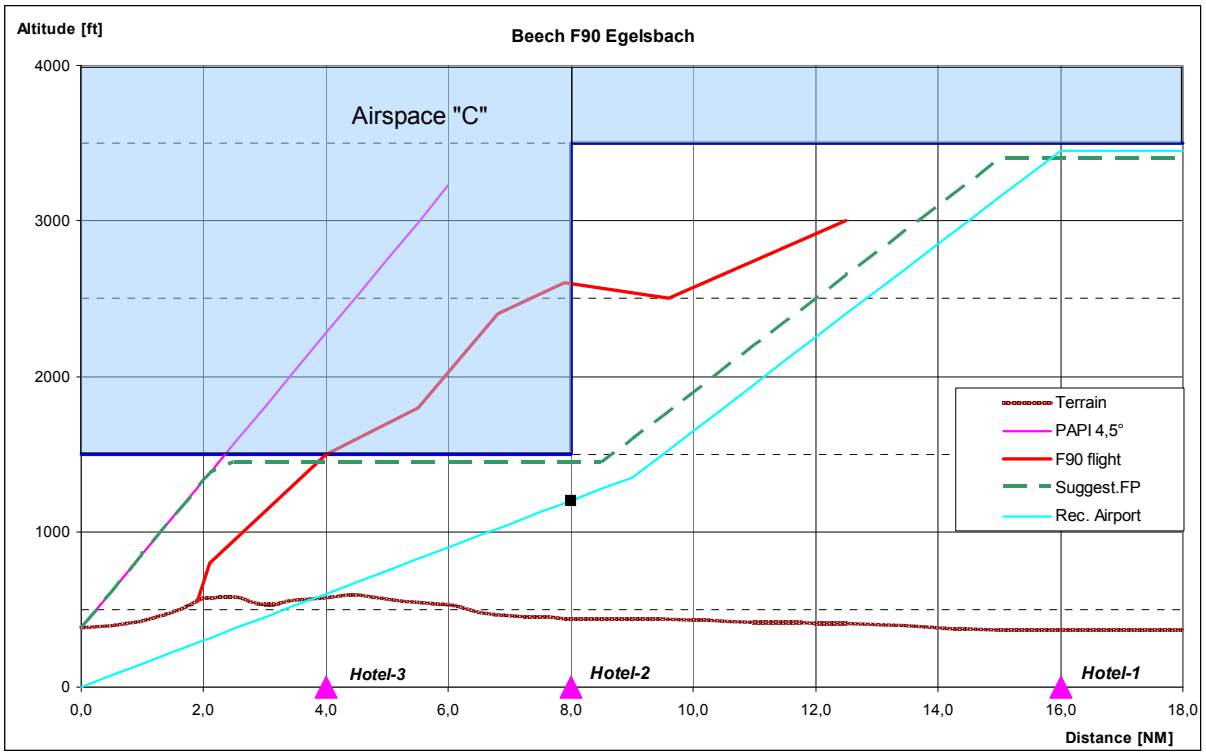
This document, which was published on the homepage of Egelsbach Special Airfield up until about February 2010, showed among other things a vertical approach profile for the HPA-Approach. This profile gave descent specifications from 1,350 ft AMSL to the airport.



Vertical profile HPA-approach EDFE

Source: EDFE Homepage

Demonstration Airspace and Approach Profiles



Source: BFU

Analysis

The flight and the approach to Egelsbach were uneventful and adhered to regulations until the accident. For the approach to runway 27 the HPA-Appraoch was chosen which is consistent with the speed and size of the aircraft.

Weather Situation:

According to the DWD, an individual meteorological flight briefing prior to departure in Bremen was not obtained.

According to the expert opinion of the DWD and witness statements, an extended fog layer hung above the accident site. In about 1,500 ft, however, visibility was good with scattered clouds and therefore a VFR approach quite possible. Due to the descent the aircraft entered the fog whereby ground and flight visibility were for the pilot no longer given. It must be assumed that the airfield and the runway lighting were not visible for the pilot.

