

**Ref. No 554/04/ZZ**

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# **FINAL REPORT**

**concerning the incident  
of the BAe 146-300 aircraft  
reg. D – AWBA  
at LKKU on 30. December 2004**

Prague  
June 2005

## **A) Introduction**

Operator: WDL Aviation GmbH & CO. KG  
Aircraft type: BAe 146 - 300  
Place of Incident: Runway 21C at Kunovice Airport (LKKU)  
Date and Time: 31. December 2004, 12:35 (All times in this report are UTC)

## **B) Synopsis**

On 30. December 2004, 14:00 UTC Air Accidents Investigation Institute (AII) received an notification about an incident of the BAe 146-300 plane, reg. D - AWBA of the company WDL Aviation GmbH & CO. KG. t RWY 21C the tail fuselage touched the RWY surface when the plane was taking off. After landing the tail fuselage was found damaged.

The cause of the incident was investigated by an AII commission comprising:

Investigator in charge: Milan Pecník  
Member: Ing. Lubomír Střihavka

The Final report was released by:

Air Accidents Investigation Institute  
Beranových 130  
199 01 PRAHA 99

On the 7. June 2005

## **C) The Final report includes the following main parts:**

- 1) Factual information
- 2) Analysis
- 3) Conclusions
- 4) Safety recommendation
- 5) Annexes (to copy No.1 stored in UZPLN archive)

## **1 Factual information**

### **1.1 History of the incident**

As the BAe 146-300 registration mark D – AWBE took off, the tower executive controller (TEC) LKKU spotted a smoky cloud behind the airplane. TEC thought that the tail might have brushed the RWY concrete surface and informed the plane crew about his suspicion. CPT decided to return to the airport of departure. After landing the tail part of the fuselage was found damaged.

## 1.2 Injuries to persons

Injuries	Crew	Passengers	Others
Fatal	0	0	0
Serious	0	0	0
Minor	0	0	0
None	5	0	0

## 1.3 Damage to aircraft

The BAe Systems (Operations) Limited, Prestwick, Scotland, U.K. examined the damage with the result that it was only slight and had no effect on the fuselage internal structure. Solely the protecting scrape indicator on the low side of the tail fuselage was markedly damaged. The slightly abraded fuselage skin was repaired with a colour paint using a method recommended by the aircraft manufacturer.

## 1.4 Other damage

There was no other damage.

## 1.5 Personnel information

### 1.5.1 General

	CPT	F/O
Age	37	34
Total Flying Hours	5 360	2 800
On BAe 146	1630	1 700

### 1.5.2 The Captain

was at the time of the incident Pilot Not Flying. He was properly certificated as he held a valid Airline Transport Pilot License (ATPL). The CPT had a valid First Class medical certificate.

### 1.5.3 The First Officer

was at the time of the incident Pilot Flying. He was properly certificated as he held a valid Airline Transport Pilot License (ATPL). The F/O had a valid First Class medical certificate.

1.5.4 The crew's duty time and rest time confirmed to German national regulation.

## 1.6 Aircraft information

### 1.6.1 General

Type and Model:	BAe 146-300
Registration:	D - AWBA
Manufacturer:	British Aerospace Regional Aircraft Ltd. AVRO International Aerospace Division, Vereinigtes Königreich
Serial Numer:	E 3134
Certificate of Airworthiness:	valid
Total Airframe Time:	31 376 hours, 33 488 cycles

### 1.6.2 Aircraft maintenance

The aircraft was properly certificated and had been maintained in accordance with approved procedures.

### **1.7 Meteorological information**

Following the incident at LKKU an aftercast was obtained from The Czech Hydrometeorological Institute of Air Weather Service.

The surface winds: 320°/ 03 kt  
The visibility: more than 10 km  
The clouds: FEW 016, OVC 031,  
The temperature: +03°C  
QNH : 1031 hPa

### **1.8 Aids to navigation**

Radio-navigation had no effect on the incident.

### **1.9 Communications**

The radio communications between the aircraft and TEC was faultless from the start of taxiing till the end of the flight.

### **1.10 Aerodrome information**

The Kunovice airport - international airport - was operational at the time of the incident. RWY 21C / 03C, size 2000 x 30 m, surface – concrete.

### **1.11 Flight recorders**

The DFDR transcript was handed over for evaluation to UZPLN following the plane's technical flyover from LKKU to the home base WDL Aviation – Cologne where the operator has technical means to read DFDR flight data.

There follows from the DFDR records and "WEIGHT AND BALANCE BAe 146-300" protocol that the crew has filed and bugged the aircraft with 35.000kg TOW for 24° flaps setting, but the actual takeoff was made with 18° flaps only thus giving them approximately 10 kts speed too less for the actual flaps settings.

The CVR transcript that remained in the store was not actual because it was deleted during the flyover.

### **1.12 Description of incident site**

The incident took place at RWY 21C.

### **1.13 Medical and pathological information**

NIL

### **1.14 Fire**

NIL

#### **1.15 Survival aspects**

NIL

#### **1.16 Tests and research**

NIL

#### **1.17 Organizational and management information**

NIL

#### **1.18 Additional information**

According to L 13 Regulation, Par. 4.1 a report on the incident was sent to ICAO, Germany ( State of the Operator and of Registry), Great Britain ( State of Manufacture) on 3. January 2005.

With regard to the facts revealed at technical examination before the repair (see 1.3 Aircraft Damage) the commission requalified the event from a serious incident to an incident.

#### **1.19 Useful or effective investigation techniques**

The incident has been investigated in accordance with Annex 13.

## **2 Analysis**

- CPT and F/O had valid ATPLs and valid medical certificates;
- other crew members had no effect on the event;
- the airport of takeoff and landing had no effect on the event;
- the airplane was maintained according to valid regulations and was without any defects before the flight;
- the weather was good for the flight having no effect on the incident;
- the take-off was executed with the flaps set wrong at 18° only, with the  $v_R$  velocity corresponding to 24° flaps setting.

## **3 Conclusions**

The incident was due to a low velocity  $v_R$  for actual flap setting, which caused the tailstrike.

## **4 Safety recommendantions**

Corrective measures are up to the aircraft operator.