

# Interim Report

## Identification

Type of Occurrence:	Accident
Date:	27 September 2012
Location:	Warbelow near Gnoien
Aircraft:	Airplane
Manufacturer / Model:	Pilatus / PC-9/B
Injuries to Persons:	Both pilots fatally injured
Damage:	Aircraft destroyed
Other Damage:	None
Information Source:	Investigation by BFU
State File Number:	BFU 3X146-12
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## Factual Information

During a military exercise a formation consisting of two civilian Pilatus PC-9/B airplanes was to fly simulated attacks of ground anti-aircraft forces. The PC-9/B flying in position two suffered a bird strike. The impact with the ground caused fatal injuries to the two pilots.

## History of the Flight

At 1225 hrs<sup>1</sup> the two Pilatus PC-9 took off from Neubrandenburg Airport. The flight led to a Bundeswehr (German Federal Armed Forces) exercise area for anti-aircraft forces about 30 km north of Rostock-Laage Airport.

At 1229:23 hrs the formation leader contacted military air traffic control on the respective frequency. He told the controller: „[...] coming in as flight for stinger operation.” The controller asked: „Okay SR copied, confirm you will stay in close formation all the time?” He received the answer: “That is affirmative, trailing formation by half a mile most of the time.”

At 1311:34 hrs conversations between ground stations began that a PC-9 had crashed. At 1313:05 hrs the controller informed the formation leader about the crash report and asked: „ ...confirm that’s a fake?” The formation leader began the search for the other airplane and tried to establish radio contact. At 1320:41 hrs the formation leader informed the controller that he had found the accident site and passed on the coordinates.

The BFU has statements of three soldiers all of whom had been working as troop leaders for the anti-aircraft forces. One of the three soldiers had seen the approaching aircraft through his binoculars; the two others had seen them with their naked eyes. The two airplanes had been seen above a forest and had approached from the south and the second airplane flew offset behind the first. The left airplane - from the witnesses' point of view - turned east. At the same time, the right airplane turned west, pulled up briefly, rolled and then crashed.

The pilot leading the PC-9 formation stated that the plan was that the second airplane should follow the first with a distance of about 0.5 to 1 Nautical Mile (NM) in order to fly independent attacks and to give the ground anti-aircraft forces the chance of changing targets. The crew stated that after the controller had informed them of the observed crash they began the search for the second airplane. After they had found the accident site they had reported the coordinates to air traffic control and circled above the accident site until a SAR and a police helicopter arrived. Then the aircraft flew to the home base where it landed at 1408 hrs.

One witness was close to a forest. He saw that the airplane flew in low altitude and approached from the south-east. The witness stated that in the forest close to a chicken farm two or three pairs of birds of prey had their nests; he specified them as

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<sup>1</sup> All times local, unless otherwise stated.

sea eagles. He stated that about 5 to 6 of them flew toward the airplane. He then saw that the airplane collided with one bird and fell toward the ground until it disappeared behind the forest.

The aircraft impacted a field. The two occupants suffered fatal injuries; the airplane was destroyed.

## Personnel Information

### Pilot in Command (PIC)

The 57-year-old PIC held an Commercial Pilot's License (CPL(A)) initially issued on 11 February 1997 according to JAR-FCL German and valid until 22 November 2015. His license carried the type ratings for PC9/PC7MKII (valid until 16 April 2013) and the instrument rating. His medical class 1 certificate was issued on 6 October 2011 and valid until 10 October 2012.

The pilot had a total flying experience of 7,893 hours; 1,393 hours of which were on the type in question. In 2012 he had flown 251 hours on the type.

### Second pilot

The 59-year-old pilot held an Airline Transport Pilot's License (ATPL A)) issued in accordance with ICAO; initially issued on 7 September 1994 and valid until 28 December 2014. His license carried the type ratings for PC9/PC7MKII (valid until 28 December 2012), the instrument rating and the ratings for aerobatics and towing of targets.

His medical class 1 certificate was issued on 19 December 2011 and valid until 28 January 2013.

The pilot had a total flying experience of 8,996 hours; 2,052 hours of which were on the type in question. In 2012 he had flown about 270 hours on the type.