Airfield

At the time of the accident, the airfield was in unrestricted operation for approach and landing and the entire lighting was turned to the highest level.

Whether or not the NDB or the on-board GPS were used for the approach could not be determined due to the severe damage to the cockpit.

Approach

A ground speed of about 180 – 190 kt was recorded during the approach. According to the expert opinion of the DWD the wind came from East to North with 2 – 3 kt. Therefore ground speed was about the same as the Indicated Airspeed (IAS). Given a v_{ref} of about 105 kt (flaps 100%) for the landing, the flown speed has to be considered as too high for the weather situation and the distance to the airfield.

The descent was initiated at about 1,400 ft and a distance of 3.2 NM to the airfield shortly after reporting point Hotel 3 and carried out with about 1,400 ft/min down to an altitude of 700 ft, despite the fact that the terrain in this area including trees had a height of about 700 ft. It can be assumed that thereby the descent carried the aircraft into the fog / cloud layer above the forest. The ground speed remained high (about 130 kt). In Egelsbach the PAPI is calibrated with an approach angle of 4.5°. The approach with a descent rate of 1,400 ft/min was not to be initiated until a distance of about 2 NM. This position is almost identical with the accident site.

According to weather report and witness statements, beyond the forest, about 0.3 NM later, visibility would have been unlimited in any flight altitude. The descent was initiated too early and speed and descent rate too high. Based on weather data and witness statements it is to be assumed that the descent led into the fog layer. Since the flight was at this time conducted according to VFR, the descent should have been initiated later in order to remain in Visual Meteorological Conditions (VMC) and to establish or maintain visual contact with the airfield. From a height just above the trees, the airfield and PAPI are visible in VMC without restrictions.

Based on the visibility the descent should have been initiated at 1,500 ft, a distance to the airfield of about 2 NM and with a rate of descent of 850 ft/min (ground speed 100 kt) in order to eliminate the altitude difference of about 1,000 ft to the airfield in about one minute and ten seconds. Had the descent been initiated at a distance to

the airfield of 2 NM, the pilot could have seen and discerned the approach and runway lighting and the PAPI.

As the police recce flight determined, in VMC the PAPI would have shown the pilot that his approach was significantly too low.

Whether or not the on-board GPS was used for navigation could not be determined because of the high degree of damage. It is certain, however, that had the equipment been used the position of the aircraft would have been clearly indicated.

Occupants

Based on the PIC's total flight time and the regularly conducted flights, his experience is to be considered as relatively high given that he held a PPL. He had flown the King Air since about 1993 and was therefore familiar with the type. It is further to be assumed that he was very familiar with the terrain since Egelsbach was his home base.

The PIC's type rating was valid at the day of the accident. About three weeks prior to the accident two check flights including IFR on two different aircraft types had taken place both of which he had passed. According to the check pilots' statements the respective check flights were uneventful and the aircraft was safely controlled at all times. Therefore it can be assumed that the pilot was generally able to safely control the aircraft.

However, at the time of the accident his licence had expired five weeks before and therefore he should not have flown the aircraft.

The intake of alcohol and medication by the pilot were in disagreement with the Air Traffic Order. Consequently piloting the aircraft was prohibited according to effective regulation. Based on the influence of alcohol and medication performance impairment is likely, as was described in the NfL II 24/98.

During the approach the situational awareness of the pilot was at least in regard to the flight altitude and distance to the airfield insufficient. The reasons are most likely consumption of alcohol and a resulting blood alcohol level of $0.25\,^0/_{00}$.

The passenger in the right-hand cockpit seat held a PPL since 1988 and since 2009 a type rating for the King Air. Since Egelsbach was also his home base and the type rating training had taken place there, it is safe to assume that he was familiar with the terrain. Therefore the position of the aircraft in regard to the airfield and the early descent could have been detected by him. Due to his aeronautical qualification and the

fact that he was familiar with the aircraft he would have had the possibility to intervene when a critical situation arose or to prevent an accident. Based on the determined blood alcohol level a lack of concentration and performance impairment can be assumed as well.