## Aircraft Information

According to the Type Certificate Data Sheet the Pilatus PC-9/B is a single-engine low wing airplane in all-metal construction with a tiered two-seat cockpit in tandem arrangement and a retractable landing gear. The aircraft was powered by a turboprop engine. The aircraft had a valid German certificate of registration as civilian airplane.

Manufacturer:	Pilatus
Type:	PC-9/B
Manufacturer's Serial Number (MSN):	167
Year of manufacture:	1990
MTOM:	2,500 kg
Engine:	Pratt & Whitney Canada PT6A-62
Propeller:	HC-D4N-2A/D9512

Total operating hours of the aircraft were 6,159 hours at 3,544 cycles.

On 22 November 2011 an Airworthiness Review Certificate was last issued. On 20 September 2012, at 6,142 aircraft operating hours, a 150-hour check was conducted.

The airplane was equipped with two Bendix/King KLN-900 satellite navigation systems. A Kannad 406 AF was installed as Emergency Locator Transmitter (ELT). The ELT was installed in the aft fuselage and attached to an antenna located in the vertical tail.

### Ejection Seats

The aircraft was equipped with two Martin Baker Mk11 ejection seats. According to the Type Certificate Data Sheet of the PC-9 of the Federal Office of Civil Aviation (FOCA) (Switzerland) the seats could be operated between 60-400 KEAS and between 0 and 40,000 ft.

The Command Selector Valve was located in the aft cockpit. The valve could be selected to the "ON" position so that both seats could be activated from the aft pilot seat. In the valve position "OFF" the ejection seats could be activated individually. The Seat Firing Handle was located in the middle of the front of the seat. On the ground, the seat firing handle could be secured with a safety pin. Each of the two ejection seats was fitted with a total of nine cartridges.

### Meteorological Information

At the time of the accident daylight and visual meteorological conditions prevailed.

According to the Deutscher Wetterdienst (German meteorological service provider, DWD) the following weather conditions prevailed at Rostock-Laage Airport at 1300 hrs:

Wind: 210°/ 9 kt  
Visibility: 20 km  
Clouds: 4 oktas in 3,000 ft AGL  
Temperature: 15°C  
Barometric air pressure (QNH): 1,004 hPa

At Neubrandenburg Airport the following weather conditions prevailed at 1300 hrs:

Wind: 230°/ 13 kt  
Visibility: 18 km  
Clouds: 5 oktas in 2,100 ft AGL and 6 oktas in 2,600 ft AGL  
Temperature: 14°C

## Communication

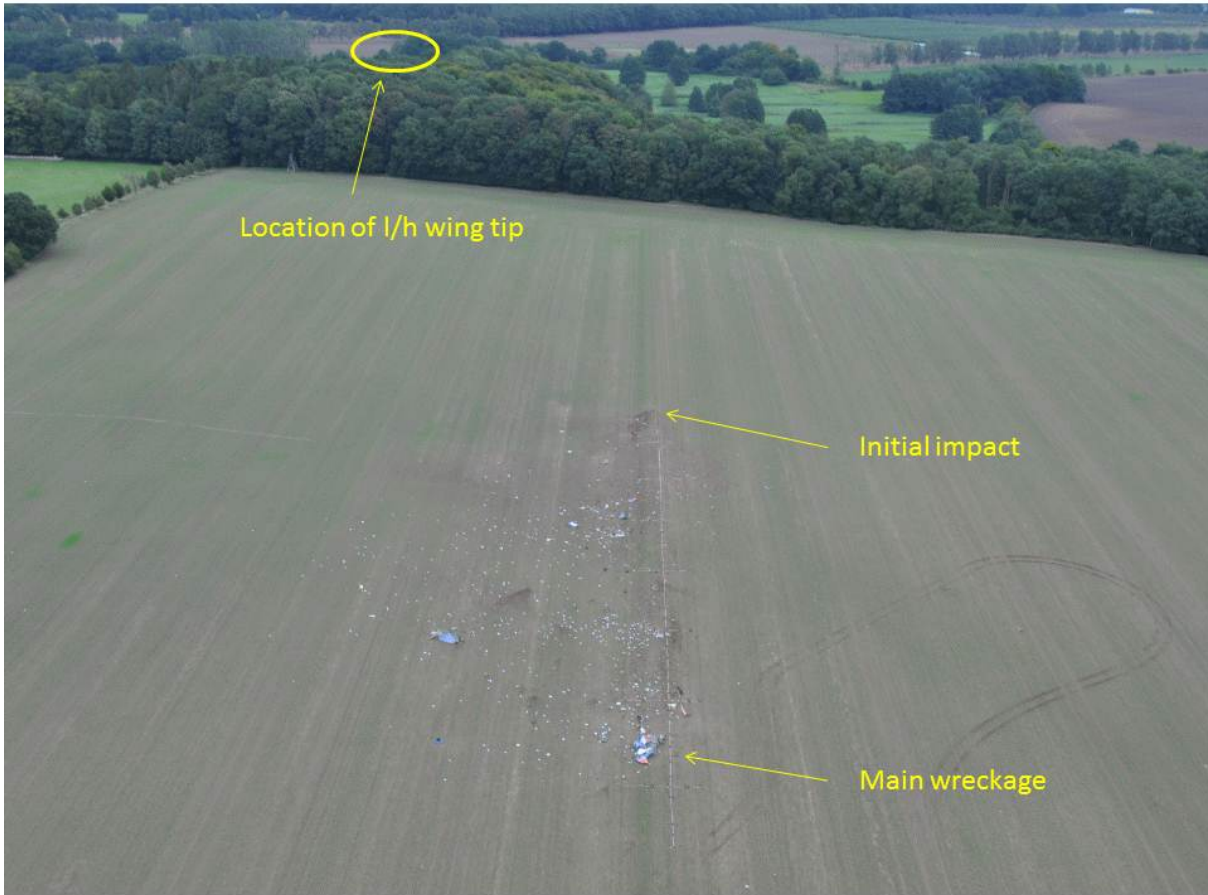
Radio communications between the formation leader and the military air traffic control and the coordination between the air traffic control and the military exercise instructor were recorded and made available to the BFU for investigation purposes.