According to the autopsy report, the blood alcohol level determined in the body of all three occupants and the absence of alcohol in the urine allows the conclusion that alcohol was consumed 30 minutes prior to death, i.e. during the flight. Since all occupants had consumed alcohol, the conclusion can be drawn that the atmosphere aboard was rather relaxed which led to a lack of concentration and performance impairment during the final approach.

Aircraft

The certificate of inspection was issued by a maintenance organisation on 9 December 2008 and only valid until October 2009. Consequently the aircraft should not have been flown.

After an interview conducted by the BFU in said maintenance organisation, a second certificate of inspection was handed over with a validity date December 2009. Since the BFU was provided with the second certificate of inspection only after the interview, there are doubts as to its validity.

Which of the two certificates really was valid could not be determined with absolute certainty.

The BFU investigation did not determine any evidence of technical defects on the aircraft. Witness statements, traces on the propellers and the recorded ground speed suggest that both engines were running at the time of the accident. The settings of the flaps could not be determined; as far as "*limitations*" are concerned each setting would have been possible. At the time of the accident, the landing gear was extended. Based on the flight path determined by the radar data, the accident site characteristics and the fact that the passenger in the right-hand seat had only seconds prior to the accident talked on the radio suggest that at the time of initial contact with treetops the aircraft was fully controllable and under control of the pilot.

Flugleiter

Both Flugleiter at the special airfield were qualified for the work place and had sufficient experience. The support given to the pilot regarding flight path and wind information served as orientation for the approach and has to be rated as positive.

Approach Profile

The vertical approach profile on the homepage of Egelsbach Airfield was inaccurate concerning the final approach. Because a descent to 0 ft AMSL was calculated, this particular profile with a descent rate of 150 ft/min would have led directly into the ground and therefore to a crash at about 4 NM before the airfield. At a distance to the airfield of about 2 NM flight altitude would have been 300 ft. This equals about 400 ft below terrain height.

It is to be regarded as positive that the document was initially amended – issue date 25 February 2010 – and finally removed from the homepage.

The flown approach profile of the King Air did not correspond to the published suggestion.

A possibly forgotten altimeter correction from QNE (1,013 hPa) to QNH (1,012 hPa) would have made not much difference in altitude indication in this case because a difference of 1 hPa equals about 30 ft. A wrong altimeter setting can therefore be excluded as cause for the accident.

Conclusions

Findings

The rate of descent of the aircraft was too high.

The descent led – at least for a short time period – into fog and VFR flight was therefore no longer possible.

The continued descent was carried out without visual contact with the runway or PAPI.

A go-around or climb after entering the fog layer was not carried out.

The approach speed was too high for the prevailing visibility and weather conditions.

Intake of alcohol and medication led to performance impairment.

Piloting the aircraft without a valid licence was in disagreement with regulations.

The use of GPS equipment would have confirmed the aircraft's position in relation to the airfield.

Causes

The accident was caused by the descent during final approach which led into a fog layer and obstacles.

Contributing factors were:

- a too high descent rate
- an impaired performance and an insufficient situational awareness favoured by the intake of alcohol
- that no visual contact with the PAPI or airfield was established
- that the on-board aids to navigation were not or not sufficiently used.

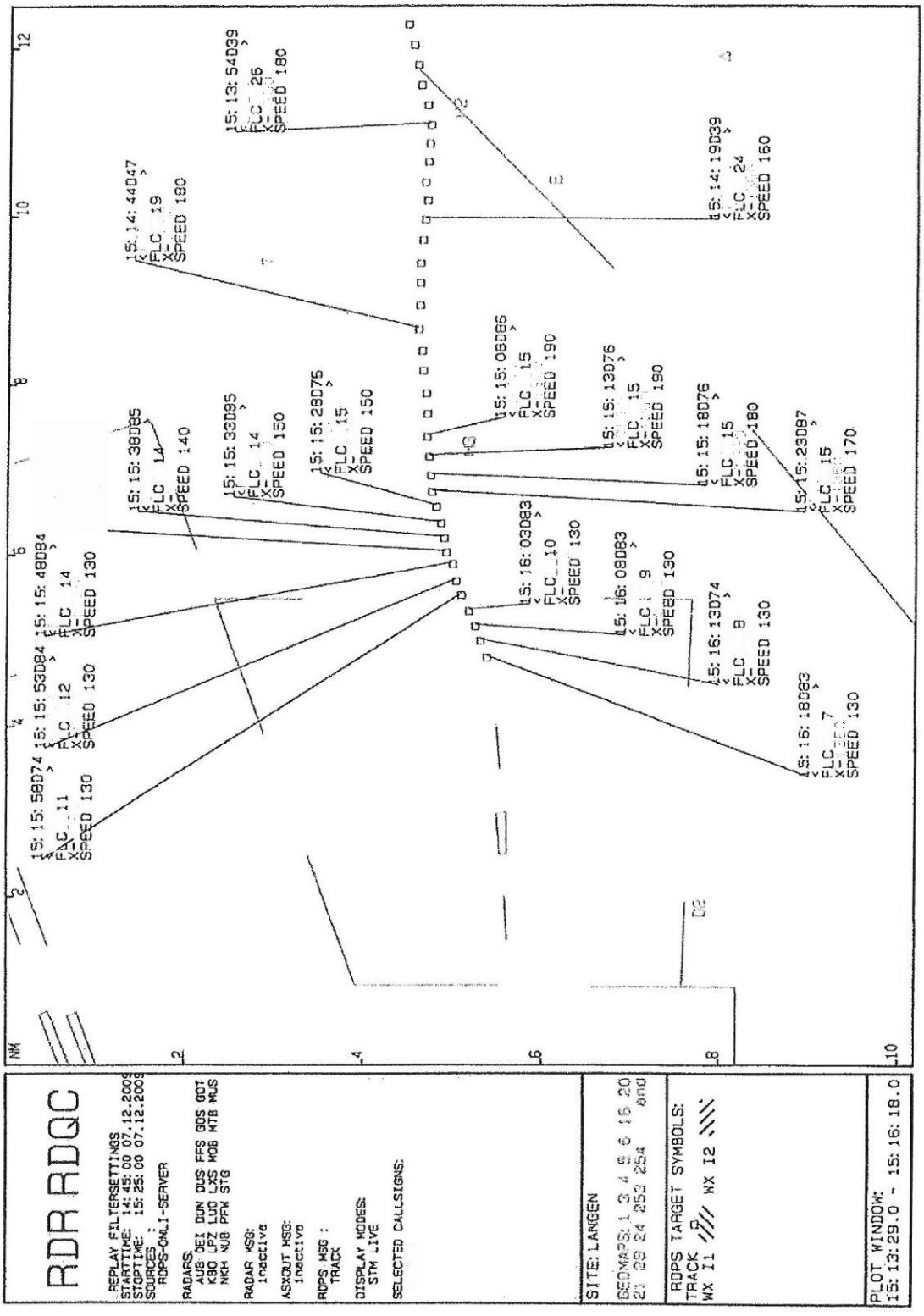
Investigator in charge:	Andreas Bresky
Assistance:	J. Friedemann, T. Karge, P. Lampert
Field investigation:	A. Bresky, J. Friedemann, T. Karge
Braunschweig:	30.06.2011

Appendices

Appendix 1: Radar Traces Recorded by German Air Traffic Control (DFS)