## Flight Data Recording

The Bundeswehr made the recorded radar data available to the BFU for analysis purposes. The data consisted of secondary radar data of the leading aircraft.

## Wreckage and Impact Information

With a heading of about 290° the airplane impacted a tilled field about 225 m north-west of a mixed forest. The initial ground contact occurred with the left wing. In this area the left aileron, parts of the left horizontal tail and one propeller blade were found, among others.



View from the opposite approach direction

Photo: Police/BFU

Next to the left aileron a large cadaver part (56 x 20 x 10 cm) of a bird of prey of about 1.26 kg was found. The bird of prey was identified as an osprey.



Accident site, view to the south-east, bird cadaver, left aileron and propeller blade

Photo: Police

About 50 m from the initial point of impact the right aileron, parts of the upper surface of the left wing and the left main landing gear leg were found. The elevator and parts of the right outer wing were found about 60 m north-west of the point of initial impact.

The instrument panel of the front cockpit was found about 80 m from the initial point of impact.

The two ejection seats with the deceased pilots were found about 125 m from the initial point of impact; about 5 and 10 m, respectively, south-east of the main wreckage.

The main wreckage with the engine, the nose landing gear fuselage and the vertical tail were found about 130 m from the initial point of impact. The instrument panel of the aft cockpit was found about 5 m north of the main wreckage.



Part of the wing with traces of blood on the inner surface

Photo: BFU

In a forest about 500 m east of the initial point of impact of the main wreckage a part of the left wing was found. It was the wing tip which had been torn off along a row of rivets about 0.70 m from the tip. The upper surface of the wing leading edge showed a dent which was about 15 x 15 cm wide and about 5 cm deep. The wing covering was severed along a row of rivets which ran along a rib. The main spar was fractured. The inside of the wing upper surface showed traces of blood.

The safety pins on the firing handle of both ejection seats had been removed. One of the safety pins was found in the holder on the frame of the canopy as was intended. The Command Selector Valve in the aft cockpit for the activation of the ejection seats was in the "OFF" position. All cartridges in the airplane and the two ejection seats carried the hand-written sign 06/14.

The firing handle of the front ejection seat was torn off.

The switch for the ELT was in the "ARMED" position. The ELT was found about 8 m south-east of the main wreckage and broadcasting. The antenna cable was torn off.

## Fire

There was no fire.

Investigator in charge: Jens Friedemann

Field Investigation: Jens Eisenreich, Dietmar Nehmsch, Andreas Seidemann

This investigation is 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 - FIUUG*) 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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