Appendix 2: Wreckage Distribution, BFU

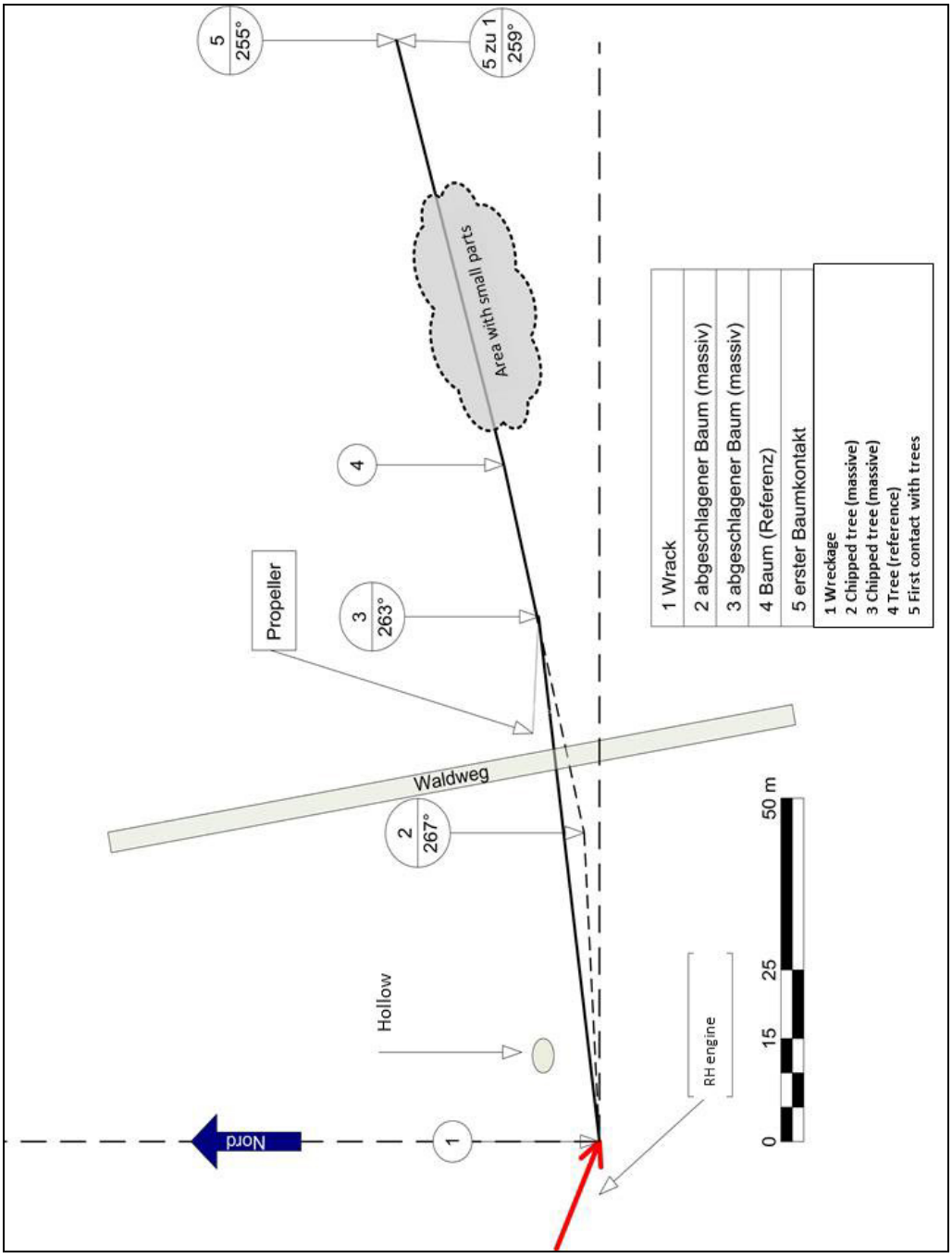
Appendix 1



Source: DFS

Radar traces

Appendix 2



Source: BFU

Wreckage Distribution

This investigation was conducted in accordance with 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:

Bundesstelle für
Flugunfalluntersuchung
Hermann-Blenk-Str. 16

38108 Braunschweig

Phone 0 531 35 48 - 0
Fax 0 531 35 48 - 246

Mail box@bfu-web.de
Internet www.bfu-web.de